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Climate Change: International Law and Global Governance

Volume I: Legal Responses and Global
Responsibility



Nomos

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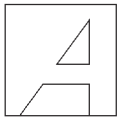
Climate Change: International Law and Global Governance

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Global Responsibility



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FOREWORD

It is with great pleasure and honour that I am writing a foreword for this eminent work, which seeks to promote the international rule of law, contribute to durable global peace, avoid conflict, lead to more effective protection of human rights, as well as sustain economic progress and development.

The two volumes of *Climate Change: International Law and Global Governance* describe important topics in respect to mankind and the future that lies ahead. Perhaps, the most important topics are the regulatory and diplomatic aspects of climate change.

In June 2013, UN Secretary-General Ban Ki-moon said “the scientific community plays a key role in finding new ways to combat climate change.” When looking at this publication I must add that the same issue, most likely, also applies to the legal community! It serves as a valuable tool in harnessing the full strength of the global community, catalysing ambitious action, persuading the reduction of emissions, and strengthening climate resilience.

In 1979, Pope John Paul II named St. Francis of Assisi the patron saint “of those who promote ecology”. Interestingly, the recently elected Pope Francis chose his name in honour of the historic preacher, who similarly conducted and was famous for his rather unconventional way of life. Born into wealth, St. Francis of Assisi eventually renounced all of his belongings, aspiring to live a life of wilful poverty in the quest for increased social justice. With respect to this quest, this publication also addresses the promotion of ecology, (un-) conventionalism, distribution of wealth, alleviation of poverty, and the promotion of global social justice.

In light of the impacts of climate change, international regimes face serious concerns with issues such as human rights, global trade, territorial sovereignty, or migration. Legal responses and global responsibilities, therefore, gain an increased political meaning as they encompass legal and policy responses of climate change (e.g. via liability or jurisdiction, and litigation).

In March 2013, the EU Commissioner for Climate Action, Connie Hedegaard, presented a speech at a Conference at Harvard University where she commented inter alia on the “pattern of more frequent and more severe extreme weather worldwide.” She said: “What we see fits with the scientific community’s projections of what a warming world will be like - except that their projections are actually becoming reality even faster than they themselves expected. As President Obama has said, we can either believe that these events were just a

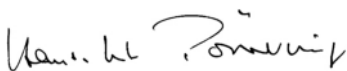
coincidence, or we can choose to believe in the overwhelming judgment of science and act before it's too late."

The challenge of strengthening national and international climate change policy, sustainable development, and increasing equity around the world are above the capacity of national governments. Thus, international climate change cooperation and protection efforts are crucial not only in the context of national but also global security.

Only recently German Chancellor Angela Merkel called for an internationally binding climate pact to be completed by 2015. "Waiting is not an option," she said. In addition, German Environmental Minister Peter Altmaier mentioned that 2015 will be an important year in climate negotiations. He said: "The international awareness that we need to reach, as a milestone by 2015, is growing," adding that progress "in many areas is still too slow and not enough."

In light of the aforementioned, I commend the editors of this significant work! This publication is not merely an inventory but, furthermore, one of the first academic attempts to systematically address both international climate change law and global climate change governance from a variety of doctrinal, transdisciplinary and thematic perspectives. As a political foundation the Konrad-Adenauer-Stiftung is committed to fostering democracy and the rule of law, implementing social and market-economic structures, and promoting human rights. In this respect, the protection of the environment, as well as issues of climate change and sustainable development are major concerns to this foundation. It is, thus, a privilege for the Konrad-Adenauer-Stiftung to support this important publication. This is a remarkable reflection of the commitment and expertise displayed by the editors and contributors to whom we are very grateful.

Hans-Gert Poettering was born on 15 September of 1945 in Bersenbrueck (Lower Saxony, Germany). Since 1979 he has been a Member of the European Parliament whose President he was from 2007 to 2009. Since 2010 he is President of the Konrad-Adenauer-Stiftung. Hans-Gert Poettering belongs to the Group of the European People's Party (EPP) and is a member of the Christian Democratic Union (CDU, Germany).



Berlin, 17 June 2013

PREFACE

International climate change law is not only a new and emerging legal discipline. In fact, climate change in many ways permeates public and private law, as well as national and international law, creating intersections of law in its diverse procedural and substantive fields. This two-volume publication on *Climate Change: International Law and Global Governance* deals with international law and the multiple regulatory regimes which presently reflect fragmentation in the absence of a universal climate change regime. International climate change law, global climate governance and diplomacy are interrelated and extremely complex: the publication explores these areas from a variety of doctrinal, transdisciplinary and thematic perspectives.

Volume I: *Legal Responses and Global Responsibility* attempts to assess the most pressing impacts of climate change on various international law regimes and their responses thereto. In doing so, the volume inter alia reflects on international climate change law as a new international law discipline; climate change and human rights; climate change, international trade and investment law; the law of the sea and sea-level rise; judicial review and international climate change litigation; and multiple crosscutting issues such as mitigation regulation, natural resource management and climate-engineering.

As a point of departure, **Volume II: *Policy, Diplomacy and Governance in a Changing Environment*** reflects on the United Nations Convention on Climate Change (UNFCCC) and the most pressing impacts of climate change on international diplomacy and global governance. This is highlighted from various transdisciplinary and geopolitical perspectives with a special focus on the challenges of strengthening national and international climate change policy, promoting sustainable development and increasing equity around the world, which go beyond the capacity of national governments. Various international climate change cooperation and protection efforts are analysed, also in the context of global security, climate-induced migration movements, adaptation, and the loss and damage debate.

The effectiveness of the international response to climate change depends upon the legal tools available and the political will to ensure effective implementation. An enabling legal environment, underpinned by good governance and respect for the rule of law, is a prerequisite for greater international

PREFACE

climate change equity. In this spirit, it is hoped that this publication can make a humble contribution towards ensuring more global justice, human security and international peace.

The Editors

Oliver C. Ruppel Christian Roschmann Katharina Ruppel-Schlichting

ACKNOWLEDGEMENTS

A multi-authored publication such as this is an enormous team effort. With so many contributors from all continents of the world, our thanks go first and foremost to all the distinguished authors.

Moreover, we are very grateful to the Konrad-Adenauer-Stiftung which generously supported this enormous project in its various phases including the publication itself. In September 2012 the Konrad-Adenauer-Stiftung Rule of Law Program for Sub-Saharan Africa in collaboration with the Faculty of Law of the University of Stellenbosch, South Africa, held two consecutive conferences, one on *Climate Change and Governance* and another on *Climate Change, Legal Responses and Global Responsibility* in Stellenbosch, South Africa. The conferences deliberated on the effects and the legal aspects of climate change on governance and other pertinent issues. The participants – many of them also represented in this publication – comprised international experts drawn from around the world.

Our special thanks go to Professor Dr. Hans-Gert Poettering (Member of the European Parliament and President of the Konrad-Adenauer-Stiftung); Dr. Gerhard Wahlers (Deputy Secretary-General of the Konrad-Adenauer-Stiftung); and Dr. Christian Hübner (Coordinator for Environmental, Climate and Energy Affairs of the Konrad-Adenauer-Stiftung) for their continuous support.

We also thank NOMOS Publishers Baden-Baden and particularly Professor Dr. Johannes Rux and Dr. Phillipp Küsgens for their professional support.

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**PART I:
INTERNATIONAL CLIMATE CHANGE
LAW – A NEW LEGAL DISCIPLINE?**

Intersections of Law and Cooperative Global Climate Governance – Challenges in the Anthropocene*

Oliver C. Ruppel

Abstract

In an age primarily shaped by people, the so-called *Anthropocene*, mankind is faced with enormous challenges posed by the effects of climate change, *de facto* and *de iure*. This article explores the various intersections of law related to climate change. The discussion of such intersections, suggesting an interdisciplinary approach to climate change, is particularly important as there is no clearly demarcated field of climate change law. Without doubt, the endless ramifications of climate change preclude any claim to exhaustiveness. However, many of the major legal issues that have emerged, are being sketched in this article. Intersections can be found between environmental law, human rights law, the law of the sea and world trade law among others. It is argued here that more coherence in the intersections of law and increased cooperative global climate governance should lead the way to cope with the challenges ahead, i.e. the challenges in the Anthropocene.

A. Introduction

When recalling the recent United Nations climate process at the eighteenth Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) and the eighth Conference of Parties serving as the Meeting of the Parties to the Kyoto Protocol (CMP) in Doha, Qatar last December, one may wonder what the diplomatic value of such massive negotiations really is. In the last days of the conference, many had already seen the talks close to collapse and were wondering whether COP18

* This article was the basis for the author's inaugural lecture held at the University of Stellenbosch, Faculty of Law, on 19 March 2013.

would need to be reconvened in 2013. Only last-minute decisions lead to a finalisation of the rules for the Kyoto Protocol's second commitment period and agreement on a work programme for the new negotiation track to deliver a new agreement by 2015.

Unfortunately, climate change is apparently not waiting for the slow timetables of diplomats. The Doha meeting took place at the end of a year (2012) of increasingly stark warnings both on paper and delivered by Mother Nature herself. The United States (US) suffered from a record drought, foreshadowing the permanent dust bowl the US Midwest is probably going to be turned into by climate change. Hurricane Sandy submerged vast swaths of the US East Coast including New York. Arctic sea ice reached a new record low, 50% below the long-term average. Shortly before the Doha conference the World Bank published a report warning of "cataclysmic consequences" if climate change was not reined in.¹ And while the Doha conference was underway the Philippines were battered by Bopha, a typhoon of near-unprecedented strength that caused hundreds of deaths.

The 'diagnosis' of planet earth seems rather clear in that constantly growing human and industrial activities have caused dramatically increased emissions of greenhouse gases, which in turn cause the global climate to change rapidly and probably irreversibly. The 'symptoms' of climate change are likely to cause more and more natural disasters, extreme weather events and climate induced migration movements. All of these undesirable happenings can be considered as a threat against all aspects of human security with a potential to cause national and cross-boundary conflict and thus endanger global peace and security. The 'therapy' against the symptoms of climate change is much less clear and will be discussed in this article. It is argued here that more coherence in the intersections of law and increased cooperative global climate governance should lead the way to cope with the challenges ahead, i.e. the challenges in the Anthropocene.

B. Anthropocene – The Age of Man

The famous atmospheric chemist and Dutch Nobel Prize winner Paul Crutzen initially coined the term *anthropocene*. The term has ancient Greek roots: *anthropo* meaning *human* and *cene* meaning *new*. In 2000 Crutzen

1 World Bank (2012).

realised that we live in an age primarily shaped by people. From their trawlers scraping the floors of the seas to their dams impounding sediment by the gigatonne, from their stripping of forests to their irrigation of farms, from their mile-deep mines to their melting of glaciers, humans were bringing about an age of planetary change. Crutzen suggested this age be called Anthropocene – “the age of man”.²

Mankind has now inhabited or visited almost all places on earth; even set foot on the moon – and the exploration continues. The expansion of mankind, both in numbers and per capita exploitation of the earth’s resources, has been astounding. During the past three centuries the world’s population increased tenfold to 7 billion, accompanied e.g. by a growth in cattle population to 1,500 billion. Urbanisation has increased tenfold in the past century. In only a little while we are deemed to exhaust the fossil fuels that were generated over millions of years. Thirty to fifty per cent of the land surface has been transformed by human action, and mankind uses more than half of all accessible fresh water. Considering these and many other major and still growing impacts of human activities on earth and atmosphere, it has become more than appropriate to emphasise the central role of mankind in geology, ecology and law by proposing the term *Anthropocene* for the current historical epoch as we already know that the impact of human activities has and will have severe consequences for present and future generations.³

For the purpose of this article the human being is seen as the root of the problem, the subject of vulnerability that requires protection, the nucleus of the law and the target of cooperative global climate governance aiming at maintaining peace and security at the same time. The predominant challenges in the Anthropocene, especially in regard of climate change, will be briefly sketched below. Typologically significant of the Anthropocene these challenges must be seen related to the level of complexity, the degree of uncertainty and the novelty that actually surrounds climate change in a process that involves ever-changing circumstances that can hardly be fully controlled. As a combination of legal and policy analysis this article shall also examine selected aspects of the framework of international law and governance in the field of climate change.

2 Crutzen & Stoermer (2000); *The Economist* (2011).

3 *The Economist* (2011).

In 2011, Pope Benedict XVI addressed the German Bundestag illustrating the sources of law in nature and reason by making reference to the popular interest in ecology as a means of respecting nature:⁴

Yet I would like to underline a point that seems to me to be neglected, today as in the past: there is also an ecology of man. Man too has a nature that he must respect and that he cannot manipulate at will. Man is not merely self-creating freedom. Man does not create himself. He is intellect and will, but he is also nature, and his will is rightly ordered if he respects nature, listens to it and accepts himself for who he is, as one who did not create himself. In this way, and in no other, is true human freedom fulfilled.

In 2012, the Club of Rome launched a Report entitled *2052 – A Global Forecast for the Next Forty Years*.⁵ In it, author Jorgen Randers tries to answer the question of what our world will look like in forty years' time. Some of the findings include the following:⁶

Humanity is in overshoot (mainly climate-related) and the landing will not be soft Humanity has a forty-year window to avoid the most serious negative consequences of its decades-long overconsumption splurge. The process of adapting humanity to the planet's limitations may be too slow to stop planetary decline. Global population will grow, peaking at 8.1 billion people in 2042 because of rapid decline in urban fertility. CO₂ emissions will peak in 2030, because of a shift toward low-carbon sources of power and heat. Nevertheless, CO₂ concentrations will grow, and the global average temperature will pass the danger threshold of +2 C by 2050, and peak at 2.8 C in 2080, which could trigger self-reinforcing "run-away" warming with a possible collapse in the second half of the 21st century.

Translating the aforementioned statements into the context of the Anthropocene raises the following questions, among others: How many people will the planet be able to support in future? Will runaway climate change take hold? Where will the quality of life improve, and where will it decline? While the process of adapting humanity to the planet's limitations has started, Randers rightfully holds that the "human response could be too slow".⁷

4 Benedict XVI (2011).

5 Club of Rome (2012).

6 (ibid.).

7 (ibid.).

I. *Climate Change and Natural Disasters*

Natural disasters are on the increase in the Anthropocene and in this context climate change cannot be viewed in isolation. “Disaster” means a calamitous event or series of events resulting in widespread loss of life, great human suffering or distress, or large-scale material or environmental damage, thereby seriously disrupting the functioning of society.⁸ There is wide scientific consensus that the increased number and intensity of climate change induced natural disasters, such as earthquakes, volcano eruptions, tsunamis and hurricanes, is of alarming concern.⁹ Recent incidents include among others the Indian Ocean tsunami (2004), Hurricanes Katrina (2005) and Sandy (2012), Typhoon Bopha in the Philippines (2012), and the earthquakes in Pakistan (2005), Haiti (2010) and Fukushima (2011). The World Bank in a report published in 2012 warned of “cataclysmic consequences” if climate change was not reined in.¹⁰

The 2012 Special Report of the Intergovernmental Panel on Climate Change (IPCC) titled *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX)*¹¹ demonstrates shockingly that the severity of the impacts of extreme and non-extreme weather and climate events depends strongly on the level of vulnerability and exposure to these events. Basic risks to which people are subjected by displacement include landlessness, joblessness, homelessness, marginalisation, food insecurity, increased morbidity, loss of access to common property resources, and social disarticulation. Particular groups and conditions have been identified as having differential exposure or vulnerability to extreme events; for example race/ethnicity, socioeconomic class and caste, gender, age (both the elderly and children), migration, and housing tenure (whether renter or owner) are among the most common social vulnerability characteristics.¹² “During the period from 1970 to 2008, over 95% of deaths from natural disasters occurred in developing countries.”¹³

8 International Law Commission (ILC) Draft Article 3 on the protection of persons in the event of disasters of the International Law Commission A/CN.4/L.758, available at <http://daccess-dds-ny.un.org/doc/UNDOC/LTD/G09/626/84/PDF/G0962684.pdf?OpenElement>, last accessed 16 February 2013.

9 IPCC (2012).

10 World Bank (2012).

11 IPCC (2012).

12 (ibid.).

13 (ibid.).

The increase of natural disasters also poses challenges for international law and the international governance framework, especially when it comes to coordination, disaster relief and international cooperation. The international community, even if willing, is not easily able to provide relief to disaster victims. The duty to provide relief is largely incumbent upon the state within whose territory and jurisdiction the disaster occurs. This problem is rooted in the notion of state sovereignty, one of the most defining principles of international law.¹⁴

An increase in the concentration of greenhouse gases in the atmosphere heightens the possibility that mechanisms that could lead to catastrophic or extreme climate change will be triggered, notwithstanding with the fact that there is uncertainty as to when and how exactly such mechanisms will be triggered. Not reducing GHG emissions, however, means subjecting future generations to the risk of severe harm.¹⁵ Considering the dangers related to natural disasters and the extremity of the risks involved for future generations, there is in fact no right to presuppose that the effects of climate change will be far from catastrophic.¹⁶ In other words, “postponing emissions cuts is in some ways like putting a revolver to future people’s heads and hoping that there is no bullet in the chamber”.¹⁷ From the point of view of justice, it has been stated that –¹⁸

the nature of [climate change catastrophes] requires us to take drastic precautions against further [climate change] that could lead us to pass the tipping points that cause them. This is the case notwithstanding the fact that we are in a state of strong uncertainty with respect to these events; indeed, our strong uncertainty with respect to them – given their nature – makes the case for action to prevent them even more persuasive.

To develop global strategies leading to sustainability of ecosystems against human induced impacts will be one of the greatest tasks of mankind, requiring new and intensive research efforts that will pose many challenges to international law and global governance. Dealing with a global problem like climate change will require a strong legal framework embedded in more effective global institutions in future. International law and global governance – traditionally viewed as separate academic disciplines, i.e. law, po-

14 Evans (2004).

15 See World Bank (2010); Gardiner (2004:576).

16 Macer et al. (2011:13).

17 Macer et al. (2011).

18 McKinnon (2009:200).

litics and social sciences – need to become part of a more integrated, coherent, interdisciplinary and holistic interplay, where international law and global governance eventually manage to get a grip on the arguably most significant challenge of our time – climate change.

II. Climate Change and Human Security

The protection of the vital core of human lives in ways that enhance human freedoms and human fulfilment is at the core of the concept of human security. Providing human security means protecting individuals and the community from violent conflicts and from denial of civil liberties and to ensure freedom of expression and belief. It also encompasses the idea of satisfying the basic needs of individuals for food, shelter and clothing.¹⁹

Climate change has the potential to impose additional pressures on the various aspects of human security. Interrelating issues between climate change and human security include water stress, land use and food security, health security, and environmentally induced migration amongst others. Adverse climate events not only deepen poverty vulnerability in developing countries,²⁰ they impact on all aspects of human security, either directly or indirectly. The impacts of climate change on the agricultural sector are probably of most direct and profound nature. Impacts of climate change, droughts and floods in particular, will have an impact on food availability, food access and nutrient access.²¹

The ultimate damages of climate change may significantly affect economic growth.²² Climate extremes exert substantial stress on low-income populations in particular. The poor are most vulnerable to multiple dimensions of climate change such as heat waves, sea level rise, the destruction of coastal zones and water shortages due to drought.²³ Health security is another important aspect of human security endangered by the impacts of climate change and the effects on health will exacerbate inequities between rich and poor.²⁴ Africa is particularly vulnerable in this regard as threats to health

19 UNDP (1994).

20 Ahmed et al. (2009).

21 Kotir (2010).

22 Lecocq & Shalizi (2007).

23 Hope (2009).

24 Costello et al. (2009).

security are usually greater for poor people in rural areas, particularly children, due to malnutrition and insufficient access to health services, clean water and other basic necessities. Major killer diseases such as malaria expand their coverage as a result of global warming. Global and regional climatic variability enhances the risk of a further spread of other infectious diseases such as cholera,²⁵ dengue fever,²⁶ and meningitis.²⁷

III. Climate Change, Conflict and Migration

The impacts of climate change on violent conflicts and changing migration patterns are further aspects related to the aforementioned concept of human security, and again with particular relevance on the African continent. While violent conflict can be seen as a driver of vulnerability to climate change, migration is a stressor that increases vulnerability to climate change. The linkage between climate related environmental variability and conflict has attracted much attention and debate.²⁸ Yet, in 2011 Achim Steiner, Executive Director of the United Nations Environment Programme (UNEP), asserted that climate change is a “threat multiplier” that has fundamental implications for weather, settlements, infrastructure, food insecurity, livelihoods and development. Competition over scarce water and land, exacerbated by regional changes in climate, was already a key factor in local conflicts in Darfur, the Central African Republic, northern Kenya and Chad.²⁹

Climate induced migration³⁰ is an aspect closely related to the concept of human security.³¹ Notwithstanding the fact that there is no certainty as to what exactly climate change will mean for migration patterns, there seems to be consensus that climate change will over time lead to population movements. Migration can be an adaptation strategy and can enhance adaptive

25 De Magny et al. (2007).

26 Jansen & Beebe (2010).

27 Cuevas et al. (2007).

28 See for example Scheffran & Battaglini (2011); Barnett & Adger (2007); Nordås & Gleditsch (2007); Raleigh (2010); Raleigh & Urdal (2007); Theisen (2008).

29 United Nations Security Council (2011).

30 The terminology with regard to environmentally induced migration is varying and inconsistent and creates conflicts of a legal nature when it comes to the question as to whether or not a person can be classified as a refugee with the legal consequences of international refugee law. See Warner et al. (2010); Kälin & Schrepfer (2012:28).

31 Foresight (2011).

capacity³² People migrate either temporarily or permanently, within their country or across borders, and many have an environmental signal in their reason for migration. The African continent³³ and small island nations around the globe are most likely to be among those who will produce the most climate migrants in future. The total number of displaced people in Africa increased almost 700,000 in 2008 to 1.7 million in 2010.³⁴

The causes for displacement and migration are manifold; however, climate change is one of the interlinking issues. Potential drivers of migration are push and pull factors related to the region or country of origin or destination respectively, and intervening factors that facilitate or restrict migration, all of which may interact in different ways.³⁵ The available evidence suggests that, globally, the large majority of people displaced by disasters caused by sudden-onset hazards (hurricanes, floods, earthquakes, etc.) remain temporarily and internally displaced with people returning home to rebuild their homes and lives.³⁶ This might be different in the case of slow-onset disasters such as droughts and sea level rise with increasing cross-border movement of a permanent nature.³⁷

C. Intersections of Law

The aforementioned scenarios have surely attracted the reader's concern. In order to address this concern, it is necessary to call for effective regulation in order to prevent the worst case. In this context the law comes in: "Law is the major instrument by which mature societies consolidate their internal and external relationships" and "without legal rules, the life of a society becomes unpredictable and aleatory".³⁸ For good reason, there is no clearly defined term, nor a marked branch of the law, which would cover all legal implications of climate change. Subsuming climate change under any legal structure is a challenging task due to the endless ramifications of climate change and particularly due to the interdisciplinary nature of climate change

32 Barnett & Webber (2010).

33 For a focus on climate-induced migration from Africa to Europe see White (2011).

34 IDMC (2011).

35 Black et al. (2011).

36 Tschakert & Tutu (2010); IDMC (2011).

37 US National Intelligence Council (2010).

38 Tomuschat (2012:1283).

and its impacts on various segments of our planet. Climate change can therefore only be tackled through a combination of political, legal and natural science tools. Climate change, biodiversity loss, the marine environment, ozone depletion, genetic resources, intellectual property issues, international trade and human rights – among others – are strongly interrelated. There are numerous intersections of law that occur when climate change is looked at from a legal perspective. Efforts to curb climate change have given rise to the evolution of some new principles and concepts of international law, including among others the principle of common but differentiated responsibilities, the notion of common concern of humankind and the need for protection of the most vulnerable.³⁹

Climate change permeates the law in many ways, creating intersections of law in its diverse fields. If one would brand a new discipline *climate change law*, this would be both international and domestic in nature and include (at least) two complementary dimensions: *procedural* and *substantive*.

The *procedural* dimension is related to the right to information, the right to participate in decision-making, and the right of access to justice. Climate change opens a multitude of challenges of a procedural nature. To what extent these challenges are relevant depends on the following aspects, among others: The question of whether and under what conditions an individual, organisation or state has the right to commence action needs to be addressed. The issue of *locus standi* is of great relevance in respect of judicial enforcement, which still needs specific attention. So far public interest litigation is scarce. Yet it seems to be most suitable in the context of climate change. Another focal point deals with the question of who would be the proper addressee of claims relating to climate change damages, and whether a right to environment is to be enforced vertically between individuals and/or horizontally between individuals and states. Moreover, the question of enforcement at the national or international level is of particular interest in the globalising world, where the climate knows no boundaries. In the ICJ judgment in the so-called Pulp Mills case the Court for instance held as follows:⁴⁰

[T]here are situations in which the parties' intent upon conclusion of the treaty was, or may be presumed to have been, to give the terms used – or some of them – a meaning or content capable of evolving, not one fixed once and for all, so

39 Schrijver (2011:1285).

40 Case concerning Pulp Mills on the River Uruguay (*Argentina v Uruguay*) International Court of Justice, 20 April 2010, General List No. 135.

as to make allowance for, among other things, developments in international law.

The *substantive* dimension of climate change law is far reaching and incorporates among others constitutional law, administrative law, environmental law, water law, criminal law, the law of nuisance, the law of delict, insurance law and even tax law. On a vertical level, intersections of law occur on a very broad scale of the different but interrelated branches of the law with the underlying assumption that climate change law consists of the sum of legal provisions protecting the climate itself and those that protect the climate from the negative effects of climate change. This scale ranges from environmental law (with its multiple sub-branches such as biodiversity law, environmentally relevant provisions within the law of the sea, outer space law, energy and mining law, and specific legal instruments relating to climate change, etc.) to human rights law, humanitarian law, trade and investment law, the law on the use of force, criminal law, and liability law among others.⁴¹

On a horizontal level, climate change law intersections can be found at the different levels of international and national law. The horizontal level entails international law⁴² with multilateral agreements on the global, regional and sub-regional level, bilateral (and unilateral) agreements, general principles of law, customary international law, case law, and other instruments such as declarations, agendas among others. National law may consist of constitutional law, statutory law, common law, case law, customary law, policies, strategies and action plans and other relevant instruments. Climate related –⁴³

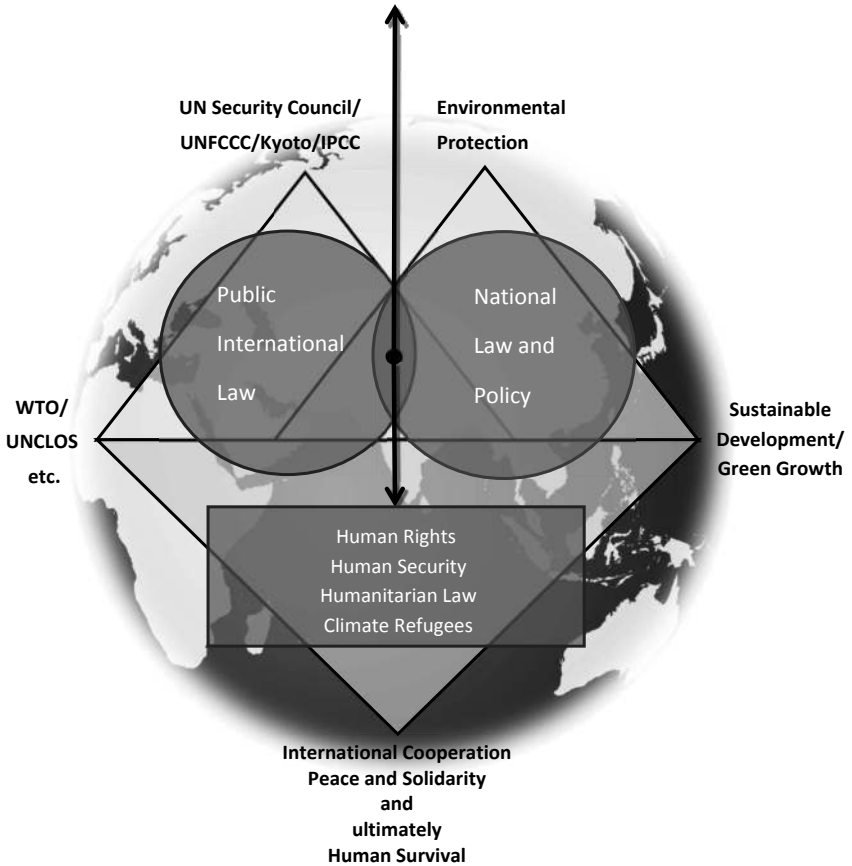
policies are for instance central to the development of sustainable energy generation and markets. Laws governing sustainable energy development and supply cut across many sectors such as mining, forestry, agriculture, environment, water, industry, electricity, and petroleum, and hence require coordination – a complex challenge that is not easily overcome.

41 For an overview of legal issues relevant to climate change see for example Brunnée et al. (2012).

42 For further details see Rayfuse & Scott (2012).

43 Ruppel & Ruppel-Schlichting (2012:46).

Figure 1:⁴⁴ Intersections of Law and Cooperative Global Climate Governance: Challenges in the Anthropocene



As Figure 1 demonstrates, intersections not only occur with regard to the question whether it is national or international law that applies, or both, but also within the categories of national or international law themselves. A further problem is the demarcation between ‘hard’ and ‘soft’ law. Some of the sources of national and international law are obligatory; others are of a non-binding nature. In the climate change context, the lack of globally applicable enforceable legal obligations is without doubt one of the major de-

44 Figure realised by Cord Lüdemann.

iciencies⁴⁵ and one of the major subjects of and challenges for current climate change negotiations.

Furthermore, there has been an emergence of global administrative law forming trans-governmental regulation and administration in such fields as –⁴⁶

security, the conditions on development and financial assistance, environmental protection, banking and financial regulation, law enforcement, telecommunications, trade in products and services, intellectual property, labour standards, and cross-border movement of populations, including refugees. Increasingly, these consequences cannot be addressed effectively by isolated national regulatory and administrative measures.

Summarising it can be stated that cross-cutting themes thus include, among others, the relationship between international environmental law and general principles of international law; conflicts among differing legal regimes; the range of approaches to the regulation of activities within and beyond areas under national jurisdiction; the role and impact of competing state interests in the negotiation and enforcement of international regimes; the challenge of regulating in the face of scientific uncertainty; the role of both ‘soft’ and ‘hard’ law in addressing the global problem; and the potential contribution of the judiciary and international tribunals in the further development of climate change law.

The intersections of international climate change law and multiple overlapping regulatory bodies reflect the fragmentation of global climate change governance in the absence of a universal climate change regime. This makes international climate change law extremely complex and global climate governance not very orchestrated. This overlapping complexity in the different climate change (related) regimes can be observed in various United Nations conventions, the international human rights regime, the world trade order under the World Trade Organization (WTO), multilateral environmental agreements (MEAs) and other international legal instruments that (directly or indirectly) deal with climate change, such as the Vienna Con-

45 Spier (2012:49).

46 Kingsbury et al. (2005:16).

vention on Ozone Depletion, the Montreal Protocol,⁴⁷ the Convention on Biodiversity, the London Dumping Convention, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the RAMSAR Convention on Wetlands of International Importance and the Convention on the Conservation of Migratory Species of Wild Animals, among others. Same applies for geo-engineering, nuclear technology, intellectual property, international investment and finance regimes.

For the purpose of this article, the following sections shall only reflect on the climate regimes around the UNFCCC, the work of the IPCC, the role of the United Nations Security Council, the international human rights regime, international refugee law, the law of the sea regime (UNCLOS) and the world trade order (WTO).

I. The UN Framework Convention on Climate Change and the Kyoto Protocol⁴⁸

The international legal climate change regime is a product of international law, which has developed rapidly over the past few decades, especially since the dawn of the United Nations (UN), when rules and norms regulating activities carried on outside the legal boundaries of nations were developed. Numerous international agreements – bilateral, regional or multilateral – have been concluded and international customary rules, as evidence of a

47 The 1987 Montreal Protocol introduced a series of effective steps to phase out the global production and consumption of ozone-depleting substances in the 1980s. The Protocol and successor agreements are not only regarded as highly successful examples of international environmental regulatory cooperation, there are also lessons to be learned from the ozone layer experience in dealing with climate change. The Montreal Protocol has made a substantial commitment to climate goals, and there are substantial proposals on the way to increase this. Having phased out 97% of almost 100 ozone-depleting substances (ODSs) it placed the ozone layer on a path to recovery. “Because many ODSs are also potent greenhouse gases (GHGs), their phase-out under the Montreal Protocol has provided an often overlooked bonus for climate mitigation: by the end of the decade, the Montreal Protocol will have done more to mitigate climate change than the initial Kyoto Protocol reduction target, reducing emissions in terms of carbon dioxide (CO₂), equivalent to 135 billion tonnes between 1990 and 2010 and delayed climate impacts – including abrupt and irreversible impacts – by about 12 years”. See <http://www.igsd.org/montreal/index.php> (also for further references, last accessed 25 November 2012).

48 This Section is largely based on Ruppel (2013).

general practice accepted as law, have been established. International agreements are binding upon states if the consent to be a party to them is expressed by a signature followed by ratification, or by accession, where the state is not a signatory to a treaty, or by declaration of succession to a treaty concluded before such a state existed. The sources of international law in general are listed in Article 38 of the Statute of the International Court of Justice (ICJ), the principal judicial organ of the United Nations. However, considering that Article 38 of the Statute of the ICJ was first drafted in 1920, these provisions no longer reflect all the sources of today's international law. New developments in respect of sources of law have to be considered in addition to those recognised in Article 38.

The 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, reaffirmed the Declaration of the United Nations Conference on the Human Environment, adopted in Stockholm, Sweden, in 1972, seeking to build upon it with the goal of establishing a new and equitable global order through the creation of new levels of cooperation among states, key sectors of societies and people, working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system, recognising the integral and interdependent nature of the earth. It proclaims first and foremost that human beings are at the centre of concerns over sustainable development. They are entitled to a healthy and productive life in harmony with nature (Principle 1). Moreover, states have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction (Principle 2). Thirdly, the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations (Principle 3).

The UNFCCC and the Kyoto Protocol are treaties in terms of international law and Article 2.1(a) of the Vienna Convention on the Law of Treaties. International oversight and implementation of the climate regimes are only possible through an array of institutions under the UNFCCC and Kyoto regimes.⁴⁹ The COP is the supreme body of UNFCCC, which regularly re-

49 Depledge & Yamin (2009).

views the implementation of the Convention and any related legal instruments that the COP may adopt to promote the effective implementation of the Convention.

The mandate of the COP to amend the UNFCCC and the Kyoto Protocol, or adopt a new legal instrument that either supplements or replaces the Kyoto Protocol, is broadly limited by the UNFCCC's objective and guiding principles. The UNFCCC, however, only provides a general framework to combat climate change. Parties have a responsibility to protect the climate system in accordance with their common but differentiated responsibilities and respective capabilities.⁵⁰

The UNFCCC allows for the introduction of protocols to the Convention. The first of these is the Kyoto Protocol. This agreement came into force on 16 February 2005. A number of global initiatives are being implemented to assist in the operationalisation of the UNFCCC. For example, the Global Environment Facility (GEF) serves as an operating entity of the UNFCCC financial mechanism and has been supporting the national capacity self-assessment process at national level for some time. This is aimed at providing countries with an opportunity to articulate their own capacity needs in implementing the UNFCCC, the other two Rio Conventions and other non-Rio Conventions (e.g. chemicals). The ultimate objective of the UNFCCC is –⁵¹

to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

The Convention is a framework document, identifying two major areas of action required to address climate change, namely mitigation⁵² and adaptation.⁵³ Moreover, the Convention as a legal instrument identifies a wide range of measures (see, e.g., the diversity of measures in Article 4.1) to address climate change through other activities such as scientific and technical cooperation, technology transfer, finance etc. The UNFCCC allows

50 For more details see AMCEN (2011).

51 Article 2 UNFCCC; UNFCCC (2011).

52 UNFCCC (2009).

53 UNFCCC (2010).

any state to become a party, and as at 2011 has 194 signatories, making it a global instrument. Within this framework of global participation, actual obligations of parties differ substantially between industrialised and developing countries. The UNFCCC enshrines a number of key principles (Article 3) including the principles of *equity* and *common but differentiated responsibilities and respective capabilities*. Today's accumulated greenhouse gas emissions originate mainly from over 150 years of carbon-based industrial activity in developed states. Therefore UNFCCC recognises that all countries have a common responsibility to tackle climate change, but places a heavier burden on industrialised states to fulfil their historic responsibility of addressing climate change.⁵⁴

These principles are reflected in the obligations established for developed and developing countries in the Convention, including those relating to mitigation, adaptation, technology transfer, finance as well as communication of information relating to the Convention. The Convention goes further to make provision for countries in special situations, including particularly vulnerable countries, least-developed countries and countries undergoing transition to a market economy. Article 4(4) UNFCCC, for instance, states:

The developed country parties ... shall assist the developing country parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects.

The Kyoto Protocol came into force in 2005 and shares the objectives and the institutions of the UNFCCC. The major distinction between the two is that while the UNFCCC only encourages industrialised countries to stabilise greenhouse gas emissions, the Kyoto Protocol obliges them to do so. Just like the UNFCCC, the Kyoto Protocol imposes a heavier burden on developed nations under the principle of common but differentiated responsibilities. This group of countries must first and foremost take domestic action to address climate change, but the Kyoto Protocol allows them a certain degree of flexibility in satisfying their emissions commitments.

Under the Kyoto Protocol, actual emissions have to be monitored – each party must keep a national register to show measures carried out under the Kyoto Protocol instruments. The secretariat keeps an independent transaction log to verify that operations are consistent with the rules of the Kyoto Protocol. The most important aspect of the Kyoto Protocol is arguably the

54 Boisson de Chazourne (2008).

creation of an aggregate target for the developed countries (Article 3) as well as legally binding and quantified individual targets set out in Annex B. It should also be noted that there are significant commitments for reporting, review, independent assessment and compliance (Articles 5, 7, 8 and 18).

Under the adaptation objective, the Kyoto Protocol, like the UNFCCC, is designed to support countries in adapting to the inevitable effects of climate change and to facilitate the development of techniques that can help increase resilience to climate change impacts. An Adaptation Fund was set up to help with concrete adaptation projects in developing countries. The Adaptation Fund is a solidarity fund in which a proportion of the revenue of CDM projects in developing countries is contributed to a fund to assist adaptation projects in other developing countries.

In the course of the United Nations Climate Change Conference held in Cancun, Mexico in 2010, a set of agreements were reached, building on the Bali Road Map⁵⁵ and the Copenhagen Accord,⁵⁶ which clearly reflect that the parties to the UNFCCC and the Kyoto Protocol had taken up the issue of climate justice. Three decisions have resulted from the Cancun Conference: one decision by the COP to the UNFCCC⁵⁷ and two decisions by the COP serving as the meeting of the Parties to the Kyoto Protocol.⁵⁸ The reduction of greenhouse gas emissions and the support for developing nations to deal with climate change are at the core of the Cancun agreements. In order to advance action regarding the aim of the reduction of greenhouse gas emissions in a mutually accountable way, national plans are formally captured at international level under the banner of the United Nations Framework Convention on Climate Change. Support for developing nations is provided for in the Cancun agreements and includes financial, technology

55 The Bali Road Map emerged from the 2007 Bali Climate Change Conference and includes the Bali Action Plan (Decision 1/CP.13), which launched a “comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action” along with a number of other decisions and resolutions.

56 Agreed upon by the UNFCCC Conference of the Parties, in Copenhagen on 18 December 2009 by way of Decision 2/CP.15.

57 Decision 1/CP.16 *The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention*.

58 Decision 1/CMP.6 *The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its fifteenth session*; and Decision 2/CMP.6 *The Cancun Agreements: Land use, land-use change and forestry*.

and capacity-building support, which is to be realised through various mechanisms: nationally appropriate mitigation actions (NAMA); reducing emissions from deforestation and forest degradation (REDD+); the Clean Development Mechanism (CDM); the Cancun Adaptation Framework (CAF); the technology mechanism; and the Green Climate Fund (GCF).

At the COP18 to the UNFCCC and the MOP8 to the Kyoto Protocol held in Doha, Qatar in 2012, a second commitment period under the Kyoto Protocol has been launched, with 2020 as the end date. Unfortunately, several countries that had previously participated in the Kyoto Protocol have not joined the second commitment period, such as Russia, Canada, New Zealand and Japan. Although it had been agreed to work towards a universal climate change agreement covering all countries from 2020 it will still be seen whether such agreement is to be adopted by 2015.

II. The Intergovernmental Panel on Climate Change

The IPCC was established by the UNEP and the World Meteorological Organisation (WMO) in 1988. The ultimate role of the IPCC is –⁵⁹

to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation. Review by experts and governments is an essential part of the IPCC process. The Panel does not conduct new research, monitor climate-related data or recommend policies. It is open to all member countries of WMO and UNEP.

In the UNFCCC explicit reference is made to the IPCC under Article 21:

[T]he head of the interim secretariat referred to in paragraph 1 above will cooperate closely with the Intergovernmental Panel on Climate Change to ensure that the Panel can respond to the need for objective scientific and technical advice.

The IPCC was subsequently and repeatedly included in the Kyoto Protocol to the Convention where the methodological work of the Intergovernmental Panel on Climate Change should be taken into account in formulating guidelines on verification of emission reductions.⁶⁰

59 IPCC (2001).

60 See Article 3(4) of the Kyoto Protocol.

The IPCC consists of three Working Groups: The IPCC Working Group I (WG I) assesses the physical scientific aspects of the climate system and climate change. The main topics assessed by WG I include: changes in greenhouse gases and aerosols in the atmosphere; observed changes in air, land and ocean temperatures, rainfall, glaciers and ice sheets, oceans and sea level; historical and paleo-climatic perspectives on climate change; biogeochemistry, carbon cycle, gases and aerosols; satellite and other data; climate models; climate projections, causes and attribution of climate change.⁶¹ The WG I Technical Support Unit, which manages the organisational and administrative activities of the Working Group, is hosted by the University of Berne, Switzerland, and funded by the government of Switzerland.⁶²

The IPCC Working Group II (WG II) assesses the vulnerability of socio-economic and natural systems to climate change, negative and positive consequences of climate change, and options for adapting to it. It also considers the relationship between vulnerability, adaptation and sustainable development. Information is evaluated by sector (water resources; ecosystems; food and forests; coastal systems; industry; human health) and region (Africa; Asia; Australia and New Zealand; Europe; Latin America; North America; Polar Regions; Small Islands).⁶³ In its reports, Working Group II elaborates on the scientific, technical, environmental, economic and social aspects of the vulnerability (sensitivity and adaptability) to climate change of, and the negative and positive consequences for, ecological systems, socio-economic sectors and human health, with an emphasis on regional, sectoral and cross-sectoral issues. The WG II Technical Support Unit is housed at the Carnegie Institution for Science in Stanford, California, USA.⁶⁴

The IPCC Working Group III (WG III) assesses options for mitigating climate change through limiting or preventing greenhouse gas emissions and enhancing activities that remove them from the atmosphere. The main economic sectors are taken into account, both in a short-term and in a long-term perspective. The sectors include energy, transport, buildings, industry, agriculture, forestry, and waste management. WG III analyses the costs and benefits of the different approaches to mitigation, considering also the avail-

61 See IPCC on Working groups / Task Force at http://www.ipcc.ch/working_groups/working_groups.shtml, last accessed 17 February 2013.

62 See <https://www.ipcc-wg1.unibe.ch/>, last accessed 17 February 2013.

63 See http://www.ipcc.ch/working_groups/working_groups.shtml, last accessed 17 February 2013.

64 See <http://ipcc-wg2.gov/index.html>, last accessed 17 February 2013.

able instruments and policy measures. The approach is more and more solution oriented.⁶⁵ The IPCC WG III Technical Support Unit is housed at the Potsdam Institute for Climate Impact Research in Potsdam, Germany.⁶⁶

The above three working groups were intended to:⁶⁷

draw on slightly different scientific constituencies, since impact and responses would require factoring in research outside the physical sciences and would touch on political issues. Working Group I would be dominated by climate scientists, while Working Groups II and III would have a wider participation, including, as time went on, by economists and other social scientists.

The historical –⁶⁸

roots of IPCC's strength reached very deep. Most people were scarcely aware that IPCC, and virtually every other international initiative ..., relied on a key historical development: The worldwide advance of democracy. It is too easy to overlook the obvious fact that international organizations govern themselves in a republican fashion, with vigorous free debate among all members and votes in councils of elite leaders.

Often, as in IPCC, decisions among the dozens or hundreds of elite leaders are made by a negotiated consensus in a spirit of equality, of mutual accommodation, and of commitment to the community process – all of which are seldom celebrated, but essential, components of the republican political culture.⁶⁹ It has been said that it is –⁷⁰

an important historical fact that such international regimes have been created chiefly by governments that felt comfortable with such mechanisms at home, that is, democratic governments. Nations like Nazi Germany, Communist China, and the former SU did little to create international organizations (aside from front groups under their own thumb), and often participated in them awkwardly. Happily, in the second half of the twentieth century, nations under democratic governance became globally predominant.

That encouraged the proliferation of international institutions that were democratic, or at any rate elite-based republican, exerting an ever stronger influence in world affairs.⁷¹ “The democratization of international relation-

65 See http://www.ipcc.ch/working_groups/working_groups.shtml, last accessed 17 February 2013.

66 See <http://www.ipcc-wg3.de/>, last accessed 17 February 2013.

67 Mathiason & Bhandari (2010).

68 Weart (2012).

69 Weart (1998:61).

70 Weart (2012).

71 Weart (1998:262–267).

ships was the foundation upon which IPCC took its stand.”⁷² In 2007, the IPCC and Albert Arnold (Al) Gore Jr. were awarded the Nobel Peace Prize “for their efforts to build up and disseminate greater knowledge about man-made climate change and to lay the foundations for the measures that are needed to counteract such change”.⁷³

This Prize was most probably not awarded to the IPCC without good reason.⁷⁴ Despite criticism it should not be forgotten that the IPCC is a very valuable institution that tries to help in an unprecedented way to resolve socio-political conflicts by gathering scientific knowledge and presenting it in a comprehensible manner. “The evidence shows the scientific consensus arrived at by the IPCC is a solid one, given the composition of the panel, and an innovative means of connecting science with politics.”⁷⁵

The 4th IPCC Assessment Report (AR4) – against all contrary opinions – can be considered a reliable study on the state of climate science and uncertainties in the year 2007. Although two minor mistakes had been detected in the report of several thousand pages, the rest remains valid.⁷⁶ The 5th IPCC Assessment Report (AR5) is expected to be published in 2014.⁷⁷ For AR5 the IPCC has made it a priority to engage developing countries more fully:⁷⁸

AR5 will be able to provide much greater regional detail than available literature has allowed in the past. We all have to make a major effort to do full justice to expectations in different parts of the world, and for this reason ... we must take care of this aspect as diligently as possible. We would need to be equally diligent in going the extra mile in assessing literature in local languages where for scientific reasons we would be able to enrich the AR5 with comprehensive knowledge and information.

72 Weart (2012).

73 See http://www.nobelprize.org/nobel_prizes/peace/laureates/2007/, last accessed 04 March 2013.

74 Kowarsch (2010).

75 Mathiason & Bhandari (2010).

76 Because of doubts regarding the IPCC results US Congress has mandated a large group of scientists and representatives of the private industry in 2008 to verify the IPCC results. The outcome can be accessed at http://online.wsj.com/article/SB10001424052748704691304575254691763608402.html?mod=WSJ_hps_SECONDTopStories, last accessed 17 February 2013.

77 See <http://www.ipcc.ch/activities/activities.shtml>, last accessed 14 February 2012.

78 Pachauri (2009).

The IPCC gives valuable advice to national governments and international organisations.⁷⁹ By effectively and objectively assessing scientific knowledge and prevailing uncertainty, the IPCC provides the world with the best possible and much-needed evidence of climate change related impacts. Scientific authority also depends on reliable indicators.⁸⁰ In this context the IPCC plays – no doubt – a decisive role in the policy reform and political decision-making process:⁸¹

Because of its scientific and intergovernmental nature, the IPCC embodies a unique opportunity to provide rigorous and balanced scientific information to decision makers. By endorsing the IPCC reports, governments acknowledge the authority of their scientific content. The work of the organization is therefore policy-relevant and yet policy-neutral, never policy-prescriptive.

The IPCC thus bridges the two fields, by getting the facts right so the policies may be effective. In effect, “if scientists cannot agree, political leaders and other stakeholders are unlikely to agree either.”⁸²

III. The UN Security Council and the Responsibility to Protect

Only recently UN Secretary-General Ban Ki-moon made reference “to the gathering threat of climate change” at the Sorensen Distinguished Lecture on the United Nations at the Council on Foreign Relations. He said:⁸³

[S]cientists have long sounded the alarm. Top-ranking military commanders and security experts have now joined the chorus. Yet the political class seems far behind Too many leaders seem content to keep climate change at arm’s length, and in its policy silo. Too few grasp the need to bring the threat to the centre of global security.

Framing climate change more and more –⁸⁴

as a security issue could serve to enhance and broaden the policy response at various governance levels by facilitating policy makers and their publics recognizing the common origins of what may otherwise appear as unconnected

79 InterAcademy Council (2013).

80 Davis et al. (2012).

81 See <http://www.ipcc.ch/organization/organization.shtml#.URelrmhpvos>, last accessed 17 February 2013.

82 Mathiason & Bhandari (2010:58).

83 Ki-moon (2013).

84 Scott (2012).

phenomena. Debate about climate change is often couched in terms of a hypothetical future: by how much the temperature will rise, by how much countries should reduce their emissions, and the nightmare scenarios that may come into play if they fail to do so.

This focus on what may appear a hypothetical future renders climate change a particularly daunting and difficult policy arena for governments because, as NATO Secretary General Anders Fogh Rasmussen explained:⁸⁵

The science is not yet perfect. The effects are just starting to be visible, but it's difficult to pin down what's actually changing because of climate change. The timelines are not clear either. And as a politician, I know exactly what that means. When we have to choose between spending money now on schools or health care, or diverting funds to try to prevent something that will likely only hurt long after they have left office, the choice for most leaders is pretty clear. And, let me say, not hard to understand.

In 2011, the United Nations Security Council expressed concern that the possible adverse effects of climate change could, in the long run, aggravate certain existing threats to international peace and security and that the loss of territory in some states could have possible security implications.⁸⁶ In a statement read out by the then Council President, Peter Wittig of Germany, following a day-long debate on “maintenance of international peace and security: the impact of climate change”, he noted that “conflict analysis and contextual information” on, among others, the “possible security implications of climate change” was important when climate issues drove conflict, challenged implementation of Council mandates or endangered peace processes.⁸⁷

UN Secretary-General Ban Ki-moon, who opened the aforementioned 2011 Council debate, pointed to the devastating impact of extreme weather and rising seas on lives, infrastructure and budgets — an “unholy brew” that could create dangerous security vacuums. “We must make no mistake. ... The facts are clear: climate change is real and accelerating in a dangerous manner,” he said, declaring that it “not only exacerbates threats to international peace and security; it is a threat to international peace and security”. Events in Pakistan, the Pacific islands, Western Europe, China and the Horn of Africa, among other areas, illustrated the urgency of the situation, he said. Worldwide, hundreds of millions of people were in danger of food and water

85 Rasmussen (2009).

86 United Nations Security Council (2011).

87 (ibid.).

shortages. Environmental refugees were “reshaping the human geography” of the planet.⁸⁸

Although the aforementioned statements clearly frame climate change as a potential source of conflict, a potential threat to national and international peace and human security, the future role of the UN Security Council with regard to climate change remains to be determined. The Council would arguably be acting within its legal powers if, for example, it passed resolutions requiring governments at all levels “to prioritize adaptation strategies in their planning and national governments to contribute military or other resources to a global disaster mitigation unit”.⁸⁹ Yet in 2011, as in 2007, the Security Council did not take a decision on climate change. This time, however, it did agree on a presidential statement, a non-legally binding document adopted by consensus, expressing concern that possible adverse effects of climate change may, in the long run, aggravate certain existing threats to international peace and security.⁹⁰

At present, the UN Security Council has only 15 members – five of which are permanent and ten of which are members for two-year terms. Decisions on all but procedural matters are taken by an affirmative vote of nine members, including the concurring votes of the five permanent members.⁹¹ A cornerstone of the United Nations Charter paradigm is the notion of collective security which is perhaps the first and most obvious manifestation of the principle of solidarity in the post World War II era.⁹² In fact, it forms the political and legal foundation for the collective security system established by the UN Charter. Under Article 25 of the UN Charter, member states “agree to accept and carry out the decisions of the Security Council”.⁹³ Article 39 stipulates that the Security Council can identify a “threat to the peace, breach of the peace, or act of aggression” and “make recommendations, or decide what measures shall be taken in accordance with Articles 41 and 42, to maintain or restore international peace and security”.⁹⁴ Article 41 provides for the Council to decide on appropriate measures not involving the use of

88 (ibid.).

89 Scott (2012).

90 Statement by the President of the Security Council (20-07-2011) UN Doc S/PRST/2011/15.

91 UN Charter Article 27.3. Although not explicitly stated in the Charter, it has become accepted that this vote may include abstentions by permanent members.

92 Koroma (2012).

93 Article 25.

94 Article 39.

armed force,⁹⁵ and Article 42 provides that if the Security Council considers that such measures “would be inadequate or have proved to be inadequate, it may take such action by air, sea, or land forces as may be necessary to maintain or restore international peace and security”.⁹⁶ The Security Council can thus enforce its decisions made in response to a perceived “threat to the peace, breach of the peace, or act of aggression” by use of force if it deems it necessary to do so. It is generally accepted among the international law community that it is at the Council’s political discretion to define what constitutes a threat to the peace for the purposes of Chapter VII of the UN Charter.⁹⁷

A still controversial manifestation of the notion of solidarity in international law is the emerging doctrine of the responsibility to protect. This concept was developed by the International Commission on Intervention and State Sovereignty in September 2000, after the UN Secretary General Kofi Annan emphasised the grave failure of the international community to handle gross and systematic violations of human rights such as those perpetrated in Rwanda and other areas.⁹⁸ The aforementioned concept has gained growing attention in the context of the notion of global solidarity and collective security as it aims to address legal and political dilemmas for intervention to stop or pre-empt human suffering and crimes against humanity.⁹⁹

Under Article 52 of the UN Charter, regional organisations may undertake actions aimed at the maintenance of international peace and security. Article 53 (I) of the UN Charter specifically provides that such regional organisations may undertake enforcement measures, provided that they have the authorisation of the UN Security Council. Most obviously the crux of the responsibility to protect concept is the dilemma of state sovereignty and intervention for humanity. In light of this, current discussions focus on the duty of the international community and the territorial state in cases of natural disasters, raising the question whether the doctrine of the responsibility to protect can actually be extended to the international law relating to disaster relief and in particular to cases of grave circumstances such as severe human suffering during times of natural disasters. Unfortunately, so far for inter-

95 Article 41.

96 Article 42.

97 See for example Wood (2006).

98 Report of the Secretary-General on the Work of the Organization, document A/54/1, at 48.

99 Koroma (2012).

national law and politics it still seems to make a big difference whether human suffering is the result of a natural disaster or of an (international) armed conflict.¹⁰⁰ However, when responding to the question whether the doctrine of the responsibility to protect should in future be extended to the international law relating to disaster relief one could argue with Achim Steiner as follows:¹⁰¹

There is no reason why the international community cannot avoid escalating conflicts, tensions and insecurity related to a changing climate if a deliberate, focused and collective response can be catalyzed that tackles the root causes, scale, potential volatility and velocity of the challenges emerging. In bringing forward a response that enhances global security and cooperation on the climate challenge, the world can perhaps also better manage risk from numerous other challenges and in doing so diminish tensions between nations and lay the foundations and possibilities of a more sustainable and equitable peace.

It becomes apparent from the above that climate change is moving from mere politicisation towards a state of securitisation.¹⁰² Once an issue is successfully securitised it moves out of the sphere of normal politics to be dealt with as an emergency issue without the normal democratic processes being brought to bear, and the securitising actor can, through this process, infuse the concept of ‘security’ with any meaning desired.¹⁰³ Full securitisation would seem to be represented by the issue moving outside of the normal multilateral treaty framework used to manage political issues of mutual concern to the body with “primary responsibility for the maintenance of international peace and security”: the United Nations Security Council.¹⁰⁴

Most obviously, the nature and “impacts of climate change challenge traditional notions in international law, most notably those relating to the principle of territorial sovereignty, with its presumptions of defined territory and fixed maritime boundaries”.¹⁰⁵ “Sovereignty in the relations between States signifies independence. Independence in regard to a portion of the globe is the right to exercise therein, to the exclusion of any other State, the functions

100 Thielbörger & Liburd (2012).

101 Steiner (2011).

102 See with further references Scott (2012:221).

103 See Taureck (2006:55).

104 Scott (2012:221).

105 Schrijver (2011:1285).

of a State.”¹⁰⁶ The world is divided into clearly demarcated territories. Each territory has one government within the territory, with full jurisdiction over all persons and resources within its domain.¹⁰⁷ In the context of climate change it seems appropriate, however, to explore whether the law of state responsibility offers a useful paradigm to address the problem.¹⁰⁸ Unfortunately, however, national governments and statesmen more often than not regard themselves as –¹⁰⁹

primarily responsible not vis-a-vis an existing global order, which they all too often violate, but vis-a-vis a possible future order, which they lack the will and vision to help bring about. This is the ultimate crime against peace and justice.

The UNFCCC and the subsequent Kyoto Protocol are an articulation of how states balance their sovereign right to follow their own development agenda with their overall responsibilities under international law, including those measures aimed at avoiding harm to areas beyond the limits of national jurisdiction. This means that the global nature of climate change demands that states scale back some of their sovereignty by engaging in international cooperation and negotiation in the interest of the “common concern of humankind”.¹¹⁰ Efforts to curb climate change have given rise – sometimes in conjunction with developments in other environmental regimes – to the evolution of new principles and concepts of international law, including the principle of common but differentiated responsibilities, the notion of common concern of humankind, protection of vulnerable countries and others.¹¹¹ With regard to the application of the responsibility to protect doctrine to climate change it is argued here that existing relevant international obligations such as the responsibility to avoid trans-boundary harm must be seen in a broader context in order to widen the international responsibility to protect people and ecosystems at the same time.

106 Permanent Court of Arbitration, *The Island of Palmas Case (or Miangas) Unites States of America v The Netherlands* Award of the Tribunal 04 April 1928, XI UNRIIA 838.

107 Pogge (1987:429).

108 For an interesting exploration see Voigt (2008).

109 Pogge (1987:436).

110 See the Preamble to the UNFCCC.

111 Schrijver (2011:1278).

IV. Climate Change and International Human Rights Law

As early as 1984, Karel Vasak in his inaugural lecture at the International Human Rights Institute in Strasbourg proposed the concept of solidarity or third generation rights, including the right to development, the right to peace and the right to a healthy environment.¹¹² Such rights –¹¹³

are new in that they may both be invoked against the State and demanded of it; but above all (and herein lies their essential characteristic) they can be realized only through the concerted efforts of all the actors on the social scene: the individual, the State, public and private bodies and the international community.

The efforts that have been made so far to place rights at the centre of any future climate change dispensation have only recently started to become more human rights focused. One reason for the past silence of human rights regarding climate change is the fact that most international human rights instruments were drafted before the emergence of climate change as a common concern. However, silence is increasingly turning into salience. When looking at the most severe impacts of climate change such as drought, floods, migration and famines it becomes very clear that climate change and its effects affect large numbers of people and have an impact on a broad range of human rights; the right to life in the first place, but also the rights to health, adequate food and water, property and adequate housing, self-determination, to name only the most common and pressing ones.

When it comes to the question of the state of fulfilment of human rights in the world, statistics are frequently consulted. Only some of the respective figures will be given as examples. This seems appropriate because the negative effects of climate change will most affect those people who already appear in one or more of the following figures. In developing regions, 24% of people live on less than US\$1.25 a day.¹¹⁴ Globally almost 870 million people (or one in eight) are chronically undernourished, of which 852 million live in developing countries.¹¹⁵ The global under-five mortality rate is 45.2 per 1000 live births,¹¹⁶ 63 in developing regions.¹¹⁷ One in nine people, or 780 million, lack access to an improved water source, 2.5 billion lack im-

112 Koroma (2012:108).

113 Vasak (1984:839).

114 United Nations (2012).

115 FAO et al. (2012).

116 See <http://hdr.undp.org/en/data/map/>, last accessed 14 February 2013.

117 United Nations (2012).

proved sanitation, and 3.4 million people die each year from a water related disease.¹¹⁸ Over a billion people lack adequate housing¹¹⁹ and about 1.5 billion have no access to electricity.¹²⁰ Approximately 775 million adults are illiterate¹²¹ and around 215 million children are child labourers.¹²²

There are various reasons why a human rights based approach to climate change is gaining momentum with a high relevance for the future climate change debate. The most important one is probably the cross-fertilisation of human rights and climate change effects and the related mitigation and adaptation measures. With the threats climate change poses to human and environmental security, existing legal structures are likely to come under pressure.¹²³ “[H]uman rights obligations may provide a legal baseline for how climate change is tackled and what must be protected from its impacts.”¹²⁴ Human rights may serve as powerful tools for ensuring greater capacity to adapt to climate change. In order to design and implement a legal climate change regime that includes the policy value and the legal force of human rights it is required to introduce likely human rights impacts and outcomes of climate change.¹²⁵ The experiences gained in the field of human rights law may furthermore be useful sources of information in the processes of climate change related policy and legal drafting. Perhaps jurisprudence particularly related to the effects of climate change has not yet been established by international human rights tribunals. Jurisprudence by international human rights tribunals to address the impact of environmental harm¹²⁶ on human rights, however, may well be extended to apply also to the negative effects of climate change as global environmental harm. Furthermore, climate change impacts on human rights should be considered when adaptation and mitigation measures are being developed and implemented. Tackling the negative effects of climate change may have a positive influence on the fulfilment of human rights. The less the negative effects of climate change, the better the chances to fully enjoy all human rights and fundamental free-

118 UNICEF et al. (2012).

119 OHCHR & UN-HABITAT (2009).

120 AGECC (2010).

121 UIS (2012).

122 See <http://www.ilo.org/global/topics/child-labour/lang--en/index.htm>, last accessed 14 February 2013.

123 Pedersen (2012:28).

124 McInerney-Lankford (2009).

125 ICHRP (2008).

126 Knox (2009).

doms. Moreover, international human rights law places certain duties on states (in very general terms, the duty to refrain from violating human rights itself, but also to protect its citizens from human rights violations) to address the effects of climate change on human rights, irrespective of their relative contributions of greenhouse gas emissions to global warming.

In the context of climate change, three basic obligations of states can be identified, namely addressing the causes of climate change, i.e. mitigating climate change; addressing the effects of climate change, i.e. adapting to the effects of climate change by reducing risks created by climate change and vulnerabilities caused by it; and addressing the consequences of climate change, for example by protecting individuals displaced by the effects of climate change.¹²⁷

The duty to cooperate¹²⁸ in the international protection of human rights by means of diplomacy, by institutional cooperation on the UN or regional level, or by imposing unilateral or multilateral sanctions to induce a state to comply with human rights obligations is a state obligation that could also apply to climate change related matters. To this end, the United Nations Human Rights Council adopted Resolution 19/33 in 2012, which –¹²⁹

[u]rges States to take necessary measures to enhance bilateral, regional and international cooperation aimed at addressing the adverse impact of consecutive and compounded global crises, such as financial and economic crises, food crises, climate change and natural disasters, on the full enjoyment of human rights.

Both the International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR), which together with the Universal Declaration of Human Rights (UDHR) form part of the International Bill of Rights, call on state parties to take steps (legislative or other measures) to give effect to the rights contained therein. Both Covenants recognise the right of peoples to self-determination; both have provisions which prohibit all forms of discrimination in the exercise of human rights; and both have the force of law in the countries which have ratified them. Most of the rights and freedoms recognised in the ICCPR

127 Kälin & Schrepfer (2012:17).

128 For a detailed analysis of this concept see Delbrück (2012).

129 Section 15 of the Resolution on the enhancement of international cooperation in the field of human rights see A/HRC/19/L.13/Rev.1, 20 March 2012, <http://daccess-dds-ny.un.org/doc/RESOLUTION/LTD/G12/124/35/PDF/G1212435.pdf?OpenElement>, last accessed 04 March 2013.

are also entrenched in national constitutions' Bill of Rights. This may include, among others, the right to dignity, the right to life, the right to health, the right to water, the right to legal representation, the guarantee against torture and other cruel or inhumane treatment or punishment, and the right to protection against discrimination on any grounds. States have obligations under international human rights law to address disadvantage and threats to human rights and to ensure that policies aimed at limiting the effects of climate change are implemented effectively and in ways that do not overburden or discriminate against specific vulnerable groups, e.g. women, children and indigenous people.¹³⁰ In 2008, the UN General Assembly adopted, by consensus, the Optional Protocol to the ICESCR, which will come into force on 5 May 2013¹³¹ and which provides a mechanism through which persons can petition the UN Committee on Economic, Social and Cultural Rights about violations of their rights.

One starting signal for addressing the linkages between climate change and human rights on the international level has been the United Nations Human Rights Council's first resolution on human rights and climate change in 2008.¹³² In 2009, a number of countries called on the Office of the United Nations High Commissioner for Human Rights (OHCHR) to conduct a detailed analytical study of the human rights dimension of climate change, taking into account the views of states and other stakeholders. This study¹³³ was submitted to the tenth session of the Council held in 2009. In the same year, the Council adopted resolution 10/4 on human rights and climate change, which noted the effects of climate change on the enjoyment of human rights, and reaffirmed the potential of human rights obligations and commitments to inform and strengthen international and national policy making. The Council stated that climate change and human rights are governed by international regimes that have evolved separately, with different premises underlying the legal frameworks of multilateral environmental

130 Ruppel (2010).

131 Three months after being ratified by 10 parties. As of 12 February 2013 the Protocol had 42 signatories and 10 parties. See http://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-3-a&chapter=4&lang=en, last accessed 12 February 2013.

132 UN Doc A/HRC/7/23, 28 March 2008, available at http://ap.ohchr.org/documents/E/HRC/resolutions/A_HRC_RES_7_23.pdf, last accessed 13 February 2013.

133 UN Doc A/HRC/10/61, 15 January 2009, available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/G09/103/44/PDF/G0910344.pdf?OpenElement>, last accessed 12 February 2013.

agreements (like the UNFCCC) and human rights treaties. In 2012, the Human Rights Council created a new mandate of an independent expert on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment.¹³⁴ The new independent expert will among other things serve to identify human rights challenges related to climate change.

It is not only within international human rights law that climate change related issues are moving into the centre of the debate. Also within the international climate change negotiations human rights impacts have gradually become a more relevant aspect.¹³⁵

In fact, —¹³⁶

climate change prompts significant questions about justice and distribution. There is an acute need for intelligent collective action focusing on the human suffering that climate change will cause in future. On the one hand, as a matter of law, the human rights of individuals need to be viewed in terms of state obligations: it is principally the state that is responsible for human rights fulfilment. On the other hand the assignation of such responsibility to only the state seems inadequate, especially in the context of climate change and human security.

This is also reflected by more recent outcomes of COP to the UNFCCC. One remarkable statement in this regard is the emphasis made by Cancun Decision 1/CP.16¹³⁷ on a human rights oriented approach to deal with all issues relating to climate change, by “[r]ecognising that climate change represents an urgent and potentially irreversible threat to human societies and the planet, and thus requires to be urgently addressed by all Parties...” and:

[n]oting resolution 10/4 of the United Nations Human Rights Council on human rights and climate change, which recognizes that the adverse effects of climate change have a range of direct and indirect implications for the effective enjoyment of human rights and that the effects of climate change will be felt most acutely by those segments of the population that are already vulnerable owing to geography, gender, age, indigenous or minority status, or disability

134 UN Doc A/HRC/RES/19/10, 19 April 2012, available at <http://daccess-dds-ny.un.org/doc/RESOLUTION/GEN/G12/131/59/PDF/G1213159.pdf?OpenElement>, last accessed 12 February 2013.

135 Scholtz (2010).

136 Ruppel & van Wyk (2011).

137 Decision 1/CP.16 <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2>, last accessed 12 February 2013.

Moreover, the Conference of the Parties:

[e]mphasises that Parties should, in all climate change related actions, fully respect human rights.

The inclusions of human rights wording and concepts in the Cancun Agreements represents a unprecedented recognition of the fundamental link between human rights and climate change, and the first tangible results of years of patient analysis, advocacy and alliance building by communities vulnerable to climate change. Rights have become a relevant part of this discourse.¹³⁸

With all due respect for the importance of human rights law for the climate change related problems with which mankind is confronted, one should, however, not turn a blind eye to some of the challenges of international human rights law that might contribute to the disadvantage of those living in the regions most vulnerable to climate change, and particularly those segments of the population who are most vulnerable to the negative effects of climate change, namely women, children and indigenous people. Such challenges include insufficient enforcement mechanisms, the difficulty to establish extraterritorial responsibility and local accountability, the possibility of derogation from many human rights in times of emergency that may be declared in case of catastrophic events such as floods and droughts, or conflicting human rights, e.g. the human right to property or peaceful enjoyment of possessions to prevent or reduce action on climate change.¹³⁹

Several international human rights mechanisms are being used to drive action on climate change.¹⁴⁰ Besides the Human Rights Council's Special Rapporteurs and Special Representatives of the Secretary-General, who conduct country missions, comment on country situations and receive human rights complaints, among other things, the Universal Periodic Review operating since 2008 under the umbrella of the Human Rights Council has become a useful mechanism for states particularly vulnerable to climate change to highlight the threats of global warming to people's rights. Within the process of this peer review, the degree to which a UN member state is complying with international human rights law and domestic laws and commitments is being reviewed every four-and-a-half years by other UN member states. In the period from 2008 to 2011, 31 states have raised climate

138 Cameron & Limon (2012:204).

139 For further information see ICHRP (2008:5).

140 For a detailed analysis see Cameron & Limon (2012).

change related concerns in the national reports and thereby at least placed some moral pressure on high-emitting developed states.¹⁴¹ Reports by human rights treaty bodies will have “persuasive force insofar as the organs retain their independence, deliver reasoned and consistent opinions using accepted methods of treaty interpretation, and establish a pattern of compliance by State Parties.”¹⁴²

V. Climate Refugee Law

In terms of international legal instruments, it must be stated that the issue of climate induced migration is only fragmentarily regulated. There is no single international agreement applicable and neither existing climate change law nor refugee law adequately provides for a consolidated legal framework. Voices asking for a stand-alone international legal regime addressing climate change induced migration are becoming louder.¹⁴³ The following two legal regimes and their scope of application show the difficulties for the international and African context.

The movement of persons across international borders due to climate change related events prompts several questions and challenges to international law. The Geneva Refugee Convention of 1951 defines a refugee as a person with a

well-founded fear of being prosecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his/her nationality and is unable or, owing to such fear, is unwilling to avail himself/herself of the protection of that country; or who, not having a nationality and being outside the country of his/her former habitual residence as a result of such events, is unable or, owing to such fear, unwilling to return to it.¹⁴⁴

Unfortunately this definition provides numerous complications in attempting to classify climate refugees as refugees under international refugee law. The scope of application of the Geneva Refugee Convention for climate refugees is questionable *per se*; in any case, it would only be applicable to

141 Cameron & Limon (2012:214).

142 Shelton (2012:574).

143 See Hodgkinson & Young (2012).

144 Article 1.A.(2). 1951 Convention Relating to the Status of Refugees.

those migrants who have crossed borders, as it does not provide for internal displacement.

The legal distinction between those moving voluntarily (rather referred to as migrants) and those being forcibly displaced across borders (rather referred to as displaced persons) with the respective legal consequences does not adequately capture the reality of migration as an adaptation strategy, which cannot clearly be allocated under one of the two categories.¹⁴⁵ Once a person has migrated across an international border because of climate change related events and does not qualify as refugee, the only set of legal norms that applies is international human rights law. A right to stay on foreign territory can only be “derived from the human rights prohibition of inhuman treatment – of forcible return of people to a country where they would be exposed to serious risks to life and health”,¹⁴⁶ and international law is lacking a set of status rights, particularly for those migrating as a measure of adaptation to climate change.

New strategies and legal frameworks will have to be developed and negotiated to adequately address climate change related cross-border movement of persons. These should particularly encompass the following aspects:¹⁴⁷

1. Preventing displacement through disaster risk and vulnerability reduction and other adaptation measures;
2. Managing migration as adaptation measures;
3. Providing temporary protection status for persons displaced to other countries and permanent admission in cases where return turns out to be impermissible, impossible or cannot be reasonably be expected over time; and
4. Organizing resettlement/relocation for populations of low-lying small island states and other states losing substantial amounts of their territory.

The issue of internal displacement has been taken up by the African Union by adopting the African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa in Kampala in 2009. As of 17 January 2013, the Kampala Convention had 36 signatories, 16 countries¹⁴⁸ had ratified it and it has entered into force on 6 December 2012. It is the first regional legal instrument in the world containing legal obligations

145 Kälin & Schrepfer (2012:42).

146 (ibid.).

147 (ibid.:58).

148 Benin, Burkina Faso, Central African Republic, Chad, Gabon, Gambia, Guinea-Bissau, Lesotho, Mali, Nigeria, Niger, Sierra Leone, Swaziland, Togo, Uganda and Zambia.

for states with regard to the protection and assistance of Internally Displaced Persons (IDPs). The Kampala Convention defines IDPs as:¹⁴⁹

persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized State border.

The Convention explicitly recognises its relevance for climate change induced displacement, as it is states in Article 5 that “States Parties shall take measures to protect and assist persons who have been internally displaced due to natural or human made disasters, including climate change.” However, the Kampala Convention applies to all situations of internal displacement regardless of its causes (Article 15).

VI. Climate Change, the Oceans and the Law of the Sea

The intersection of climate change with the law of the sea cannot be denied. Where the impacts of climate change manifest themselves within the oceans arena sovereignty questions arise and have the potential to manifest themselves in areas beyond national jurisdiction. The oceans cover more than 70% of the earth’s surface and play a pivotal role in the climate change debate. On the one hand, the oceans must be seen as victims of climate change. Changes in ocean temperature and heat content, changes in ocean salinity, changes in sea level and biogeochemical changes (ocean acidification in particular) all have severe consequences, not only for marine ecosystems.¹⁵⁰ The last Assessment Report of the IPCC (AR4) projected sea level rise to range from 0.18 to 0.59 m (depending on the scenario) at the end of the 21st century (2090–2099).¹⁵¹ Primary contributors to global average sea level change are the expansion or contraction of the ocean due to changes in temperature and the transfer of water, particularly from glaciers and ice sheets.

On the other hand, the oceans are also a part of the solution, playing a significant role in effectuating climate change impacts. The oceans are the largest sinks of CO₂ as well as the largest heat sinks. The oceans, by inter-

149 Article 1(k) of the Kampala Convention.

150 See Craig (2012:54).

151 IPCC (2007:13).

acting with the atmosphere, create heat circulation and wind and weather patterns, which determine the impacts of climate change on all terrestrial life.¹⁵² The oceans absorb one quarter of human emissions of carbon dioxide annually,¹⁵³ acting to slow the rate of climate change.¹⁵⁴

The law of the sea is faced with considerable challenges regarding the impacts of climate change on the oceans.¹⁵⁵ Fields of international law that come to mind with regard to the effects of climate change on the oceans are international fisheries law and the broader field of marine environmental law. Furthermore, sea level rise and the opening of previously ice-covered ocean areas present navigational rules, the law pertaining to the protection of sensitive polar marine environments, but in particular international law relating to entitlement to maritime zones with a number of challenges.

Besides a large set of international treaties governing various aspects of marine pollution¹⁵⁶ and biodiversity protection,¹⁵⁷ the 1982 United Nations Convention on the Law of the Sea (UNCLOS III) is the main international legal instrument in terms of marine governance.¹⁵⁸ With 165 parties,¹⁵⁹ the Convention is a broadly applicable set of rules defining the rights and responsibilities of nations in their use of the world's oceans and establishing guidelines for the environment and management of marine natural resources. However, it seems that UNCLOS does not provide sufficient rules to resolve the problems related to the effects that climate change has on the oceans.

UNCLOS III provides that states are entitled to four types of maritime zones: the territorial sea (which may not exceed 12 miles in breadth and over which the coastal state is sovereign); the contiguous zone (up to 24 miles in

152 Craig (2012:53).

153 Le Quéré et al. (2010).

154 Freestone (2009:383).

155 For an in-depth discussion see Rayfuse (2012).

156 Such as the 1954 International Convention for the Prevention of Pollution of the Sea by Oil; the 1972 London Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter; or the 1973 International Convention for the Prevention of Pollution from Ships (MARPOL).

157 Such as the 1992 United Nations Convention on Biological Diversity.

158 Craig (2012:71).

159 As of 31 January 2013. See http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm, last accessed 20 February 2013. The United States have not acceded to the convention. It is argued that accession "would expose the United States to international lawsuits (including suits based on U.S. contributions to global climate change) that would harm its environmental, economic and military interests". See Groves (2012).

breadth, in which the state may exercise jurisdiction over customs, immigration and pollution); the exclusive economic zone (up to 200 miles, in which the state has exclusive rights to explore and exploit natural resources, establish artificial structures, conduct scientific research, and protect the marine environment); and the continental shelf (not exceeding 350 miles, in which the state possesses sovereign rights for the purpose of exploring and exploiting the natural resources). Besides processes such as explosions or eruptions, climate change related changes of the oceans with sea level rise leading the way are further causes for shifts in coastal geography, which in turn directly impact maritime entitlements. It is presumably attributable to the lack of sufficient knowledge of climate change at the time when UNCLOS was concluded in 1982, that the convention remains silent on whether baselines for maritime zones are ambulatory (i.e. whether maritime zones shift with the coastline) or fixed.¹⁶⁰

The threats of climate change and sea level rise present international law with massive legal challenges. Sea level rise rendering small islands uninhabitable is an extreme scenario, which is certainly not applicable to all small island nations. It, however, puts to the fore the effects of climate change on socio-economic conditions and bio-physical resources and many of the challenges with which the law of the sea (and many other fields including refugee law, human rights law, etc.)¹⁶¹ is confronted in the era of climate change. The options for small island states, which potentially lose statehood and maritime claims due to sea level rise, are increasingly being explored, on paper and in practice. One option to maintaining maritime zones and statehood, which has been suggested, realised and controversially discussed, not only from a legal point of view, is the construction of artificial islands.¹⁶² However, a solution to the legal problems of the consequences of climate change induced sea level rise at international level is not yet in sight.

Lastly, new technology permits companies to exploit oil and gas reserves in the newly accessible continental shelf. Improvements in deep seabed mining technology make it feasible to extract rare earth and other minerals from the ocean floor outside of any nation's jurisdiction. Newly available oil and gas exploration, shipping, tourism and fishing in the Arctic as a result of global warming has a variety of security implications in newly accessible

160 For a detailed discussion see Lisztwan (2011).

161 It has for example been estimated that a one-meter rise in sea levels will affect 145 million people. See Anthoff et al. (2006); Barnett & Webber (2010).

162 See Gagain (2012).

Arctic sea routes as well as in other potentially contested sea lanes, i.e. in the South China Sea and in the Antarctic.

The high seas, one of the four global commons,¹⁶³ have to be protected from environmental threats caused by deep-sea mining, overfishing, ocean warming, acidification and pollution. The protection of the high seas in terms of security threats, however, also plays an important role in the international trade arena. The United Nations International Maritime Organization estimates that over 90% of world trade are carried by sea.¹⁶⁴ The global network of merchant ships thus provides one of the most important modes of transportation.¹⁶⁵

Piracy may have serious implications for the continued economic development of many regions and is becoming a major challenge for international law. International law addresses the issue of piracy particularly in Articles 100–107 and 110 of the UNCLOS. Article 101, UNCLOS provides that:

piracy consists of any of the following acts:

- a) any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed:
 - (i) on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft;
 - (ii) against a ship, aircraft, persons or property in a place outside the jurisdiction of any State;
- b) any act of voluntary participation in the operation of a ship or of an aircraft with knowledge of facts making it a pirate ship or aircraft;
- c) any act of inciting or of intentionally facilitating an act described in subparagraph (a) or (b).

The welfare of seafarers and the security of navigation and commerce are at risk due to acts of piracy, which may result in the loss of life, physical harm or hostage-taking of seafarers, significant disruptions to commerce and navigation, financial losses to ship-owners, increased insurance premiums and security costs, increased costs to consumers and producers, and damage to

163 The other four being the atmosphere, Antarctica, and outer space.

164 IMO (2011).

165 See Kaluza et al. (2010).

the marine environment. The Division for Ocean Affairs and the Law of the Sea has reported as follows:¹⁶⁶

In the first six months of 2012, 206 attacks were reported worldwide, compared with 316 attacks during the same period in 2011. The total number of acts or attempted acts of piracy and armed robbery at sea worldwide, as reported to IMO in 2011, was 544, compared with 489 in 2010.

At the regional level, in 2011 IMO received 223 incident reports for East Africa; 63 for the Indian Ocean; 28 for the Arabian Sea; 113 for the South China Sea; 22 for the Straits of Malacca and Singapore; 29 for South America and the Caribbean; and 61 for West Africa.

Especially developing countries are increasingly building up their marine military forces to address current threats such as depletion of natural resources and hazards of maritime transport routes by piracy.¹⁶⁷ As continuous economic growth can only be achieved if a safe passage of goods, raw materials and energy is warranted, defence budgets are being increased.

China, for example, who transports 95% of its imports and exports via the oceans, has increased its budget for armament by 216% from 2000 to 2009, with upgrading the submarine fleet as a focus area. India, in its 2007 Maritime Military Strategy, recognises a direct link between national economic development and open sea routes.¹⁶⁸ Brazil's National Strategy of Defence provides that:¹⁶⁹

“Sea denial”, “sea control” and “power projection” should focus, without defining any hierarchy for the objectives, and according to the circumstances, on the following:

- a. Proactive defence of the oil platforms;
- b. Proactive defence of naval and port facilities, archipelagos and oceanic islands located within the Brazilian jurisdictional waters;
- c. Promptness to respond to any threat against sea-lanes of trade, by States, or by non-conventional or criminal forces;

166 See United Nations General Assembly Oceans and the Law of the Sea Report of the Secretary General, 31 August 2012, A/67/79/Add.1, available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N12/478/41/PDF/N1247841.pdf?OpenElement>, last accessed 01 February 2013.

167 For this and the following observations on maritime armament see Grebe & Schwarz (2011).

168 (ibid.).

169 Available at http://www.defesa.gov.br/projetosweb/estrategia/arquivos/estrategia_defesa_nacional_ingles.pdf, last accessed 29 January 2013.

- d. Capacity to join international peacekeeping operations outside of the territory and the Brazilian jurisdictional waters, under the aegis of the United Nations or other multilateral organizations in the region.

South Africa, as one example of a developing nation on the African continent, and considered to be the most powerful nation on the continent in military terms,¹⁷⁰ also considers its navy to be an important tool to secure free and safe passage for trade vessels and thereby to contribute towards regional stability. Approximately 98% of South Africa's international trade moves by sea and the prosperity of the region is highly dependent on the stability and unhindered flow of trade into and out of the region.¹⁷¹

In this context is noteworthy that Africa is now taking legal action “to liberate African coastal waters from age-old foreign dominance, and take a significant step towards a more unified continent”¹⁷² and thus taking another significant step away from the remains of colonialism. The African Union has come up with an African Maritime Transport Charter (which still has to come into force)¹⁷³ and is about to conclude plans to establish an African Cabotage Regime, which will only allow African vessels to move cargo along the coast of the continent and prevent non-African mother vessels in African waters from using smaller vessels to move products back and forth in African waters. The aim is to support the African shipping industry by only allowing African owned vessels to trade along Africa's coast.

VII. Climate Change and World Trade Law

The international trade regime under the World Trade Organisation (WTO) is also strongly related to the international climate change regime. In fact, both regimes recognise that climate change may provide opportunities as well as challenges for international development. The WTO is a remarkable example of institutional evolution and its dispute settlement system is as effective as it is impartial. However, similar to the international climate change negotiations, the so-called Doha Development Round of multilateral

170 Flandes & Costa Vaz (2011:16).

171 According to the website of the South African Navy at <http://www.navy.mil.za/aboutus/role/page2.htm#01>, last accessed 29 January 2013.

172 Ezeanya (2013).

173 Available at <http://www.au.int/en/content/revise-african-maritime-transport-charter>, last accessed 28 January 2013.

trade negotiations have been complex and without success so far. Both negotiation processes seem to be lacking the necessary consensus of the parties involved. The only difference between the two negotiation processes lies in the fact that “the climate doesn’t have time for a Doha-like approach”.¹⁷⁴ Unfortunately, after more than 10 years of repeated negotiation failures, the Doha Development Round is unlikely to be concluded in the near future. Some even contend that the “WTO risks its future by keeping Doha alive”.¹⁷⁵

With regard to the persistence of global poverty and socio-economic inequalities, international trade rules often allow affluent countries to continue to protect their markets – with tariffs, quotas, anti-dumping duties, export credits and huge subsidies to domestic producers – at the expense of potential agricultural and textile exports from developing countries, for example.¹⁷⁶ International trade should therefore be considered as a means to an end, but not as the end in itself. An effective international trade regime must first and foremost be friendly to the environment, poverty reduction and sustainable development.¹⁷⁷ The increasing awareness about the negative effects of climate change and the continuing communication among international institutions as well as the public dialogue necessarily lead to the rethinking and eventually to the adjustment of traditional frameworks. These also lead to fruitful discussions, for example, on new trade and climate change related measures, such as carbon labelling or similar standards or regulations on the imposition of border carbon adjustments, which impose border taxes on the embodied carbon of imported goods, set at the level of equivalent domestic taxes.¹⁷⁸

In the light of the fact that the global village, with international trade as a foundation, has become a reality, it is commendable that the ‘trade versus environment’ debate has shifted towards the concept of mutual supportiveness between trade and environment or trade and climate change respectively, even though it might – at first glance – appear to be a forced marriage.¹⁷⁹

174 Houser (2010).

175 See Miles (2011).

176 Pogge (2010:534).

177 Ruppel & Ruppel-Schlichting (2012:46).

178 Ruppel & Ruppel-Schlichting (2012).

179 (ibid.).

Again, world trade law “can both constrain and enable climate action”.¹⁸⁰ World trade law has the potential to promote community goals, namely the enhancement of economic development.¹⁸¹ A closer look at world trade law, however, –¹⁸²

sadly shows that accordingly solidarity is poorly implemented. The flaw is not in WTO law itself: WTO law allows developed countries to act in favour of developing countries. But developed countries can choose not to implement relevant exceptions and too often implement them poorly.

Moreover, both the policy-making and academic communities have been focusing on the role of the WTO.¹⁸³ There has been much discussion about the ways in which the WTO exerts a negative influence on climate law and policy. This includes its potential ‘chilling’ effect on the climate treaties, referring to the fact that parties to the climate regime have refrained from adopting multilateral trade measures – for instance, against non-compliers or non-parties.¹⁸⁴ While WTO law may thus seem to constrain climate ambitions, attention has increasingly shifted to ways that the organisation might contribute to climate change mitigation. One of these options is pursuing the reduction of fossil fuel subsidies,¹⁸⁵ as called for by the G20 in 2010.¹⁸⁶

With the aim to achieve a global agreement to tackle aviation emissions, the European Union (EU) has since the beginning of 2012 included emissions from international aviation into the EU Emission Trading System (EU ETS), which applies to EU and non-EU airlines alike.¹⁸⁷ The recent independent action by the EU on international aviation emissions¹⁸⁸ has given rise to a boiling international dispute whereby the EU has been accused of

180 Moncel & van Asselt (2012:169).

181 Wolfrum (2006:1097).

182 Hestermeyer (2012:57).

183 See for example Doelle (2004); Hufbauer et al. (2009); Epps & Green (2010); Zelli & van Asselt (2010:79).

184 See Eckersley (2004:24).

185 Green (2006:381); Bigdeli (2008:78).

186 Paragraph 24 of the Pittsburgh Summit Declaration, available at <http://www.g20.utoronto.ca/2009/2009communique0925.html>, last accessed 17 February 2013.

187 In November 2012, however, the European Commission has proposed deferring the application of the scheme to flights into and out of Europe until after the ICAO General Assembly in autumn 2013 as a gesture of goodwill in support of an international solution.

188 Kulovesi (2012).

using unilateral trade measures and exercising extraterritorial jurisdiction in violation of international law,¹⁸⁹ and failing to adequately reflect the principle of common but differentiated responsibilities and respective capabilities in the design of its aviation scheme.¹⁹⁰

Similar opposition is to be expected if the EU applies measures to emissions from international shipping. These are estimated to be responsible for 2.7% of the global CO₂ emissions in 2007.¹⁹¹ Since the International Maritime Organisation (IMO) is struggling to agree upon global action on measures such as a levy on CO₂ emissions or a cap-and-trade scheme for curbing emissions from shipping, the European Commission is considering to including maritime transport emissions in the EU's greenhouse gas reduction commitment.¹⁹² It becomes clear that powerful states can turn to unilateralism when they decide that they may achieve their foreign policy goals by unilateral action rather than by cooperation.¹⁹³ This in turn reflects that the international system is still characterised “by gross inequalities in power”.¹⁹⁴

While the question of response measures remains sensitive in UNFCCC negotiations, the forum could provide for a multilateral dialogue to examine the implications of unilateral climate action designed to promote the ultimate objective of the UNFCCC. In some cases, the WTO dispute settlement mechanism could also enter the scene if the measure in question falls under WTO Agreements.¹⁹⁵

In all cases, however, the focus should shift from the relatively simplistic choice between multilateral action, unilateral action or no action¹⁹⁶ towards exploring ways in which interaction between a plural mix of legal regimes and jurisdictions in a global context can best serve the ultimate objective of the UNFCCC to avoid dangerous anthropogenic climate change.

189 For an overview of legal arguments in this regard, see Kulovesi (2011:535).

190 Scott & Rajamani (2012:469).

191 See <http://www.imo.org/MediaCentre/resources/Pages/Greenhouse%20gas%20emissions.aspx>, last accessed 05 February 2013.

192 See http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm, last accessed 05 February 2013.

193 Delbrück (2012:15).

194 Schreuer (2001:177).

195 Kulovesi (2012).

196 Similarly see Morgera (2012).

Thus, more international cooperation in economic areas is necessary in order to ensure more coherence and global welfare.¹⁹⁷ As stated by Delbrück, —¹⁹⁸

[I]t is not surprising that given the broad scope of subjects covered by international economic law in general and the law of the WTO in particular – cooperation in these fields show the variety of modes and mechanisms to implement obligations to cooperate.

After all, while world trade has – no doubt – contributed significantly to greenhouse gas emissions, it also offers a variety of options in terms of new technologies and services, which will be crucial in mitigating further climate change.

Lastly, climate induced migration on the scale that is expected is not unlikely to have serious repercussions socially, economically and politically. In this sense, it is worth examining the implications such displacement may have for international trade.¹⁹⁹ Some authors have started to approach international trade from an anti-capitalist perspective, linking trade to migration by arguing that the multilateral economic system is a capitalist one, whereby strong capitalist interests are protected by regulatory regimes such as the World Trade Organisation (WTO) to continue exploiting the ecosystem in an unsustainable way in pursuit of profit. The environmental damage, in turn, leads to the displacement of people who are forced to migrate by the lack of resources and the basics for survival.²⁰⁰

D. The Future We Want?

From the aforementioned it becomes clear that the existing regimes and intersections of law may not yet suffice to assure the best possible outcomes for future generations. This, among other things, was addressed at the 2012 Rio+20 Conference on Sustainable Development, which was the biggest UN conference ever. The conference should have been a major step forward in achieving a sustainable future – the future we want. This, however, did not happen due to a number of reasons, so that “the future we want” still needs further political attention and action.

197 Tietje (2001).

198 Delbrück (2012:9).

199 Leal-Arcas (2012).

200 (ibid.) with further references; Westra (2009); Stokke (2005).

The 2012 Club of Rome Report entitled “2052 – A Global Forecast for the Next Forty Years”,²⁰¹ addresses several global goals as essential for the transition towards a sustainable, equitable and ‘happier’ world. Some of these global goals are also most relevant to the challenges of the Anthropocene: The report argues that societal values are essential for a sustainable and equitable society and that they must be fully reflected in all economic decisions. It further contends that a more equitable distribution of income both within and between countries is required. Moreover it holds that the ecology must be seen as a binding constraint for all forms of human activity and should therefore be managed in a manner which reflects its biophysical and economic value. Never should the world be in overshoot. Appropriate governance systems at a local, national and global level must be established to manage the transition into an equitable and sustainable global world.²⁰²

In the light of the aforementioned the following sections will reflect in more detail on the way forward and make some recommendations for the future we (may or may not) want.

I. Economic Development, Regional Integration and the Reduction of Poverty

The furtherance of economic development, regional integration, and the reduction of poverty go hand in hand.²⁰³ This interrelationship has become closer over the past few years due to increasing discussions in the world community on the issue, especially in the context of climate change. Yet, many regional integration processes around the world still face obstacles and challenges.²⁰⁴ The fear of losing state autonomy, the fear of losing national identity, socio-economic disparity among members, historical disagreement, lack of vision, and unwillingness to share resources are some of the obstacles that present themselves with regard to regional integration.²⁰⁵ Regional integration provides an —²⁰⁶

201 Club of Rome (2012).

202 (ibid.).

203 This section is largely based on Ruppel (2012).

204 See Ruppel (2009b).

205 Ruppel (2009a).

206 Ruppel & Ruppel-Schlichting (2012:41).

opportunity to enhance political stability by establishing regional organisations, which play an increasing role (not only in the facilitation of trade but also) in defusing conflicts within and between countries and in promoting human rights. In terms of climate change related matters, such organisations are of the utmost relevance, especially when it comes to climate change related disaster management and environmentally induced migration. In this context, regional integration may serve as a tool to maintain political stability by building trust, enhancing understanding between groups and deepening interdependence.

The triumph of market mechanisms has accelerated the process of globalisation. After the collapse of the competition between market-driven and state-commanded economies, developing countries seem to have only one option to follow for modernisation and development. Liberal democracy does not seem to have any serious competitors. Given this monolithic economic and political framework, it is not an easy task to determine where sustainable economic development actually fits in.²⁰⁷ The same applies to the question regarding the relation between market, development and well-being, and the influence economic development can play on the alleviation of poverty in view of the fact that economic development is not always concomitant with greater welfare of the average individual, as the growth of the gross national product (GNP) is not a sufficient indicator with which to measure the level of security and the quality of life of people.

After all, it is a sad reality that about half of all human beings still live in severe poverty and about a quarter live in extreme or life-threatening poverty.²⁰⁸ One major reason why poverty is still so prominent today is that “affluent societies are not merely helping too little, but also harming too much.”²⁰⁹ The principle of common but differentiated responsibilities, one of the cornerstones of the international climate change regime, explicitly referred to in the UNFCCC and the Kyoto Protocol, is meant to address this disparity. The trans-boundary nature of climate change action and impacts have environmental and developmental repercussions for all countries. The differentiation of responsibilities, however, should support even greater efforts in future,²¹⁰ especially in view of the on-going “disparity between the human and the economic magnitude of world poverty” and “the enormous extent of economic inequality in the world today”.²¹¹ About 60% of the

207 Pillay (2009).

208 Pogge (2011:20).

209 Pogge (2004:1759).

210 Garibaldi et al. (2012).

211 Pogge (2010:528).

world's population holds less than 2% of global wealth, in contrast to the top 1% of the world's population, who hold 40% of global wealth.²¹² "Because of these enormous inequalities, we are now at the point where the world is easily rich enough in aggregate to abolish all poverty. We are simply choosing to prioritize other ends instead."²¹³ Sustainable economic development therefore depends on equity:

In the analysis of the causes of and solutions to climate change, the quality of the equity commons and the governance rules that protect and enhance it are key elements in crafting a viable international agreement on future emissions allocation and burden-sharing of emissions mitigation and climate adaptation costs. More broadly, equity – together with so many of the public goods that provide the foundation for sustainable development – is vulnerable. Deliberate policies in favour of increasing equity over time not only improve social welfare, but also act to shore up the foundations for the equity commons of the future, by establishing and strengthening rules for its governance.²¹⁴

II. Cooperative Global Climate Governance

Although the problem of climate change is rather clear, political solutions are often far and unfair. The international community seems unable to come up with agreements that both remedy the substantive causes of climate change and the damage caused by it. An agreement that is optimal for the world and its future generations may not be optimal for some national economies, which would probably have to bear a large burden for significant domestic emissions reductions and which are not among the nation's most gravely affected and threatened by climate change. The key remaining question is how responsibility for global climate protection can be shared more equitably in future. In order for that to happen more effective and equitable legal and policy responses need to be implemented.

We live in an increasingly interconnected and interdependent world. It is a world bound together, not just by state interests, but also – and especially in the context of climate change – by an interest in more global coopera-

212 Davies et al. (2006).

213 Pogge (2010:528).

214 Stanton (2012).

tion.²¹⁵ It should thus be “in the interests of all States ... to uphold the rule of law in the world.”²¹⁶

Yet, it would be irrational to accept more powerful organs of world government, without a certain decrease of national government’s power.²¹⁷ According to a minimal definition of cooperation the term could mean that states are to enter into contact with each other.²¹⁸ It could further be argued that under general international law states are under an obligation to cooperate,²¹⁹ an effort for instance “to accomplish an object by joint action, where the activity of a single state cannot achieve the same result”.²²⁰ Areas where international cooperation is essential include the international protection of human rights, the duty to cooperate in international economic law and related areas, and the duty to cooperate in international dispute settlement.²²¹

On the one hand international duties to cooperate are based on treaties made by the sovereign states, which leaves it in their discretion whether they adhere to that treaty or not.²²² On the other hand one can also argue that cooperation by states actually is “the most important manifestation of sovereignty”,²²³ rather than – “as was assumed in earlier times – an obstacle to international cooperation”.²²⁴ However, it must “be admitted that the hard law obligations to cooperate share the fate of other binding rules of international law, i.e. that some States still prefer not to comply” with them.²²⁵

In the analysis of the causes of and solutions to climate change more “[d]eliberate policies in favour of increasing equity over time [would] not only improve social welfare, but would also act to shore up the foundations for the equity commons of the future, by establishing and strengthening rules for its governance”.²²⁶ Yet, in the development of international law it is so far “precipitate to consider solidarity as a legally binding principle for all in

215 Koh (2012).

216 (*ibid.*:1237).

217 Pogge (1987:430).

218 Delbrück (2012:4).

219 (*ibid.*:5).

220 Wolfrum (1995:1242).

221 See Delbrück (2001).

222 Delbrück (2012:13).

223 See Schreuer (2001:179).

224 Delbrück (2012:14).

225 (*ibid.*).

226 Stanton (2012:407).

international law. All too often its content is too uncertain for it to work as an applicable legal norm.”²²⁷

According to the UN General Assembly’s definition of solidarity in the UN Millennium Declaration “[g]lobal challenges must be managed in a way that distributes the costs and burdens fairly in accordance with basic principles of equity and social justice. Those who suffer or who benefit least deserve help from those who benefit most.”²²⁸ Common but differentiated responsibilities as stipulated in Principle 7 of the Rio Declaration states: “States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the earth’s ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities.”²²⁹

International law as a value-based order should go beyond mere coexistence and involving the commonly shared interests of the international community.²³⁰ Solidarity has long been invoked as a strong moral claim but it is more and more considered to be a “value reflected in international law”.²³¹ Solidarity involves three different, not necessarily cumulative aspects:²³² “The achievement of common objectives through common action of States, the achievement of common objectives through differentiated obligations of States and actions to benefit particular States”.²³³

Yet, from the above it becomes clear that several independent international legal regimes exist, which are relevant in one way or another in the context of climate change. There are intersections between these regimes although they are fragmented. On the one hand such fragmentation and regulatory diversity may well be beneficial if the intersections of law are orchestrated in an innovative manner. On the other hand it is argued here that the law (at least as it exists today) is not enough to effectively address the challenges that accompany climate change. While there are some regimes dedicated exclusively to climate change (such as the UNFCCC), others impact deeply on climate change, yet have a primary focus dealing with quite

227 Hestermeyer (2012:48).

228 UNGA Res. 55/2 para. 6 (adopted without vote).

229 United Nations Conference on Environment and Development, Rio Declaration on Environment and Development, 14 July 1992, 31 ILM 874.

230 Wolfrum (1984).

231 Hestermeyer (2012:63).

232 Seibert-Fohr (2012).

233 Wolfrum (2010).

different subjects (human rights, world trade, the oceans framework etc.). Dealing with climate change involves creating a coherent and orchestrated international regime, a set of arrangements among states and other stakeholders designed to solve a global problem that cannot be solved by individual nation-states. While the existing international regimes rest largely on intergovernmental agreement, one dealing with climate change will have to go far beyond the capacity of governments and will need support from non-state actors as well, creating a multi-stakeholder regime.²³⁴ For local and national action to be effective, such a global regime should aim at cooperation and solidarity, and be supportive and well designed.

Human activities seem to be moving several of the Earth's sub-systems outside the range of natural variability typical for the previous 500,000 years.²³⁵ Human societies therefore must now change course and steer away from critical tipping points in the Earth system that might lead to rapid and irreversible change.²³⁶ According to Biermann et al. —²³⁷

[t]his requires fundamental reorientation and restructuring of national and international institutions toward more effective Earth system governance and planetary stewardship The world saw a major transformative shift in governance after 1945 that led to the establishment of the UN and numerous other international organizations, along with far-reaching new international legal norms on human rights and economic cooperation. We need similar changes today, a 'constitutional moment' in world politics and global governance.

At the same time international law and global governance will require more empowerment of international judicial institutions that learn to integrate inter-disciplinary tools to accommodate the inter-linkages between legal and institutional reforms and climate change policy.

E. Conclusion

To conclude with a statement made by UN Secretary-General Ban Ki-moon in February 2013: "We live in an age of monumental transition – economic, demographic, political. Global interdependence is deepening. Transnational

234 Mathiason & Bhandari (2010).

235 Steffen et al. (2004); Schellnhuber et al. (2004).

236 Rockström et al. (2009).

237 Biermann et al. (2012).

threats are growing. This means we must make better use of the United Nations machinery.”²³⁸ So far, however, –²³⁹

the climate change regime complex is a loosely coupled system of institutions; it has no clear hierarchy or core, yet many of its elements are linked in complementary ways. It occupies neither extreme. Instead, it is a regime complex whose elements are loosely linked to one another, between the poles of integration and fragmentation.

In the threatening context of climate change this can be interpreted as a failure of the system: More coherent, cooperative, collective action is needed to address climate change. The piecemeal, fragmentary approach to both understanding and addressing the issue of climate change is unsatisfactory. Humanity has the opportunities, tools, science, technology and insight to deal with climate change and to move into a better world. Whether we manage to do so will depend on improved mechanisms of international law and governance. The failure to bring international relations under the rule of law through the absence of more effective central mechanisms of adjudication and/or enforcement explains the pervasive ambiguity of international law.²⁴⁰ In fact, what is missing is more world government, a strengthening of the central organs of the United Nations, for example, that would make it more likely that international law will be applied and enforced.²⁴¹

Legitimate voices²⁴² have been aired regarding the need of a specialised international judicial body to hear and determine trans-boundary environmental matters and to provide greater coherence to the fragmented global climate governance regime. Such a judicial body could provide interpretive guidance and judicial support, which in turn would – no doubt – also be of benefit when combating climate change. It could thus contribute to coordination of the intersections of law, to legal harmonisation and to a complementation of existing fragmented climate relevant regimes.

Such a judicial body would also be in line with Article 14 of the UNFCCC (dispute resolution) and particularly Article 33(1) of the UN Charter:

The parties to any dispute, the continuance of which is likely to endanger the maintenance of international peace and security, shall, first of all, seek a solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement,

238 Ki-moon (2013).

239 Keohane & Victor (2011).

240 Pogge (1987:426).

241 (ibid.:427).

242 Hockman (2010:215).

resort to regional agencies or arrangements, or other peaceful means of their own choice.

It could resolve conflicting international law obligations and overlapping mandates of the global climate governance structures; create a model for compliance and enforcement to encourage national protection standards; and promote greater accountability and access to justice.

Lastly, existing intersections of law and more cooperative global climate governance can “develop an unforeseen dynamism, in particular if ... endowed with institutions of a norm-setting and also of a judicial character”.²⁴³ However, the law only enfolds “effective force from the underlying political consensus. Without such consensus, legal devices, no matter how scrupulously they have been thought out, may be swept away by the ground forces active in international society”.²⁴⁴

The threats of the very existence of humanity are obvious: In this respect, in no area of law should the common interests of mankind be clearer than when addressing climate change and the challenges in the Anthropocene. With this in mind one should reasonably think that it is possible to identify and agree upon the necessary reforms in response to the changing climate and for the survival of mankind.

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243 Tomuschat (2012:1285).

244 (ibid.).

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Whose Climate, which Ethics? On the Foundations of Climate Change Law

Johan Hattingh

Abstract

In this article, it is argued that a critical analysis of three different discourses about the ethical meaning of climate change can contribute to more clarity about the foundations of climate change law. The ethical discourse mostly used is that of *justice*, in which issues of distribution, retribution and administrative fairness are emphasised to draw attention to various kinds of injustices suffered by the victims of climate change. A justice approach also emphasises the duty of behavioural change and providing compensation resting on those causing climate change. In an effort to overcome the difficulties of a language of justice, a discourse of *human rights* can be used in which climate change is depicted as a major threat to the human right to life, the human right to health, and the human right to subsistence. In this language, the focus falls on climate change as an assault on the autonomy of persons and human dignity, and what could be done about climate change to avoid such threats. The discourse of *human security* entails a novel approach to climate change ethics derived from development ethics. In the language of human security, interconnectivity, contextual embeddedness, communication, concrete experience, creative thinking and transformative narratives are emphasized to determine on a case-by-case basis what it means to be human, how climate change threatens that humanity, and which concrete measures should be put in place in a particular society to guarantee minimum conditions under which that humanity can be safeguarded.

A. Introduction

Efforts to develop and implement climate change law in the national and international arena inevitably take place within the field of tension between law as an institution, on one hand, and justice as a normative ideal of society,

on the other. Often referred to as the tension between the letter and the spirit of the law, this polarity and ambiguity, but also the complexity involved in negotiating the two sides of what is actually a continuum, is felt by all law-makers, prosecutors and attorneys trying to prevent, hold accountable and compensate for harm caused in society. Many times the legal fraternity experiences that a transgression is not acknowledged or appropriately punished, or that the recognition, compensation or restitution of a victim fail because of inadequacies in the formulation or application of existing law.

As flaws in the letter of the law can lead to miscarriages of justice, help is often sought outside the law by appealing to the ethical principles that are supposed to inform and underlie the law. From this perspective, the ethical nature of the general problem that is addressed by the law is made explicit, the ethical principles at stake in that problem area are articulated, and possible resolutions to the problem are proposed in the format of policy guidelines, statements, or soft legal instruments such as declarations, conventions or treaties. Such efforts to overcome the problems created by inadequacies in the letter of the law can however only be successful if a relatively clear, stable and widely accepted consensus exists, or can be established, about the ethical issues related to the problem area, and how these ethical issues should be resolved.

A lack of consensus in this area, though, is usually counterproductive in the sense that different notions about the ethical nature of a problem, the principles that are at stake, and the guidelines that should be followed to resolve the problem can seriously hamper administration of existing law as an institution of society. Similarly, the lack of consensus creates problems of a different substance in efforts where that law still has to be developed: the process itself, as well as its outcomes, is continually challenged from numerous angles. A case in point is the negotiations taking place under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC), a body which is aiming to arrive at a legally binding international convention that is able to respond effectively to the many difficulties created by climate change. The converse of this argument is that progress in forming a common understanding of the ethical dimensions of climate change can be of tremendous help in developing climate change law in both national and international contexts.

The big question, however, is whether reasonable international consensus about the ethical dimensions of climate change exists; and, if not, whether there are reasonable prospects for such consensus to emerge in the near future? A short answer to this question is that such consensus indeed exists in

the realm of theoretical ethical reflection, even if some difficulties exist in formulating this theoretical consensus, and even if the very characteristics of climate change contribute to these difficulties.¹ However, such consensus definitely does not exist in the political context of international relations and negotiations that are characterised by the protection and promotion of the interests of nation states. In the latter context, deep divides exist in the understanding of climate change and its ethical implications: different ethical positions are assumed, and the prospects of an ethical consensus emerging seems to be slim. It is therefore to some extent ironical to note that climate change ethics in the abstract theoretical realm takes this lack of consensus in the political realm as a point of departure, and that much work done on theoretical climate change ethics amounts to efforts to address this lack of consensus about the ethical meaning of climate change in the international realm of *realpolitik*. A double irony becomes apparent in that these efforts in theoretical climate change ethics to address the lack of ethical consensus in the context of *realpolitik* are not generally accepted – they are accepted by some nation states and rejected by others, depending on the substance of and central arguments of these efforts, and the implications these have for national interests.

Thus, many of the disputes in international negotiations about climate change will be understood better if they can be related to the issues discussed in climate change ethics. Conversely, if what is discussed in climate change ethics is understood well, this can help to overcome at least some of the disputes in international negotiations about climate change – and thus help to advance the development of climate change law. Accordingly, this article will be devoted to an overview of the core issues discussed in theoretical climate change ethics.

In order to highlight the core issues of theoretical climate change ethics, this overview will cover the most prominent discourses (or languages) that have emerged in efforts to articulate the ethical meaning of the impact of climate change and efforts to mitigate these impacts or adapt to them. The most widely dispersed and commonly used language in this regard is that of

1 Characteristics that can be highlighted here include the global dispersion of the causes and effects of climate change in space and time and over generations, as well as the fragmentation of agency in causing climate change, but also in responding to it, as is emphasized eloquently by Gardiner (2011). Scientific uncertainty about many aspects of climate change, its impacts and how to respond to them, also adds to the difficulties of responding appropriately to climate change.

justice – a concept closely related to the pragmatic language of politics and national interests – the core of which is aiming to make explicit and propose ways to address the injustices caused by climate change and efforts to respond to these. Another prominent discourse is that of *human rights*, in which climate change is interpreted as a major threat to basic human rights, while the threat posed by climate change to *human security*, broadly conceptualised from a development ethics approach, constitutes a third discourse that will be discussed.

The purpose of this article is not to give an exhaustive overview of the literature of climate change ethics,² but rather to provide insight into the substance and core arguments of the dominant discourses of climate change ethics by making use of a selection of representative publications. The *White Paper on Climate Change Ethics*³ will serve as source for the discussion of the justice discourse in climate change ethics, while two seminal articles of Simon Caney⁴ will serve as basis for the discussion of the human rights discourse. A review article by Des Gasper⁵ provides a useful entry point into the discourse on *human security* in climate change ethics.

B. Climate Change Ethics and the Language of Justice

One of the most common, and perhaps also most widely dispersed languages in which the ethical dimensions of climate change are being articulated, is the language of justice. In this approach the problem of climate change is predominantly articulated as that of creating distributive issues, such as those concerning “justice between rich and poor and between present and future”.⁶ On the basis of recognising issues of *distributive justice*, the challenge of *retributive justice* is added to the argument, so that the question of compensation for damages, including damages caused by historical emissions of greenhouse gasses (causing anthropogenic climate change), is also taken as central to this discourse. Issues of *procedural justice* also form part of this

2 As was, for instance, done by Gardiner (2004).

3 White Paper on the Ethical Dimensions of Climate Change (hereafter referred to as the “White Paper”), Rock Ethics Institute, Penn State University (not dated), available at http://newdirections.unt.edu/resources/climate_change_white_paper.pdf, last accessed 21 March 2013.

4 Caney (2010a and b).

5 Gasper (2010).

6 Shue (2001).

discourse, and focus on the principles of fair decision-making in the international context about the targets that should be pursued to mitigate or adapt to climate change, or the instruments and mechanisms that should be put in place to do so.

In what is presented as a preliminary ethical analysis,⁷ all three of these justice issues are neatly summarised in the *White Paper on the Ethics of Climate Change*. The *White Paper* points to the following considerations about the effects of climate change, its causes and the variation in people's ability to respond to climate change in order to introduce the principle of distributional fairness:⁸

- a. Many of those who will be most harmed by climate change have contributed little to causing the problem;
- b. Many of those who emit the most GHGs are least threatened by adverse climate change impacts;
- c. Those that are most vulnerable to climate change harms are often least able to pay for adaptation measures needed to protect them from climate change impacts.

With formulations of this kind, the *White Paper* draws attention to the fact that nations and people do not contribute equally to the GHG (greenhouse gas) emissions that cause climate change, and, equally, that nations and people are "differentially vulnerable" to climate change impacts.⁹ It also draws attention to the principle that nations and people should share equally in the harms of climate change and in the burdens and benefits of responding or adapting to it.¹⁰ Since the impacts of climate change are not contained within the borders of a nation, this implies that some nations or people experience impacts that they themselves have not consented to, but are shifted onto them by others.¹¹ While this draws attention to distributive issues that are, or will be, experienced mostly by the poorer section of the world's population, or by future generations, the *White Paper* also points out a further distributional issue that may be experienced mostly by the richer section of the world's population:¹²

7 *White Paper*:7.

8 (*ibid.*:10).

9 (*ibid.*:18).

10 (*ibid.*:31).

11 (*ibid.*:18).

12 (*ibid.*:10).

Emissions levels from human activity vary greatly around the world and therefore the huge emissions reductions that will be needed to prevent dangerous climate change will fall disproportionately [sic] on some[,] if equity is not taken seriously.

On an ethical level, questions arise from these citations. On a definitional level: what exactly is the meaning of “equity” in the context of responding to climate change? And, in particular: whose interests should receive precedence, those of the poorer part of the world’s population, or those of the more affluent part of the world’s population? While egalitarian philosophers such as Rawls¹³ will argue that the interests of the weak and the vulnerable of the world’s population should receive precedence, libertarians such as Nozick¹⁴ will argue that the more affluent part of the world’s population are entitled to maintain their emission levels if they have acquired these levels through freely initiated labour in which others are granted the same freedom to embark on their own initiatives. A question mark can, however, be placed behind the libertarian argument if it is realised that the freedom of some to emit GHG emissions actually restricts the freedom of others to do the same: there is just not enough ‘carbon space’ in the atmosphere for newcomers to emit as much as others did before them without significantly contributing to dangerous climate change.

The *White Paper* points out that distributive issues related to climate change do not only pertain to fairness in carrying the burdens of climate change, i.e. the burdens of its effects, adapting to it, or mitigating it by cutting emissions of GHGs, but also to enjoying the benefits of GHGs. There are some parts of the world’s population that claim entitlement to higher levels of greenhouse gas emissions than others, but this inequality will not be acceptable, or so the argument goes in this context, without a proper moral justification. The following formulation in the *White Paper* draws attention to this:¹⁵

According to relevant principles of justice, those who claim entitlement to use the atmosphere or other natural systems as a sink for their GHG emissions at levels proportionately greater than others have the burden of demonstrating that their claim for entitlement to unequal levels of emissions is based upon morally relevant criteria.

13 Rawls (1999).

14 Nozick (1974).

15 White Paper: 14.

The principle of equity, or equality, is thus evoked, which states in its simplest formulation that burdens and benefits should be distributed equally between people, unless an unequal distribution can be justified in terms of merit or need. In the context of responding to climate change, different needs and capacities of nations or people can be proposed as relevant criteria to justify differentiations in levels of emissions,¹⁶ as the distinction between “luxury” emissions and “subsistence” or “alleviation of poverty” emissions illustrates.¹⁷ While it will be difficult to argue for high levels of emissions to be maintained to sustain luxury life styles, the burden of proof seems to be much lower in the case of the poorer part of the world’s population to justify no cuts in their GHG emissions, or even to justify growth in their emissions on the basis of ensuring the subsistence of the nation, or the alleviation of poverty.

While it is clear in ethical terms that the satisfaction of vital needs usually trump the satisfaction of non-vital needs when choices have to be made, unless compelling arguments can be made to the contrary, it is clear from debates in the practical world of international politics that this obvious moral principle does not have much traction. To the chagrin of the poorer part of the world’s population, it rather seems to be a principle that is easily dismissed by the richer part of the world’s population – and this is arguably because the issues of retributive justice that are linked to the distributive issues brought about by climate change are fairly easy to articulate in the theoretical realm, but very difficult to respond to in practical terms.

In the *White Paper* the retributive issues related to climate change are introduced in the following general formulation:¹⁸

According to relevant principles of justice, when multiple parties have contributed to cause harm to others, parties harming others will be responsible in proportion to that proportion of harm that they have inflicted when it is possible to determine the relative contribution of the harming parties.

In order to address such retributive issues, two further questions need to be answered. First: what is the relative contribution of each harming party to the GHG emissions that has caused climate change over and above any natural levels that may have occurred anyway? And second: what are the damages that will have to be compensated to whom for the harms caused by

16 (ibid.:21).

17 Shue (1993).

18 White Paper: 14.

climate change? In the *White Paper*, the harming parties that should take responsibility for GHG emissions, and the climate change caused by them, are identified as nation states, and accordingly it is argued that it is fairly straightforward to determine the contribution of each nation to climate change.¹⁹ The emission levels of individual nations are well-known and part of public knowledge. It is not so easy, though, the *White Paper* points out, to determine what the damages are that are caused by climate change,²⁰ and where they take place, since the causal links between emissions and extreme weather events such as droughts, floods or storms cannot be determined with certainty. Accordingly, it is also extremely difficult, if not impossible, because of this uncertainty, to determine which nation owes which other nations how much to compensate for damages directly or indirectly experienced because of climate change.

A third set of justice issues summarised in the *White Paper* prompts the question: what principles of procedural justice should be followed to ensure fair decision making about climate change?²¹ The *White Paper* alludes to two broad spheres of decision making about climate change where these issues are relevant: one is determining atmospheric targets with the objective of mitigating climate change; the other is the allocation of GHG emission reductions to different nations with the objective of meeting these targets.²² In both of these spheres the poorer and smaller nations of the world could effectively be excluded from decision making because of lack of power, knowledge, or even something as simple as the means to attend meetings where decisions are made. To counter these contingencies, it is pointed out in the *White Paper* that procedural justice at a minimum requires:²³

- a. that like cases are treated alike and any distinctions be ethically justified;
- b. that the decision making and implementation treat people fairly and impartially;
- c. that those directly affected by the decisions have a voice and representation in the process; and
- d. that there be transparency in the decision making process.

Prior to decision making responding to climate change, however, there is a further and more fundamental procedural issue. This issue emanates from

19 (ibid.:15).

20 (ibid.).

21 (ibid.:8).

22 (ibid.).

23 (ibid.:35).

the basic fact that the impacts of climate change are experienced by nations and people that did not contribute to it, or enjoyed the benefits of the GHG emissions that caused it. In the *White Paper* it is argued that the principles of procedural justice demand that victims of decision making should participate in that decision making to help determine which risks are unacceptable, which risks can be tolerated, and under which conditions these risks will be tolerated.²⁴ Within the broad context of the issue of effective access to decision making, two further questions are alluded to here: first, “whether victims that may be put at risk have exercised free informed consent to participate in decisions that will impose risk on them”; and second: “whether even such consent would legitimize actions by others that threaten their life, health, and security”.²⁵

Since no member of any future generation that will be affected by the future impacts of climate change, as there *definitely* will be, or by the future impacts of present-day decision making in response to climate change, participate in processes affecting their well-being, the conclusion is clear that procedural justice with regard to future generations is impossible.²⁶ It is pointed out in the *White Paper*, however, that it is possible in the present to know in principle that future generations will have an interest in a climate system that is not degraded by human activities,²⁷ and that this should be taken into account in present-day decision making as if future generations were participating in the process. It is also pointed out, though, that further research is required on “how to best assure that the interests of future generations are adequately represented in negotiations in climate change negotiations”.²⁸

From the argument discussed above it is clear that climate change ethics formulated in the language of the principles of justice is an ethics of duty. Like any other ethics of duty, the principles of justice serve as basis for the formulation of imperatives upon which nations and persons are expected to act. A prerequisite for such action in the context of climate change, however, is a certain level of certainty about the facts regarding climate change: facts about its causes and impacts. Growing certainty about these facts will thus

24 (ibid.:18).

25 (ibid.).

26 The same applies in principle to members of the natural environment who in principle also cannot participate in decision making affecting them directly.

27 White Paper:32.

28 (ibid.:38).

certainly serve to strengthen the need to act on the principles of justice in the context of responding to climate change.²⁹ It will help to translate the theoretical articulation of these principles into concrete action.

One problem with an ethics of duty, however, is that – even if its principles may be formulated as clearly as one could wish for – these principles are not, in the final analysis, binding on anyone. They are only binding on people and nations if they are voluntarily adopted and acted upon. Another problem with an ethics of duty, in the format of an ethics of justice, is that an ethics of justice to a large extent can be seen as an ethics of victims. In such an ethics a clear articulation of the experiences of victims are captured, but these experiences are usually not recognised or acknowledged by those causing injustices. A third problem is that the issues of distributive justice are mainly discussed as they occur within the framework of states, while climate change and its impacts occur globally – raising the question whether the principles of distributive justice can be successfully transferred from the national to the global context.³⁰

So, while climate change ethics in the language of justice significantly contributes to a clear articulation of the experiences of victims of climate change, and while it also significantly contributes to a clear understanding of the duties that are neglected by those causing the injustices, it seems to be lacking in providing us with a language that can compel those causing injustices in the global arena to act differently, and to compensate for the harm caused. Such a language is proposed in climate change ethics formulated in terms of human rights issues.

C. Climate Change Ethics and the Language of Human Rights

Without claiming that a human rights approach captures all the morally relevant aspects of climate change, Caney argues that a human rights approach yields important insights into climate change ethics that has distinct advan-

29 (ibid.:28).

30 Caney (2010b:123).

tages over other approaches that should not be ignored,³¹ and has far reaching implications that could help to answer fundamental moral questions about climate change, for instance: What should be done about climate change? Who should bear the burdens of combating climate change?³² Should it be those who caused the problem? Or should it be those best able to deal with the problem?³³

As an exemplar of the use of human rights language to articulate the ethical meaning of climate change, Caney claims that three key human rights are jeopardised by climate change. They are the human right to life, the human right to health, and the human right to subsistence.³⁴ His discussion of the manner in which climate change undermines these rights is prefaced, on the one hand, by an orthodox³⁵ conception of human rights, and, on the other hand, by a careful conceptualisation of the rights to life, health and subsistence respectively. In his view of the nature of human rights, Caney emphasises in the first place that human rights are grounded in a person's humanity: he argues that we possess human rights by virtue of our humanity, and not because of the nation state we are born in, or by virtue of something we have achieved. Accordingly, human rights represent respect for a person's humanity.³⁶ In the second place, Caney states that human rights represent moral thresholds: they "designate the most fundamental moral requirements that individuals can claim of others".³⁷ In this context, Caney quotes Henry Shue who referred to basic rights as "the morality of the depths". By this Shue means that human rights define a line below which no one should be allowed to sink.³⁸

31 For example approaches in which trade-offs and cost-benefit analyses stands central (typical of instrumentalist or teleological approaches) to achieve greater social welfare. Another advantage is that a human rights approach can accommodate the scientific uncertainty typical of climate change science, that creates severe problems for cost-benefit analysis approaches. A third advantage is that a human rights approach can protect the most vulnerable in society, something that cost-benefit analysis approaches to climate change cannot do. Caney (2010a:169f).

32 Caney (2010a:164 and 173).

33 Caney (2010b).

34 Caney (2010a:166).

35 See Beitz (2004); Beitz (2001).

36 Caney (2010a:164).

37 (ibid.:165).

38 Shue (1996:18). Quoted by Caney (2010a:164–165).

A third aspect of human rights emphasised by Caney is universal protection: human rights “represent the entitlements of each and every individual to certain minimal standards of treatment, and they generate obligations on all persons to respect these basic minimum standards”.³⁹ With reference to Article 1 of the Universal Declaration of Human Rights of 1948, Caney points out that a human rights approach will thus oppose any political morality that merely aggregates the interests of all to increase the total welfare of society. A human rights approach would rather protect the entitlements of all individuals, with a view to ensuring that no one is left below the minimum moral threshold because of some political or economical trade-off.⁴⁰ The fourth dimension of human rights to which Caney draws attention is the “lexical priority” of human rights. The term “lexical priority” is derived from John Rawls, and it indicates that human rights have a priority over other moral values. It means that a human right cannot be sacrificed in order to gain any other moral value. A human right thus functions as a constraint to limit the pursuit of other moral values such as efficiency or happiness, or any political ideal for that matter.⁴¹

Caney is also at pains to offer conceptions of key rights that are plausible and avoid controversy. Acknowledging that different conceptualisations of the right to life exists, he opts, for the two reasons mentioned above, for the following definition of the human right to life: “Every person has a human right not to be arbitrarily deprived of his life.”⁴²

Given that climate change manifests itself in extreme weather events such as floods, heat waves and droughts that can, and in fact do kill people directly in their thousands, or sometimes in their tens of thousands, Caney is clearly justified by the numerous examples that can be quoted in this regard in claiming that anthropogenic climate change jeopardises the human right to life.

With regard to the human right to health, Caney criticises maximalist conceptions that call for the “highest attainable standard of physical and

39 Caney (2010a:165).

40 (ibid.).

41 (ibid.).

42 Derived from the International Covenant on Civil and Political Rights, 1976, Article 6 (1). Caney (2010a:166).

mental health”⁴³ – since such formulations could be interpreted to mean that all resources should be directed to attaining the highest standards of health with no or very few resources left to pursue other important rights or values – and rather uses a more moderate definition, as follows: “All persons have a human right that other people do not act so as to create serious threats to their health.”⁴⁴

Like the formulation of the right to life, the right to health is thus formulated as a negative right that requires others to acknowledge a moral duty to abstain from certain actions.⁴⁵ Caney also points out that both a deontological and a teleological approach to human rights would endorse this formulation of the right to health. From a deontological perspective, action that would expose others to dangerous diseases clearly does not represent respect for individuals as free and equal persons, and thus undermines their moral standing and their inherent dignity as persons.⁴⁶ From a teleological point of view, the argument would be that the capacity to lead a decent life requires one not to be exposed to serious threats to one’s health. Serious threats to one’s health would for instance compromise one’s capacity for agency, or one’s capacity to pursue one’s conception of the good⁴⁷ – which are all prerequisites for a decent life. Turning to climate change, Caney can then point to the mounting evidence from various sources about the serious health effects of climate change, including increases and shifts in the range of malaria, increases in the burden of diarrhoeal diseases, and increases of persons at risk of dengue.⁴⁸ Caney can therefore also justifiably claim that anthropogenic climate change jeopardises the human right to health.

According to Caney, it can also be demonstrated that a third fundamental human right is undermined by climate change: the human right to subsistence, which he formulates as follows: “All persons have a human right that other people do not act so as to deprive them of the means to subsistence.”⁴⁹ In this formulation, the human right to subsistence is also a negative right, in contrast to its interpretation as a positive right to food in certain

43 As stated in the International Covenant on Economic, Social and Cultural Rights (ICESCR) of 1976, Article 12 (1), and in the Convention on the Rights of the Child (CRC) of 1990, Article 24 (1). See Caney (2010a:167).

44 Caney (2010a:167).

45 (*ibid.*:165 and 167).

46 (*ibid.*:167).

47 (*ibid.*:167f.).

48 (*ibid.*:167).

49 (*ibid.*:168).

human rights documents.⁵⁰ And as in the case of the human right to health, Caney also argues that both a deontological and a teleological approach would endorse the human right to subsistence. From a deontological approach, actions of certain people that deprive others of food or drinkable water clearly do so with no respect to those people as persons, and therefore also undermine their moral standing and dignity as persons. Similarly, from a teleological perspective, it is clear that actions and decisions that deprive people of food or drinkable water not only undermine their capacity to live a decent life, but also their capacity to pursue even the most minimal goals.⁵¹ Since Caney can in this context also point to the destructive impacts of climate change on the subsistence of large numbers of people, in particular the impact of drought on food security, the impact of rising sea levels on the availability of land for agriculture, the impact of floods on crops, and the impact of freak weather on agriculture. What is particularly disturbing about the evidence that can be pointed to in this regard is that millions of people are already – or will be – affected by the impact of climate change on their means of subsistence.⁵² Caney is therefore also justified in his argument that anthropogenic climate change jeopardises the human right to subsistence.

Therefore, since it is clear that climate change undermines the fundamental human rights of life, health and subsistence, Caney sharpens his argument by pointing out that these human rights only exist in so far as climate change is anthropogenic, i.e. caused by human beings. This means that climate change can only be seen as a threat to the human rights of life, health and subsistence if other people act in a manner that creates these threats. Since there is unequivocal evidence that present climate change – and future increases therein – is caused by human beings, Caney is justified in claiming that anthropogenic climate change jeopardises the fundamental human rights of life, health and subsistence, unless serious efforts to mitigate or adapt to climate change are put into place.⁵³

Acknowledging that other human rights could also be jeopardised by anthropogenic climate change, for instance the human right to development, and the human right not to be forcibly evicted, and that grounds other than

50 Such as the ICESCR, Article 11 (1), and the Universal Declaration of Human Rights of 1948, Article 25 (1).

51 (*ibid.*:168).

52 (*ibid.*).

53 (*ibid.*:169).

human rights can be used to condemn climate change in ethical terms,⁵⁴ the next step in Caney's analysis is to show what the implications are of establishing that anthropogenic climate change undermines fundamental human rights. What his argument boils down to is that *some people* impose grave risks on *others*. While it can be argued that it is acceptable if risk takers impose risks only on themselves and if the risk takers are well-informed and rational about their choices, the picture changes drastically if others are also exposed to these risks, particularly if such risks cause some people to fall below a certain moral threshold.⁵⁵ The argument continues as follows: if the enjoyment of a fundamental human right that someone has on the basis of his humanity, and which should receive precedence in consideration above other values or ideals, is put in jeopardy, it is imperative that amends should be made to rectify the situation – by demanding and making sure that the risk taker or violater desists from that violation and compensates the victim for harm suffered, regardless of the costs to the violater.

As such, a human rights approach to climate change suggests that mitigation and adaptation as the only two possible responses to climate change represents too narrow a framework to act in. Mitigation basically focuses only on making changes to the climate system, and adaptation basically focuses only on adapting to a changed climate system. However, a human rights approach, while insisting on duties to mitigate and duties to adapt to climate change, also calls for duties of compensation – in cases where mitigation and adaptation may prove to be inadequate and people are exposed to the detrimental impacts of anthropogenic climate change that violate their fundamental rights to life, health and subsistence. However, Caney strongly argues that the possibility and the capability to offer compensation does not legitimise actions to embark on or to continue with actions that violate the fundamental human rights of people. Formulated differently, a human rights approach does not permit a human right to become part of a calculation or trade-off between values that purport to increase social welfare. Social welfare cannot be increased at the cost of jeopardising fundamental human rights, even if these rights apply to a few.⁵⁶

One of the strong points of such a human rights approach to anthropogenic climate change is the manner in which it protects the most vulnerable in society. This follows from the concept of human rights as it has been dis-

54 (ibid.).

55 (ibid.:170).

56 (ibid.:171f.).

cussed above: a fundamental human right establishes a moral threshold below which no one should be allowed to fall. In Caney's argument, this has huge implications for the choice of measures put in place to mitigate and/or adapt to climate change: the doctrine of fundamental human rights require that such measures should not be implemented at the cost of the vulnerable in society. The measures put in place to respond to climate change should, in their nature and functioning, protect fundamental human rights to life, health and subsistence, and should not lead to an intensification or increase in their violation already caused by climate change in the first place. In short: "... the least advantaged – those whose human rights are most vulnerable – should not be required to bear the burden of combating climate change".⁵⁷

Another strong point, implied in the argument above, is that a human rights approach to climate change can contribute substantively to debates about who should pay for the costs of mitigation and adaptation.⁵⁸ From a human rights perspective it is clear that these costs should fall on those who, by decision, action or default, contributed to the climate change that violates the fundamental human rights to life, health and subsistence of others. And it is fairly obvious who these people would be: those who have contributed to the emission of greenhouse gases that cause climate change. On this very point, however, there are a number of complicating questions that emerge, for instance the question of historical emissions and the fact that those who contributed to them are not alive any longer – which points in the direction of taking the nation state as the responsible agent that should bear these costs. Another complicating aspect stems from the fact that historical and current emissions will have impacts on the fundamental human rights of many generations to come, and the issue then is whether it would be rational and morally justifiable to expect of this generation also to bear all of these future costs now, in so far as these costs can be calculated. With regard to compensation for the violation of fundamental human rights by climate change that has already occurred and has already placed vast numbers of people below the moral threshold for which human rights make provision, further questions could be asked, for instance: who owes how much compensation to whom? It is questions like these that Caney addresses in his essay *Cosmopolitan Justice, Responsibility and Global Climate Change*, the substantive results of which do not concern us for the purposes of this paper, except

57 (ibid.:172).

58 (ibid.).

to mention that the human rights approach indeed throws important light on the question about who should bear the costs of mitigating and adapting to climate change, and that a need is identified in this article for further work on the question of whether individuals or collectives should be held responsible for bearing the costs.⁵⁹

A point of critique against the human rights approach to climate change, though, is that it is discriminatory and can only take seriously those impacts of climate change that threaten the enjoyment of fundamental human rights. While someone like Caney will argue that it is indeed legitimate for a human rights approach to take into account only those impacts of climate change that violate fundamental human rights,⁶⁰ it is clear that a human rights approach, although important in its own right to help us understand the ethical meaning of anthropogenic climate change, cannot serve as a basis for a complete ethics in response to climate change. Other considerations must also feature in climate change ethics, one example being the threat that climate change poses to human security.

D. Climate Change Ethics and the Language of Human Security

In a review paper published in 2010,⁶¹ Des Gasper addressed the question of whether the language of human security can help to overcome some of the problems experienced in other approaches to delineate the ethical meaning of climate change, and whether this language can help us to articulate the changes that need to be made in political thinking and economic policies in order to ensure a sustainable future. Approaching the issue of human security from a broad development ethics perspective, Gasper distances himself from framing the issues of human security in economic terms only. He also does not frame the issue of climate change and human security in terms of military examples. An example of the latter can be found in the declaration with the title *Climate Change and International Security* that was issued by the High Representative and the European Commission to the European

59 Caney (2010b:122–139).

60 Caney (2010a:171).

61 In this paper he continues a discussion that he has started in other publications on this topic, for instance: Gasper (2004); Gasper (2005); Gasper & Truong (2005); and Gasper & Truong (2010).

Council.⁶² In this declaration, climate change is portrayed as a threat to the stability of international relationships because of tensions mounting between states to the level of conflicts over scarce resources, loss of land, border disputes, energy sources and migration. Conflict may also arise between those who have caused climate change and those who will suffer from it.⁶³

For Caney this represents a very narrow and short-sighted approach, since it only expresses concern about climate change in so far as it is the cause of violent conflict, neglecting the impacts of climate change that can cause death, disease, malnutrition and starvation but do not lead to violent conflict.⁶⁴ The implication of such a restricted language of human security would be that resources are only mobilised to address climate change if it leads to conflict, while other issues, such as addressing the violation of basic human rights through climate change are ignored. Gasper refers to instances of violent conflict in his discussion and critique of a calculative, cost-benefit approach to the notion of human security, according to which such conflict is seen as another cost following from climate change – a cost that should be weighed against other costs and benefits in efforts to address the challenges of climate change.⁶⁵

Gasper devotes a substantial part of his paper to criticising the economic language in which thinking about human security and climate change is conventionally framed. With reference to the “incisive and well-intentioned” book of Joseph Stiglitz, *Making Globalization Work*,⁶⁶ he expresses doubt whether a re-engineering of the world’s markets by the introduction of new incentives, new “carrots” and “sticks”, would be able to stimulate the policy changes that we need to address the impacts of climate change and a secure human future. Stiglitz restricts himself only to the transformation of markets, while he neglects the transformation of politics and culture, and hardly mentions the issue of human rights.⁶⁷

Similarly, Gasper criticises the widely quoted statement of Nicholas Stern that climate change “is the greatest market failure the world has ever

62 High Representative & European Commission (2008); see also Caney (2010a:163).

63 Caney (2010a:163).

64 (ibid.:170).

65 Gasper (2010:5, 6, 16, 17, and 18).

66 Stiglitz (2004).

67 Gasper (2010:7f.).

seen”,⁶⁸ as articulated in the *Stern Review* of 2007 and his book of 2010⁶⁹ based on the review. Gasper points out that in both of these publications an economic cost-benefit analysis is used to assess the different alternatives that could be used to mitigate climate change, and to compare these costs with doing nothing about climate change. While it is emphasised in both publications that the costs of not acting to reduce climate change will be far greater than the present costs of reducing climate change, Gasper’s problem with this approach is that it merely addresses short term, incremental measures that can be taken within a predominantly stable economic system to address climate change, neglecting the long-term measures that will be required to effect the incisive changes to the economic system that will be required to address climate change effectively.⁷⁰ Gasper also criticises the central position allocated in Stern’s approach to monetary values, which in principle favours the interests of those with greater purchasing power, with the implication that distributive issues become unimportant: “gains to the richer can (and typically do) outweigh costs counted for the poorer and can even (and often easily do) outweigh the deaths of the poor”.⁷¹

With this observation, Gasper underlines that the most important ethical decision about addressing climate change is made prior to applying a technique to analyse climate change. The choice of a technique of analysis, Gasper argues, determines what (or who) will be highlighted and foregrounded and given more weight in the analysis, and what (or who) will receive less attention and be backgrounded, or even discounted in the analysis. With regard to economic cost-benefit analysis, Gasper’s assessment, following Etzioni,⁷² is that it in principle favours the interests of the rich, and discounts the interests of the poor, leading to trade-offs and policy proposals that require the poor to sacrifice what should not be sacrificed. Gasper formulated it as follows:⁷³

So the poor, whose lives are already largely discounted through use of a monetary calculus in which their activities have little weight, are scientifically ‘written off’ when the loss of their ‘consumption streams’ is outweighed by the growth of consumption streams of the already rich.

68 Stern (2007:Executive Summary xviii).

69 Stern (2010).

70 Gasper (2010:9f).

71 (ibid.:10).

72 Etzioni (1991).

73 Gasper (2010:10).

Against the background of considerations like these, Gasper argues for an approach that goes beyond economic cost-benefit analysis, can take distributive, cultural, political and sustainability issues on board seriously, and can grip and inspire ordinary people, economists and politicians alike to embark on the transformations required to address the challenges of global climate change effectively. This approach he finds in the language of human security, broadly conceptualised in terms of development ethics.

Following the *Human Development Report* of 1994,⁷⁴ and building on earlier work done on basic human needs, Gasper summarises the human security framework as follows:⁷⁵

A human security perspective ... involves a system of ideas: a focus on individual human persons and on stability in fulfilment of their basic needs; attention to causal interconnections regardless of conventional disciplinary boundaries; and emphasis on ‘tipping points’ and felt insecurities. It includes strong attention to the contents of individual person’s lives and to human depth in understanding of security; a synthesis of features from the normative languages of human needs, human rights and human development; and a framework for situation-specific wide-ranging explanatory syntheses.

Gasper also points out that this approach emerged from a deep frustration with inhumane development strategies that focused on development in terms of having things in national aggregates, and tended to separate spheres like the economy, the environment, displacement, conflict, disease and migration from one another. The human security approach instead represents a focus on how individuals actually live in the context of the interconnections of spheres that are conventionally separated from one another. While neglecting these interconnections leads to inhumane development, Gasper argues, the human security approach requires that we think in concrete terms and details how the notion of “human” emerges from the different ways in which people seek “security” in different spheres, such as the physical, the economic and the psychological. At first glance this may appear to be a very narrow focus, but this narrow focus, Gasper emphasises, leads to a deeper and a broader understanding of what is distinctive to being human, and what is required to secure the enjoyment of basic human rights.⁷⁶

74 UNDP (1994).

75 Gasper (2009:14–18), quoted in Gasper (2010:17).

76 (*ibid.*:18).

Emphasising the value of such a human security approach, Gasper highlights the following: ⁷⁷

It leads us to close concern with the textures of everyday life and connects strongly to human subjectivity, thereby increasing both explanatory force and motivational power. To more individualistic human rights thinking it adds an emphasis on the human species as a whole and on our shared security, insecurity and vulnerability.

To this, however, it should be added that the human security approach predominantly and above all entails a concern with threats to the humanity of all individuals, what the contributing factors are that establish and maintain these threats, and what is required to remove these threats. With such a notion of human security, the emphasis falls on a whole set of different priority areas from what would be the case in conventional conceptualisations of security. The focus would not be on the state in general, but on individuals; it would not be on aggregates and averages, but on the concrete lives individuals have reason to value; it would not be on the general expansion of the economy, but on concrete minima that can be guaranteed for individual persons. The emphasis would not be on all valued areas, but on top priority areas; it would not be on rhetoric followed by sacrifices of the weak, but on guarantees and basic rights for all; it would not be on overall average fulfilment over time, but on the stability of society.⁷⁸

Further aspects of the human security approach that Gasper highlights is an emphasis on interconnections, which involves “an awareness of fragility, possible ‘tipping points’ and even breaking points in social, physical and biological systems”.⁷⁹ Gasper argues that different sorts of insecurity – “physical, political, environmental, health, economic, military, psychological”⁸⁰ – can all affect one another, and that an understanding of the interconnectedness of all individuals can heighten not only our awareness of fragility, possible tipping points and breaking points, but also our sensitivity for the effects of our actions. Indeed, from the realization that our actions may have boomerang effects on ourselves and on others, our feelings of caution and actions of precaution may be stimulated.⁸¹ As such, the human security approach represents what Gasper refers to as “joined-up” thinking,

77 (ibid.).

78 (ibid.:18f.).

79 (ibid.:19).

80 (ibid.).

81 (ibid.).

reinforced by “joined-up” feeling. This is another way of saying that a human security approach, conceptualised in this manner, emphasises a strong notion of human solidarity, as well as a clear sense of the various guarantees for certain minimum conditions that we have to establish in society to maintain our humanity. According to Gasper: “the ‘human security’ language adds an orientation to the dangers of triggering fundamental damage when we lapse below or exceed certain thresholds...”⁸²

What Gasper is driving at in these observations is the important point that human security language, broadly conceptualised as suggested above, serves as a boundary discourse or a “boundary object” that “serves to open up, reorient and enliven attention to unconventional but fundamental problems such as climate change”.⁸³ What Gasper has in mind here is an insight into the sociology of science and policy communication that draws attention to the “boundary work” that needs to be done to establish communication between groups. Such boundary work can entail activities such as bridging, bonding and broking, through which “boundary objects” are established that help to facilitate the communication. As such, a boundary object can be an idea, an organisation or a practice, and its meaning may not be the same for every participant in the communication. Its function, however, is to facilitate the circulation of meaning between groups, and thus can also function creatively in the stimulation of new meanings.⁸⁴

In thinking and communicating about climate change, the function of the language of human security is thus to “generate an appropriate broad and flexible orientation, and an openness to *which are the priority threats and key linkages* in particular situations; it leaves their identification to be done case-by-case” (my emphases).⁸⁵ In substantive terms, Gasper argues that the language of human security in the context of climate change serves as a language of transition: it stimulates two essential qualities we as human beings need in order to make the transition towards a society in which we can effectively respond to the challenges of climate change. These are “the capacity of narrative imagination and the perception of an intensively interconnected global ecosystem which we share”.⁸⁶

82 (ibid.).

83 (ibid.:20).

84 (ibid.).

85 (ibid.:20f.).

86 (ibid.:22).

While the “perception of an intensely interconnected global ecosystem which we share” could be conceptualised as an awareness, in general terms, of the prerequisites not only of a human, but also of a sustainable life, the “capacity of narrative imagination” could be conceptualised as the capacity to imagine in contextually embedded and concrete terms how climate change threatens the minimum conditions under which a “human” and “sustainable” life can be lived, how these threats function, and how they can be creatively responded to. The converse of this insight is that a “capacity of narrative imagination” can help us to envision in concrete terms what human security could entail within the context of a concrete set of relationships, and what it would require to work towards realising that security under conditions of climate change.

The value of the language of human security in the context of climate change thus conceptualised is therefore not simply given; its value only emerges in the hard work of taking up this language in concrete contexts to create new meaning and insights that move beyond the conventional approaches to thinking and theorising about climate change. As it is summarised in the words of Gasper:⁸⁷

Human security thinking adds emphases on the human species as a whole, our interdependence and the potential ramifying chains of threats, including through triggering of threshold effects, and on the subjective felt meanings that contribute to extend such chains when particular threats arise to what are understood as basic human rights. It gives us a more adequate basis for considering cross-sector interactions and dangers, and for responding to them. It may be a particularly helpful legacy from development ethics for the discussion of climate change.

With these considerations about human security in mind, Gasper thus argues for an approach to climate change ethics that goes far beyond the parochialism of conventional economic cost-benefit analyses (or utilitarian calculations) derived from business that economists and politicians have made use of for decades to analyse and respond to national and international problems. What Gasper argues for is a different type of relational and creative thinking that can take into account what is neglected, threatened and sacrificed by the conventional mode of thinking of “economic man” with his clever manipulation of carrots and sticks.⁸⁸

87 (ibid.:25).

88 (ibid.:11, 12 and 16).

E. Conclusion

In this article, an overview has been given of three different discourses that may be discerned in climate change ethics, each one entailing a different vocabulary, language, strategy of analysis, and a nucleus of policy proposals that could be envisaged in response to the ethical challenges of climate change. In the justice discourse, issues of distribution, retribution and administrative fairness were emphasised to expose injustices suffered by victims of climate change with a view to addressing the conscience of that part of the world's population that not only continue to cause climate change, but also continue to enjoy the benefits brought about by these causes – often without regard for costs generated through climate change for the poorer part of the world's population.

In the discussion of a human rights discourse, the language changed to depict climate change as a major threat to the human right to life, the human right to health, and the human right to subsistence. As such, climate change emerges as an assault on the autonomy of a person and jeopardises his human dignity. This should, and can, be prevented by defining moral thresholds in society below which no one should be allowed to fall.

In the language of human security, it was shown that an ethics of interconnectivity, contextual embeddedness, communication, concrete experience and transformation can be developed on a case-by-case basis to define “human”, and the thresholds of many kinds of security that could safeguard the “human” in the lives of individuals and society. While climate change is depicted in this discourse as a major threat to human security, the human security approach in itself emerged as a “border object” that stimulates the narrative imagination and a possible language to move beyond the confines of conventional approaches to analysing and responding to climate change, as can be found in economic cost-benefit analysis.

While the language of justice and human rights may yield ethical insights that are clearly and directly relevant to the development of law on climate change, it may not be obvious how the discourse of human security, as depicted above, may be of relevance. The language of human security, however, may prove to be highly fruitful in the stimulation of new ideas worth pursuing in the development of climate change law – by helping to articulate what people experience as threats posed by climate to securing humanity for all in all of the particular contexts and societies where people live.

Similarly, the language of human security could steer climate change law into new avenues by exploring the concrete thresholds that would be re-

quired, and should be protected, in particular places and particular societies to secure humanity for all in the face of the threats posed by climate change. In fact, the language of human security could steer the development of law in general into new directions by contributing, within the context of having to deal with climate change, to a fundamental rethinking of the notions of justice and human rights, making these notions more concrete, and sharpening and adapting general formulations and definitions of justice and human rights to be applicable to specific contexts.

Indeed, it may just be that the concepts of justice, human rights and human security can help climate change law to better respond to the ethical meaning of climate change – about which there is currently still little, if any consensus. While a portion of the world’s population may be choosing for an ‘ethics’ of business as usual and inaction about climate change, with little regard for the effects that climate change may have on all of life on earth, currently and in the future, the majority of the world’s population is in fact beginning to ask ‘which interests are being served by whose climate?’, and ‘whose humanity is threatened by which climate?’. To be able to see the difference between these two questions may already be a huge step in the right direction.

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Abstract

Most global crises (climate change, unsustainable development, environmental degradation and financial downturns) have quite a lot in common. They have largely the same causes: short-term views, giving priority to personal interests, and greed. So far, the debate largely focuses on ex post remedies. This is a rather unsatisfactory approach. It means that people accept massive and unnecessary human suffering and try to compensate for the losses after the event. Realistically, states and enterprises will not have enough funds to compensate for the global losses that will accrue over time. Instead, a change of mindset is needed: how can global evil – to an extent unheard of before – be avoided?

This contribution puts emphasis on the major challenge of the present time: climate change. It aims to contribute to the debate by submitting concrete suggestions how to overcome the deadlocked position. Some of the key questions are: What has to be done by each national state and each enterprise? Should each of them curb its GHG emissions, and, if so, to what extent? Can these obligations be enforced, if need be? How can coalitions of allies be forged to stem the tide?

A. Introduction

This contribution is a summary of the book *Shaping the Law for Global Crises*.¹ This book was based on the idea that global crises, such as climate

¹ Spier (2012). *Shaping the Law for Global Crises* was written by the author of this article as a fellow of Stellenbosch Institute for Advanced Study (Stias), Wallenberg Research Centre at Stellenbosch University, Marais Street, Stellenbosch 7600, South Africa. This article, too, was written at Stias (as a fellow), a true paradise for research. I am most indebted to Stias' director Prof. Hendrik Geyer for his warm support for an

change, unsustainable development, environmental degradation, financial downturns, and even – albeit to a lesser extent – poverty have a lot in common. They largely have the same causes, namely short-term views and greed of those who wield power, and the inability of so many to resist mixing up personal interests with those they should focus on. If this assessment is by and large correct (although obviously not complete), it follows that the solutions are very similar. People in responsible positions should be encouraged to refrain from focusing on the sway of the day, and should develop views that go beyond the next elections or the next annual (or quarterly) report. Wrong incentives should be removed. This contribution will only focus on climate change.

It is unrealistic to assume that a change of mindset, as just advocated, will materialise without the right incentives and, where needed, the right correction mechanisms – in brief, the stick and the carrot.

Part of the problem is that some (arguably quite a few) senior politicians and business people may understand and even be willing to change course, but do not know with sufficient precision what they have to do and why. Those who would argue along these lines would certainly have a point, namely that it is no excuse to stick to business as usual, as it is often clear that they should *at least* curb greenhouse gas (GHG) emissions to a larger extent than they actually do.

In the author's assessment, little progress can be expected until it can be determined with sufficient precision what the respective players have to do and why that is the case. But even then, irresistible pressure may be needed. Almost certainly, courts will have to step in, given that there is little, if any, hope that enforceable political solutions can be reached in the foreseeable future – and that it is high noon. With a few exceptions, few (superior) courts will be prepared to deliver the bitterly needed courageous judgements. Judges willing to abstain – arguably most judges – would have rather easy excuses as long as the law is insufficiently 'settled'. Also for that reason, it is vital to map the law as it (probably) stands in relation to the rights and obligations of the major players in these fields.

The author realises only too well that the submissions below are work in progress. The issues at stake are tremendously complex. Despite the fact that

international project focussing on Shaping the Law for Global Crises. The just mentioned book is the first fruit of this project. It has been approached from a broader perspective by experts from various legal disciplines and various countries in fall 2012. A few new developments and new insights have been added where appropriate.

it seems quite possible to draft a *kind of* blueprint, there remains a rather broad grey zone where it will be difficult, if not impossible, to determine the law as it stands. A myriad of questions cannot be answered in a very pertinent way, but quite a few can.

The gist of the book and of this contribution is obviously not to submit a final blueprint; that would be pretentious. The author's submissions will hopefully serve as a fruitful basis for further discussion.

B. Is there any Need for Legal Action Right Now?

According to the prevailing view among climate change scientists, climate change poses a very serious threat to humankind, unless the level of greenhouse gas emissions is reduced significantly at great pace, right now. Even then, it can no longer be taken for granted that society will be spared a change of climate with many deleterious consequences. But the nastiest consequences can still be avoided.

Not all leading scientists subscribe to the view that the climate will change unless GHG emissions are curbed substantially. Let alone that it is high noon. Some sceptics deny any relationship between GHG emissions and climate change. Other scientists speak of (major) uncertainties. They are prepared to accept that there *might* be a relationship between a high level of GHG emissions and climate change, but they point at major uncertainties.

Last, but certainly not least, opinions diverge as to the urgency. Quite a few experts seemingly take the view that climate change can be kept under (reasonable) control if GHG emission reductions are commenced in the years to come, whereas, in fact, they have to be curbed by 80% (or more) by 2050. Others suggest that reductions of 6% a year, if not a higher percentage, are imperative.²

One of the inherent difficulties in this field is that the relevant data about the level of global GHG emissions, on which the respective theories are based, change at a staggering pace. According to the chief economist of the International Energy Agency quoted by Reuters, the present trend is "in line with a temperature increase of 6 degrees Celsius [by 2050], which could have devastating consequences for the planet".³ Put differently, the Inter-

2 See in more detail Spier (2012:11 and 61ff.).

3 See <http://www.reuters.com/article/2012/05/04/co2-iea-idUSL5E8GO6B520120524>, last accessed 12 September 2012.

governmental Panel on Climate Change (IPCC) and similar institutions unavoidably lag behind the facts. In turn, their predictions and calculations, often based on (small) decreases of the global emissions, are often outdated and, worse, turn out to be far too optimistic.⁴

C. How to Cope with these Uncertainties?

Are the uncertainties, briefly mentioned in Section B, a justification to stick to business as usual? Seen from a moral and a legal angle, the answer obviously is in the negative. Given the significant adverse consequences of a rise of global temperature of more than 2°Celsius, the toll in human and economic terms⁵ will be way too high. Seen from a legal perspective, it is beyond reasonable doubt that society is obliged to change its accustomed ways radically. To that extent, the precautionary principle paves the way.

The precautionary principle was already embedded in Principle 15 of the Rio Declaration: “lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation” where there are “threats of serious environmental damage”.

A clearer definition is given by the EU Commission. The principle applies –⁶

in those specific circumstances where scientific evidence is insufficient, or inconclusive or uncertain and there are indications through preliminary objective scientific evaluation that there are reasonable grounds for concern that the potentially dangerous effects of environmental, human, animal or plant health may be inconsistent with the chosen level of protection.

4 Besides, one cannot escape from the impression that some calculations by international ‘bodies’ are based on hard fought compromises, i.e., paint a too optimistic picture at the time of publication.

5 See inter alia the report by the Stern-commission, Stern (2006). The report departs from grossly outdated assumptions. This means that we may take it for granted that the economic devastation will be considerably higher if we (largely) stick to business as usual.

6 COM (2000:9f.).

The principle also belongs to the domain of supranational law.⁷ It has been applied by courts around the globe.⁸

The author has little doubt that it belongs to the hard core of this realm of the law.⁹ The question whether or not a person is liable depends in many legal systems on the question whether or not he measured up to the standard of conduct of a reasonable person in the given circumstances. In that respect, regard must be given to the dangerousness of the activity, the foreseeability of the damage and the availability and costs of precautionary measures.¹⁰

In a number of tort law cases – particularly, but not only in the field of personal injury – courts are sometimes inclined to “regard fantastic possibilities as reasonable possibilities”.¹¹ The idea that liability *would (have to) be* established in case of even a remote chance of materialisation of a *single* personal injury due to a specific act or omission, *but not* in relation to the extremely serious harm suffered as a consequence of climate change by

7 See, e.g., *United Kingdom v Commission* [1996] ECR I-3903; *NFU* [1996] ECR II-815; Zander (2009:49ff.). The Swedish position is particularly interesting. In environmental matters “actions to protect the environment should only not be taken where this is not ‘environmentally motivated’”. The presumption is thus that measures should be taken. Only where great costs would only result in marginal environmental improvement should they not be taken” Zander (2009:202). See also Shaw (2008:860ff.) and Casese (2005:489ff.). See also OHCHR (2009:29); and ILA (2010:375). It is mentioned in OECD (2011:22, 31 and 44). According to Shelton (2011:440), the precautionary principle has begun to play a role in bringing more risks within the ambit of human rights.

8 See e.g. Supreme Court of Canada, *Ltée (Spraytech) v Hudson (Town)*, (2001) 2 S.C.R. 241, 2001 SCC 40 per l’Heureux-Dubé §§ 31ff.; Supreme Court of India (*Vellore Citizens Welfare Forum v Union of India and Others*), AIR 1996SC2715; Supreme Court of the Philippines (*Oposa et al. v Fulgencio Factoran et al.*); Supreme Court of Sri Lanka (*Bulankulama v Secretary, Ministry of Industrial Development*); Supreme Court Pakistan (*Shehla Zia v Wapda*, PLD 1994 Supreme Court 693); High Court of Kenya (*Waweru v Republic* (2007) AHRLR 149 KeHC 2006); Federal Court of Appeal of La Plata (*Asociacion Coordinadora de Usuarios, Consumidores y Contribuyentes v ENRE-Edesur* of 8 July 2003); see for the laws of the US, UK and Sweden, Zander (2009:163ff.). See also respective contributions in Macrory (2004): Scott (2004); Lavrysen (2004); Wegener (2004); Pagh (2004); Grassi (2004); Smorenburg-van Middelkoop (2004); Aragao (2004); Moreno (2004); and Macrory & Havercroft (2004).

9 See for a further elaboration Spier (2011).

10 See, e.g., Article 4:102 Principles of European Tort Law (PETL). This principle is in line with the prevailing view in many European countries; see for more details Widmer (2005:75ff.) and van Dam (2007:189ff.). See for US law Dobbs (2000:337).

11 Van Dam (2007:200).

a great many people is untenable. Such a view cannot be justified. The mere fact that it *may* turn out that the sceptics are right cannot serve as a justification for a fundamentally different treatment of both cases.

Lesser probabilities than climate change have been the basis of far-reaching *political* decisions. The One Percent Doctrine of the Bush (II) administration may serve as an example. According to Suskind, it was articulated by then Vice-President Cheney who would have argued:¹²

If there is a 1% chance that Pakistani scientists are helping Al-Qaeda build or develop a nuclear weapon, we have to treat it as a certainty in terms of our response. It's not about our analysis It is about our response.

The author readily admits that dealing with uncertainties is risk-ridden. Wrong decisions may turn out to be very costly. But that goes both ways. Ignoring a major probability which, if it materialises, will cause very serious damage will elicit the contempt of future victims. When the risk materialises, the people who feel the adverse consequences will not understand how and why those risks were deliberately taken.¹³ Even right now, there is no convincing justification. The position that the fruits of our activities are our deserved gain and that the mess may be left to others cannot serve as a justification. Realistically, there is no other ground for a *laissez-faire* attitude.

By the same token, legal strategies must be based on “reasonable worst case-scenarios”, i.e. doom scenarios based on sufficiently sound predictions. It follows that the stakes are so tremendously high, that it is a legal imperative to stay on the safe side. Besides and more importantly, the recent data point at a (much) higher level of emissions than anticipated in most studies executed a couple of years ago, and there is little reason to believe that the tide can be stemmed, so we can no longer base our arguments on outdated estimates. If some leading experts, even if they are a clear minority, paint a dark picture of the future unless society at large embarks on far-reaching reductions of GHG emissions, we have to use their findings, if sufficiently plausible and based on proper research, i.e. research based on the best available techniques and insights, as a point of departure.¹⁴

12 Quoted by Fox-Keller (2011). Fox-Keller was also a Stias fellow those days.

13 This has happened quite often in the past, asbestos, diethylstilbestrol (DES) and tobacco may serve as examples.

14 This submission is admittedly a bit vague. Not being an expert in the field of climate change science, I cannot be much more precise. For the reasons mentioned in the text, we must stay on the safe side. I.e., research done by serious scientists, pointing

D. Foundations for Legal Action

I. Introduction

So far, this article has arrived at the conclusion that a) it is high noon and b) that a certain level of uncertainty does not bar legal action. That raises the question whether there would be legal bases for legal action. The answer is in the affirmative. Legal concepts, doctrine and case law may be borrowed from many fields. Below, the author confines the argument to a few potentially promising bases.

Even if there were legal bases for litigation it may be an uphill fight in quite a few countries. Firstly, not every court in the world is (truly) independent. Secondly, it requires judicial courage to fill the (legal) gap or to apply well-established concepts in untraditional settings. Thirdly, quite a few obstacles would have to be removed. They will be briefly discussed below in Section F.

II. International Law

Over the years, protection of the environment and the need to place emphasis on prevention has gained ground.¹⁵ A recent judgment of the International Court of Justice in the so-called *Pulp Mills* case¹⁶ may serve as a clear signpost. The Court put it as follows:

there are situations in which the parties' intent upon conclusion of the treaty was, or may be presumed to have been, to give the terms used – or some of them – a meaning or content capable of evolving, not one fixed once and for all, so as to make allowance for, among other things, *developments in international law*.

In that sense –¹⁷

the obligation to protect and preserve... has to be interpreted in accordance with a practice, which in recent years has gained so much acceptance among States

at higher risks or more devastation than most experts predict, cannot easily be ignored. The question of what that means in a specific case can only be answered on the merits of the relevant facts and circumstances.

15 See Sands (2003:241ff. and 246ff.).

16 *Pulp Mills on the River Uruguay (Argentina v Uruguay)*, Judgment of 20 April 2010.

17 See in more detail Rieter (2010:20ff.).

that it may now be considered *a requirement under general international law* to undertake an environmental impact assessment *where there is a risk that the proposed industrial activity may have a significant adverse impact in a trans-boundary context* ...Moreover, *due diligence and the duty of vigilance and prevention* which it implies, would not be considered to have been exercised, if a party planning works are liable to affect the régime of the river or the quality of its waters did not undertake an environmental impact assessment on the potential effects of such works. (emphasis added)

This leaves untouched (§ 205) that ‘general international law’ does not specify its scope and content. Each state has to determine in its domestic legislation or in the authorisation process for the project –

the specific content of the environmental impact assessment required in each case. Having regard to the nature and magnitude of the proposed development and its likely adverse impact on the environment as well as to the need to exercise due diligence in conducting such an assessment Moreover, once operations have started and, where necessary, throughout the life of the project, continuous monitoring of its effects on the environment shall be undertaken.

States particularly have obligations to ensure that activities within their jurisdiction and control respect the environment of other states or areas beyond national control. That obligation is part of “the corpus of international law relating to the environment”.¹⁸ Several international instruments even go a step beyond this obligation.¹⁹

Many courts have delivered judgments based on the *no harm rule*. This rule is also incorporated in various international documents,²⁰ such as Principle 21 of the Stockholm Declaration 1972:

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdictions.

Given the transnational, if not global, impact of GHG emissions on climate change, there is little room for doubt, the author thinks, that international law comes into play in the case of excessive emissions.²¹ But it is at least

18 ICJ Advisory Opinion on the Threat or Use of Nuclear Weapons.

19 Rieter (2010:21). See about international environmental law the impressive treatise of Sands (2003) also for a wealth of references.

20 Schwarte & Byrne (2010).

21 See for more details Kilinski (2009:387ff.); O’Brien (2001:566ff.).

open to debate whether it points at very precise rights and obligations of the respective states.

*III. Human Rights*²²

Human rights encompass the right to a healthy environment, and civil, cultural, economic, political and social rights.²³ More generally, many courts cast environmental protective action in human rights terms.²⁴ Special rapporteur Fatma Zohra Ksentini has suggested that the UN Human Rights Committee –²⁵

could expand its general comment on the right to life in order to include environmental concerns or formulate a general comment defining the links between civil and political rights and the environment. Moreover, it should be able, through dealing with complaints, to establish case law that will accommodate environmental concerns.

If the fatal tipping point (an increase of global temperature by more than 2° Celsius) is passed – either because we are unable or unwilling to curb GHG emissions significantly in the near future – a series of catastrophes will set in. Cast in *legal* terms, they bring, inter alia, the right to life into the picture.²⁶ The same goes for “family life”, embodied in, inter alia, Article 8 European Convention on Human Rights.²⁷ These catastrophes will further impair the already not so enjoyable living conditions of the most vulnerable people around the globe and, by the same token, affect a series of social and economic rights.

22 See about the reach of human rights Gondek (2009) and McInerney-Lankford et al. (2011).

23 Shaw (2008:848ff.). The New Partnership for Africa’s Development (NEPAD) Declaration (2001) reveals that African leaders “have learned from their own experiences that ... good governance, human rights and sound economic management are conditions for sustainable development.” They pledge “to work... to promote these principles in their countries ...” (para. 71). See also the 2002 NEPAD Declaration on Democracy, Political, Economic and Corporate Governance para. 9; Article 24 African Charter on Human and Peoples’ Rights and Article 11 Protocol of San Salvador; Kravchenko (2008:533).

24 Kravchenko (2008:513ff., 523f., 528f. and 536).

25 Quoted by Kravchenko (2008:526).

26 See for more details, inter alia, Abate (2007:3ff., particularly at 40ff.).

27 The ECHR has pointed at Article 8 in several environmental cases; see Kravchenko (2008:529).

In her annual report of 15 January 2005, the UN high commissioner for Human Rights addresses the relationship between climate change and human rights.²⁸ She observes that –²⁹

the United Nations human rights treaties bodies all recognize the intrinsic link between the environment and the realization of a range of human rights, such as the right to life, to health, to food, to water, and to housing.

She subsequently pays attention to the impact of climate change on these and other rights (such as the right to life).³⁰ According to the high commissioner there is “broad agreement that climate change has generally negative effects on the realization of human rights”. She discusses the question whether this implies that “such effects can be qualified as human rights violations in a strict legal sense” –³¹

Irrespective of whether or not climate change effects can be construed as human rights violations, human rights obligations provide important protection to the individuals whose rights are affected by climate change ...

States must take “deliberate, concrete and targeted measures” making the most efficient use of available resources “to move as expeditiously and effectively as possible towards the full realization of rights”, but irrespective of resources they *must* “guarantee non discrimination in access to economic, social and cultural rights”.³² In the concluding chapter the notions above are summarised as follows:

96. The physical impacts of global warming cannot easily be classified as human rights violations, not least because climate change-related harm often cannot clearly be attributed to acts or omissions of States. Yet, addressing that harm remains a critical human rights concern and obligation under international law. Hence, legal protection remains relevant as a safeguard against climate change-related risks and infringements on human rights resulting from policies and measures taken at the national level to address climate change.

In a resolution of 26 March 2008 the UN Human Rights Council emphasised that –³³

28 United Nations, General Assembly, A/HRC/10/61.

29 (ibid.:7 and 22).

30 (ibid.:8ff.).

31 (ibid.). It follows from no. 72 that States may not be *responsible* for the harm; see on causation Spier (2012:175ff.).

32 United Nations, General Assembly, A/HRC/10/61, 25.

33 Quoted by Kravchenko (2008:525). See also ILA (2010:394f.).

climate change poses an immediate and far-reaching threat to people and communities around the world ... [which] has implications for the full enjoyment of human rights.

The African Commission on Human Rights has issued a resolution on climate change. The resolution almost explicitly labels it as a human rights issue.³⁴

There is an emerging school of thought among academics that climate change entails a human rights aspect.³⁵ Various human rights can be called to aid.³⁶ For instance the right to life, health, food and culture.³⁷ The right to water (important as droughts become more frequent and glaciers melt) is in the process of becoming a customary norm.³⁸

1. *Unorthodox Exercises*

In many cases, also in the field of industrial activities, human rights courts have arrived at the conclusion that human rights have been violated. Early cases were about nuisance (excessive noise) caused by airports and aeroplanes. States have a certain margin of appreciation, but excessive noise is labelled as a violation of Article 8 of the European Convention on Human Rights.³⁹ Much more spectacular is a series of other cases, also decided by the European Court of Human Rights. The most inspiring probably is *Öneriyildiz v Turkey*.

Since the early 1970s a household-refuse tip had been in operation near Istanbul. From 1972 onwards, the site was used as a rubbish tip by the local authorities. In those days the area was uninhabited. However, as the years passed, rudimentary dwellings were built without authorization in the surrounding area. They eventually developed into slums. At some stage the houses were more or less legalized. The tip no longer exists. It was covered with earth. In 1989, the authorities started to redevelop the rubbish tip. In 1991, it turned out that the tip did not conform to the technical requirements and presented a number of dangers

34 Resolution adopted 25 November 2009, ACHPR/Res153 (XLVI) 09.

35 See, e.g., Lord et al. (2011:38, 39 and 40) referring to Humphreys (2009). On p. 40 they point at a series of specific human rights that come into play; Ruppel & van Wyk (2011:10ff.).

36 See in more detail McInerney-Lanford et al. (2011:11ff.).

37 See also for further references, the passionate contribution of Kravchenko (2010).

38 Kravchenko (2010:48–49).

39 See, e.g., ECHR *Deés v Hungary*; *Borysiewicz v Poland*; *Leon and Agnieszka Kania v Poland*; *Oluić v Croatia*.

liable to give rise to major health risks for those living in the slum areas. Experts put forward the risk of an explosion. Their report was brought to the attention of the authorities. The local authorities refused to close the tip. In 1993, an explosion occurred. The refuse erupted from the mountain of waste and engulfed ten dwellings, including the house of Mr Öneriyildiz. Thirty-nine people died.

According to the Court Article 2 of the European Convention on Human Rights puts a positive obligation on states to take appropriate steps to safeguard the lives of those within their jurisdiction. This applies to any activity, whether public or not, in which the right to life may be at stake, and *a fortiori* in the case of industrial activities, which by their very nature are dangerous (para. 71).

The state must put in place a legislative and administrative framework designed to provide effective deterrence against threats to life. This undisputedly applies particularly in the context of dangerous activities. The court emphasises the *potential risk to human life*, which means that urgent consideration must be given to the licensing, setting up, operation, security and supervision of the activities that could jeopardise the life of people, and places all those concerned under an obligation to take practical measures to ensure the effective protection of citizens whose lives might be endangered by the inherent risks (§§ 89 and 90).

The sting is in the tail. Where lives have been lost in circumstances potentially engaging the responsibility of the state, Article 2 of the Convention entails a *duty* to ensure an adequate response, also to the effect that breaches are repressed and punished (§ 91). This also applies in the context of dangerous activities when lives have been lost as a result of events occurring under the responsibility of the public authorities. The authorities must be prosecuted if their negligence goes beyond an error of judgement or carelessness (§ 93).

A similar message is conveyed in an ECHR judgment in the case *Budayeva et al. v Russia*.⁴⁰

Another case, decided by the same court, also deserves our attention. In 2002, a young child, hereafter named J, was kidnapped and subsequently killed by Gäfgen. Gäfgen asked for €1 million. After his arrest, he was told by a police officer that he was suspected of having kidnapped J. Gäfgen suggested that J was being held by another kidnapper. The next morning the officer, acting on the orders of the deputy chief of police, told Gäfgen that he would suffer considerable pain at the hands of a person specifically trained

40 See also *Kalender v Turkey*; *Dink v Turkey*; *Pasa a.o. v Turkey* and *Osman v UK*.

for such purposes if he did not disclose the child's whereabouts. Gäfgen disclosed the whereabouts within ten minutes. At that place the victim's corpse was discovered. According to the deputy chief of police, J would have been in great danger, if still alive. The threat of torture was ordered to save J's life.

The European Court of Human Rights⁴¹ held that Article 3 of the Convention (the prohibition of torture) enshrines one of the most fundamental values of democratic societies. It makes no provision for exceptions; no derogation is permissible, *even in the event of a public emergency threatening the life of the nation* (§ 73). Furthermore, ill-treatment must attain a minimum level of severity to qualify as 'torture'. A threat also falls within the scope of Article 3, provided that threat of torture is sufficiently real and immediate (§§ 65 and 66).⁴²

The *Gäfgen* case, of course, is a very sad and very unusual one. Climate change is not about (threat of) torture to a not-so-innocent person. So it does not fall under the umbrella of Article 3 of the European Convention. Most lawyers stop thinking at this stage. Seen from a strict doctrinal viewpoint, they may be right that the *Gäfgen* judgement cannot serve as an underpinning for unrelated cases. It is true that the law has developed haphazardly. Protection to (potential) victims has given rise to a myriad of rules, most of them well-considered on their *own merits*.⁴³ Thus, a strange patchwork has been created. Very few lawyers think about internal consistency; they just apply the rules as they stand. Yet, it would be unsatisfactory if human rights could only come into play in relation to *relatively minor* offences.⁴⁴

The Grand Chamber of the European Court on Human Rights harped on the realities that had to be taken into consideration in interpreting Article 5

41 *Gäfgen v Germany* (Grand Chamber, 30 June 2008).

42 See also *A. v Netherlands* and *Saadi v Italy* (Grand Chamber). See for a similar view the (majority of the) Israeli Supreme Court in *John Does v Ministry of Defence*. In the context of inhuman treatment, the ECHR has dealt with a series of cases about people who were expelled to a country where, in the allegations of those to be expelled, they would run the risk of ill-treatment. According to the ECHR, prohibition of ill-treatment under Article 3 is absolute. The Court was indifferent to the pleas by various countries that the individuals concerned posed a threat to national security; see *A. v Netherlands*; *R. v Netherlands* and *N. v Sweden*.

43 But most are about trivial issues, such as all kinds of consumer protection.

44 See for a similar view Nollkaemper (2007:2876). To avoid misunderstanding: I do not want to suggest at all that individual violations are not appalling. Some even are extremely serious. But that is not my point.

paragraph 3 of the European Convention (the right to liberty and security), i.e. the growing and legitimate concern both in Europe and internationally, in relation to environmental offences.⁴⁵ Admittedly, the case was not about climate change, but concern for the environment and the need to adapt the interpretation to cope with the concern could easily be extrapolated, the author thinks.

The General Assembly of the United Nations has adopted a Millennium Declaration.⁴⁶ Under the heading of Values and Principles, mention is made of solidarity, i.e. global challenges must be managed in a way that distributes the costs and burdens fairly in accordance with basic principles of equity and social justice.⁴⁷ The heads of state and government pledged, *inter alia*, that they will “make every effort... to embark on the required reduction in emissions of greenhouse gases”.⁴⁸

2. *The Role of Enterprises*

Traditionally, it is open to debate whether enterprises are bound to comply with human rights (law).⁴⁹ In this respect, the Ruggie Principles and the OECD Guidelines for Multinational Enterprises come into play.⁵⁰ They clearly and convincingly point at the need for enterprises to refrain from violations of human rights. This view is endorsed by, *inter alia*, the UN Human Rights Council and the UN Commission on Economic, Social and Cultural Rights.⁵¹

45 *Mangouras v Spain*.

46 A/RES/55/2 of 18 September 2000. See also the Millennium Development Goals 1 (eradication of poverty) and 7 (sustainable environment) and about these Goals UNDP (2007).

47 A/RES/55/2 of 18 September 2000, 2.

48 (*ibid*:6).

49 See extensively Kamminga & Zia-Zarifi (2000).

50 It should be borne in mind that the OECD-Guidelines are not legally enforceable.

51 E/C.12/2011/1; Statement on the obligations of States Parties regarding the corporate sector and economic, social and cultural rights. This means effectively: safeguard rights holders against infringements and ensure effective remedies. See in more detail Clapham (2006:268). Earlier, he put it this way: “The message is that international human rights obligations can fall on States, individuals, and non-state actors.... With more and more national jurisdictions applying international human rights law as the law of the land, we look set to see an increasing acknowledgement of the relevance

IV. National Tort Law

The legal systems of common and civil law countries have a lot in common. If we disregard specific provisions about strict liability or national provisions on environmental liability – which largely diverge in Europe – there is considerable agreement that one is not allowed to expose others to a more than remote chance of significant damage.⁵² A very recent and important book paints a fascinating picture of the law as it stands in many legal systems; and the book is by no means confined to tort law.⁵³

The reasonable person (*bonus pater familias*) is often considered to be the yardstick for proper conduct. What can reasonably be required from such a person?⁵⁴ The European Principles on Tort Law elaborate on this topic as follows: it depends –⁵⁵

in particular, on the nature and the value of the protected interest involved, the dangerousness of the activity, the expertise to be expected of a person carrying it on, the foreseeability of the damage, the relationship between those involved, as well as the costs of precautionary or alternative methods.

A similar approach is adopted in, for instance, the United States,⁵⁶ China,⁵⁷ New Zealand,⁵⁸ Australia⁵⁹ and South Africa.⁶⁰ The International Commission of Jurists seems to take a similar position.⁶¹

It is true that not all of the just quoted criteria point in the direction of liability. For instance, there is no relationship (proximity) between, say, a German enterprise and the people in Bangladesh; arguably not even between the German people and a German enterprise based on one single or perhaps a very few German locations.

Expenses that have to be incurred to reduce GHG emissions play a role. But the importance of this factor should not be overstretched. More likely

of human rights norms for judging the conduct of private actors” Clapham (2006:58). See about specific cases Clapham (2006:347ff. and 437ff.).

52 See Article 4:102 para. 1 PETL.

53 Lord et al (2011).

54 See in more detail van Dam (2007:189f.).

55 Article 4:102 para. 1 PETL.

56 Dobbs (2000:§ 145).

57 Koziol & Zhu (2010:340).

58 Hodge et al. (2006:212ff.).

59 Trindade & Cane (1999:341ff.).

60 Neethling et al.(2009:36ff.).

61 International Commission of Jurists (2008:19).

than not, the costs involved are affordable, at least so far. Given the magnitude and seriousness of the threats of climate change, the major chance that these threats will materialise and the evil done in case of materialisation if we do not change course, a certain financial backdrop will certainly not be a justification to refrain from taking the necessary steps to curb GHG emissions. All the less so, as the enterprises that are unwilling to incur costs to curb their GHG emissions will be much more adversely affected in case the threats materialise.

The other factors clearly point in the direction of an urgent need to cope with the threats of climate change, i.e. the obligation to curb emissions. I have little doubt that the factors pointing at the need to take action outweigh the others, given the seriousness of the threats and the colossal damage that will accrue if we do not change course radically.

*E. By how much should GHG Emissions be Reduced?*⁶²

The most difficult question is the level of reductions of GHG emissions legally required.⁶³ According to the prevailing view, the obligations of the respective countries diverge (the common but differentiated responsibility concept). Rightly so, the author thinks. After all, many, predominantly African, Asian and Latin American countries did not cause the problem. The emissions of these countries are still far fewer than those of the self-acclaimed developed countries, while a significant part of their populations continues to face appalling poverty.

It follows that the so-called developed countries should achieve much higher levels of reductions of their emissions compared with developing countries. That in itself is a not unimportant ‘finding’, but it is so vague that it comes close to being meaningless when it has to be applied in concrete cases. In the book, this crucial issue is discussed in quite some detail. In this contribution, the author must stick to the essence of his submissions.

62 Particularly, but by no means only, this part of *Shaping the Law for Global Crises* was discussed in some detail with Elbert de Jong, a young researcher at the University of Utrecht.

63 In this contribution I have skipped quite a few issues, such as the important question whether or not states are under an obligation to assume the obligations of other states not willing to meet theirs.

The first step is to figure out the level of global emissions reduction needed to avoid global temperature rising by more than 2° Celsius. As already discussed, the calculations should be based on worst case scenarios. Emissions that go beyond the level that might cause an increase of global temperature of more than 2° Celsius have to be cut altogether. The second step is to figure out what can reasonably be achieved. Theoretically speaking, the required reductions could perhaps largely be achieved if (mainly) developed countries would refrain from central heating in winter, air conditioning in summer, stop (truly unnecessary) travelling and buying unnecessary luxury goods. Seen from the angle of developing countries, this could be a very reasonable stance, given that a major part of their populations is worse off. Be it as it may, there is not the slightest chance that such an approach will be adopted by courts around the globe, nor that it will reach the stage of even soft law. Besides, this approach would backfire on developing countries, as it would greatly affect the world economy and by the same token would have major adverse consequences for all nations.⁶⁴ A better alternative would be to switch to a carbon neutral society. The latter is probably the unavoidable (and desirable) final goal anyway, but it cannot be achieved overnight. It requires equipment that has to be manufactured. Hereinafter the author will largely ignore the practicalities, though they cannot be overlooked altogether when drafting a legal blueprint.

Two alternative scenarios are submitted:

- a. Decisive are the aggregate emissions per country as from, say 1990,⁶⁵ brought about by the people who cannot be labelled as truly poor. For

64 It seems quite likely that this adverse impact on the short term would have less deleterious consequences than the overall adverse consequences of climate change if we stick to business as usual. But I am afraid that it is unrealistic to base any legal theory on this state of affairs as it would be almost universally despised. As a matter of fact, developing countries (too) are mostly governed by the 'haves' and it is unlikely that they will accept any solution that will have significant adverse effects on the short term, all the more so as their voters (if any) will throw them out of office.

65 1990 or any other specific year is, in a sense, arbitrary. 1990 is unfair to *developing* countries, as it largely ignores the historical contribution of *developed* nations. On the other hand, any year earlier on the time line is, in a sense, unfair to the equally *innocent* younger generation of *developed* countries. In some instances they got collectively the benefits from earlier emissions, but not necessarily so as they may have been wiped out by wars or other catastrophes. Yet, I readily admit that there are sound arguments for replacing 1990 by, say, 1970 or arguably even 1950. See about this topic in more detail Spier (2012:92ff.).

practical purposes, emissions by people in a specific country whose annual income is less than, say, US\$7,500 should be ignored.⁶⁶ The remaining emissions have to be reduced with the percentage needed to stay on the safe side, as briefly discussed in Section C.

- b. States, particularly ‘developed’ states, are under an obligation to reduce GHG emissions *as much as possible*. That also entails the obligation to find ways to urge enterprises and private persons within their territory to do so. Courts could (and should) urge them to do so.

If need be, courts (or independent commissions designed for that purpose) could urge a state to explain –

- i. *ex ante* what it aims to undertake to meet its obligations and why it cannot or is not required to go beyond these steps;
- ii. *ex post* whether it has come up to the pledges made *ex ante* and why it was impossible to do more.

The author realises, of course, that states will have some, arguably even a wide, margin of appreciation. But courts should closely scrutinise the arguments put forward by the states. In quite a few instances, information about what *could* reasonably be done is readily available. By way of example, one could think of: changes of equipment, efficiency standards and operational changes, which may often go at low cost.⁶⁷ Courts could and should urge defendants to be very explicit about the question why more far-reaching reductions are not a realistic option.

Thus far, the obligations of states have been discussed. What about enterprises? For them, the submission *supra* b should be applied as well, but one should be more demanding, given that they cannot invoke the ‘political argument’, so they do not have ‘manoeuvring’ room. In the short-term they should reduce their emissions as much as *technically* feasible. On top thereof, they should refrain from activities that create unnecessary GHG emissions and that can easily be avoided, such as switching on lights and heating in offices not in use, or distributing all kinds of useless paperwork and making unnecessary prints, and undertaking unnecessary travels. On the some-

66 Ignoring this part of the population is not overly appealing in rich countries such as the US. It could be argued that US\$ 7,500 is too high, given that a major part of the world’s population lives well below this line. It is also conceivable that the required level of reductions cannot be achieved if we depart from this threshold. That needs further discussion.

67 See in more detail Bodansky & O’Connor (2011:6ff.).

what longer term, not-so-vital industries should go well beyond these reductions by moving towards carbon neutrality. This should not necessarily go for all enterprises based in developing countries.

F. Defences

Assuming that there would be a legal basis for climate change litigation, the question has to be faced whether defendants could invoke defences. A few defences are briefly discussed below.

First, there is the political argument that will undoubtedly be invoked by state defendants. It cannot be denied that climate change and the need, extent and speed required to curb GHG emissions *should* be dealt with by politicians. As a matter of fact, they fall short to meet their obligations to humankind. It is extremely unlikely that this will change in the near future. That in itself seems enough reason why courts must step in, although it obviously requires judicial courage.⁶⁸ There have been quite a few occasions where superior courts in many countries were willing to enter politically sensitive fields.⁶⁹ It may well be the only way to bring politicians to their senses.⁷⁰

A related argument goes that explicit international agreements are the upper limits of GHG reductions that can legally be required. The author does not deny that proponents of this view have a point. However, the view is prone to criticism. It would mean that insufficiently specific agreements in this field would derogate to general principles of international law and human rights; even to the right to life. Such a stance is not overly attractive.⁷¹ It would mean that a huge part of the law could not come into play in relation to the most serious threats mankind has ever faced. Moreover and perhaps even more importantly, it would imply that a few (major) countries, blocking more stringent reductions, would determine the law in this area for the rest of the world. To put it in the extreme: a relative or even absolute

68 Not every court will be inclined to show courage. Supreme Courts such as the Supreme Court of India may well take the lead in this debate.

69 See for examples Spier (2012:101ff.).

70 Quite a few will only be happy. In this scenario, they can explain to voters that they *must* act. So they get an 'excuse' to embark on steps they are keen to take.

71 See about this topic Faure & Peeters (2011:263ff.); Kaminskaite-Salters (2011:181ff.).

small number of (very) right wing people in a very few countries (amounting to approximately 50–55% of the voters⁷² in those countries) could determine the fate of mankind. It would also mean that the race to the bottom would pay. It would be unsatisfactory if that indeed were the state of the law: the author does not think it is. That is not only a moral judgment.⁷³ Recall again the case about the kidnapper in which the ECHR held that the right to life has preeminence in all international instruments on human rights. It speaks of the supreme value in the international hierarchy of human rights.⁷⁴ The same court subscribes to the view that torture is *never* allowed: not even if *vital interests* of a state are at stake.⁷⁵ It is of little use, however, to compare torture to the evils of climate change. Some of the evils of climate change – arguably even most – will be (far) less serious in *single* cases. Other impacts will be very serious. What counts is that the cases decided by the ECHR are about violations of the hardest core of human rights, albeit in relation to a relatively small group of victims.⁷⁶ Climate change is about evil inflicted on many more people whose lives or wellbeing at an already very minimum level is in jeopardy. So it can hardly be true that colossal misery all over the globe has to be *accepted* only because politicians are unable to reach agreement on useful, or rather bitterly needed, targets. It follows, the author thinks, that compliance with national law and/or permits is *a fortiori* not a viable defence either.⁷⁷

Defendants could also argue that the state of the law is – and was even more so in the past – fundamentally unclear about the question whether, let alone to which extent, they have (and had) to reduce their emissions. As a matter of fact, it cannot be denied that defendants would have a point. It is true that it is rather unclear *how far* the requirement to reduce GHG emissions stretches, and why that is the case. The defence would however be funda-

72 In some of the countries involved, only 50% or less of the voters actually vote. So 50–55% of the votes only represents approximately 25% of the population entitled to vote.

73 There have been – and are – more instances where views of a relatively small number of hardliners in one or more countries have been overturned by later developments of the law.

74 *Streletz, Kessler and Krenz v Germany*.

75 *Gaefgen v Germany*.

76 In the *Gaefgen* case no torture took place. Gäfgen was ‘only’ told that this would happen if he would not release the name of the child he had kidnapped because the police believed (and had reason to believe) that its life was in danger.

77 See in more detail Spier (2012:170 and 171).

mentally mistaken if it were to suggest that it is unclear *whether* emissions must be curbed.

The defence would be bogged down straightaway if put forward by an enterprise which GHG emissions are too high by all reasonable standards, i.e. if they are unreasonably and unnecessarily high in relation to the emissions of similar enterprises and could have been lowered at (relatively) small costs. In other scenarios the defence is more problematic.

As a matter of fact, courts deal with this type of situation quite often. It happens in many instances that the law has to be shaped. If casting doubt about its precise meaning would be a defence, there would be many lawless realms. It would imply that this type of case would almost always be decided to the detriment of the plaintiffs. If scenarios of obviously irresponsible behaviour are ignored, I can imagine that the defence would meet (some) sympathy if the litigation were about damages in relation to climate change. As to injunctions, it does not matter that the law *was* unclear. After all, they point at the future and by then the law is clear, if shaped in the decision which grants the injunctions.

Last but not least, the defence derived from technical advance is discussed. Many believe that technology will progress with the passage of time. They assume that better technology with a lower carbon footprint will be available in a couple of years. It is possible that this view is correct. Is that sufficient reason to take a wait-and-see position right now? There are compelling reasons for a more active stance at this stage:

1. The expected advance may not materialise. Besides, we cannot take for granted that the materials to manufacture the equipment, based on the new technology, will be available, let alone to the extent needed and in the very short term.
2. If the expectation turns out to be justified, it will take quite a while before the new technology becomes operational. So again, a couple of years, if not more, will elapse. We cannot afford that, given that it is high noon.
3. Given that the stakes are extremely high, we cannot afford to wait.

G. Causation

Causation probably is the most serious obstacle for legal action, particularly if plaintiffs were to seek compensation, which in the author's view is not the most attractive way forward (see Section H below).

As a matter of fact, the contribution of almost every country and even more so of every single enterprise to the global problem and of specific losses is relatively small, irrespective how one counts these contributions.⁷⁸ In many legal systems this poses a serious problem, at least in relation to claims for damages. There are precedents of cases, doctrine and quasi-legal instruments that are fairly generous to plaintiffs, even if the contribution of a specific defendant is small, albeit that defendants are only likely to be liable in relation to their proportional share.⁷⁹ So far, the law seems rather unsettled in this field.⁸⁰

A somewhat related argument is that the damage would have occurred anyway, even if the defendant were to have met his obligations. As such, the argument will (often) be valid. But if it could be invoked by every defendant, any advance would be blocked. So the author can only support the stance of the Supreme Court of the United States that has rejected the argument.⁸¹

Assuming that the causation defence would be rejected, one has to face the scope of liability.⁸² The law (of causation) in many countries provides adequate means to keep liability within bearable limits. Proximity (i.e. a more or less close relationship in time and space between victim and tortfeasor) is one of the preeminent vehicles in this field. The same goes for ad hoc mitigation (the court could cap liability in a specific case if liability would be an oppressive burden).⁸³

H. Remedies

If we let things happen, catastrophe will set in. The aggregate losses will be beyond imagination. Worse, they will sharply increase with the passage of time. If the conditions for liability are met, a causal link can be construed

78 See about that topic Spier (2012:92ff.) There are a few exceptions, such as the US, China, India and the Russian Federation.

79 See, e.g., Spier (2005:58 and 59) and *Stenkiewicz v Grief*, (UK) Ltd., [2011] UKSC 10.

80 See in more detail Winiger et al. (2007:531ff.).

81 *Massachusetts et al. v EPA et al.*, 415 F.3d.50.

82 In some legal systems this issue is not dealt with under the heading of causation. If I am not mistaken, this is of no avail in relation to the outcome of a specific case.

83 See e.g. *Principles of European Tort Law*, Articles 3:201 and 10:401; see also International Law Commission, Articles on Responsibility for Internationally Wrongful Acts, 40.

and defences will be rejected, so compensation springs to mind as the most obvious remedy. In such a scenario, the need to pay compensation is often considered self-explanatory in most legal systems. Should climate change be an exception to this rule? An answer in the affirmative will be despised by many, victims, academics and practitioners alike. If reasonably possible, such an answer would appeal to one's primary sense of justice. Yet, the predominant view has it that the losses will be so colossal that no tortfeasor will be able to pay even its proportional share of all these losses, present and future. Is this *non possumus* a justification for an uncommon solution? I am afraid that the answer should be in the affirmative.⁸⁴

Firstly, compensation will often have to be paid by equally innocent people, such as tax payers, shareholders (more often than not of pension funds), employees and so on. That in itself is perhaps not enough reason to ban compensation. After all, in the short term it could be argued that these classes of people have enjoyed the fruit from the excessive GHG emissions. In the longer term, when catastrophe has already set in, the gains of the past will have disappeared; only the liability will remain.

Secondly, liability for damages would imply that the first victims would receive all the money available for compensation. Little money, if anything, would be left for future victims, despite the fact that their losses will be much higher than those of the first victims. Lastly, too much will disappear in the pockets of often already overpaid attorneys.

Should the same reasoning be applied for adaptation and mitigation costs? The author's answer would be: not necessarily so. After all, those costs may well be manageable and bearable. If and to the extent that this would be the case, there is not much reason to refrain from applying the law as it stands. The recoverability of reasonable expenses to ward off the consequences of a risk created by others probably is common core.⁸⁵ The more difficult question is how much of the expenses should be borne by the developing countries. I fear that there is hardly a sound legal basis or formula to determine this part.

It follows from the argument above that compensation, all in all, is the wrong track to take, in the author's view, despite the fact that *ex post* reme-

84 That would only be different if there would be fair, consistent and solid ways to keep the liability burden for present and future losses within bearable limits. One of my colleagues in the project, mentioned in footnote 1, will try to develop a coherent and fair framework to this extent.

85 See, e.g., Article 2:104 PETL.

dies belong to the lawyer's paradigm and are still common ground in legal education in many places. Moreover, a focus on *ex post* remedies would mean that we first let things happen, and act only when the evil has already materialised. I cannot think of any good reason why a great many people would have to be exposed to major risks, whereas they could, at best, seek compensation when the damage is done.

Prevention has long been ignored by lawyers, but happily there is an emerging trend to point at the important role it could play.⁸⁶ But, once again, it will not happen without appropriate pressure. Injunctive relief could pave the way to prevention. As a general rule, potential victims can ask courts to issue injunctions toward those whose wrongful acts or omissions will bring about these losses.⁸⁷ Courts tend to have quite some discretion; that is a long established practice and makes possible decisions "flexible, intuitive, and tailored to the particular case".⁸⁸ Relevant factors have to be weight, particularly the magnitude of the harm; the prospect of grave or even irreversible losses; and the chances of manifestation of such losses.⁸⁹ Compliance with his duty should not be too burdensome for the defendant.⁹⁰ If we balance the just mentioned factors, one can barely arrive at a different conclusion than that injunctions stand a fair chance, given that the stakes are tremendously high. Seen from a legal angle, it is not easy to explain why injunctions should *not* be granted, assuming that the emissions can be labelled as wrongful.

I. Liability of Others

So far, this contribution has focused on liability of states and enterprises. In an ideal world – and according to most experts in the field of law and economics – the threat of liability would have a sufficient deterrent effect. This is one of the (many) examples where this theory turns out to be mere theory. True, ever more states and enterprises are reducing their emissions, but the

86 Krämer, (2004:38). See also ECJ *Regina v Ministry of Agriculture* [1998] ECR 1-2211 paras. 63 and 64; ICJ *Argentine v Uruguay* (Pulp Mills) § 205; Koziol & Zhu (2010:342).

87 See, among many others, Faure & Nollkaemper (2007:176); Kaminskaite-Salters (2010:95f.).

88 Dobbs (2003:66); van Boom (2010:14f.).

89 (*ibid.*:15, 20 and 29ff.).

90 (*ibid.*:30).

level of these reductions falls short compared to what is needed. So apparently other incentives are needed to get the job done.

The first and obvious targets are senior politicians and directors and officers of enterprises. They will obviously not be able to compensate even a very small part of the loss, but the prospect of personal liability may bring them to their senses. Personal liability of directors and officers arguably is not far-fetched. According to research executed by Harvard professor John Ruggie, in a significant number of countries directors and officers are implicitly required to consider non-shareholder interests as part of their duty to act in the company's best interests. In that context Ruggie mentions safety laws and environmental protection. Besides, enterprises should respect human rights law, as we have seen above. If they do not they may be subject to a civil claim by the company.⁹¹ One can, equally, imagine claims by victims other than shareholders, although such claims are fraught with difficulties.

If liability for damages would stand a favourable chance, enterprises should properly report and make provisions for these potential losses. Auditors should scrutinise them to do so. If the latter do not, they run a liability risk themselves.

J. A Search for Allies

If catastrophe strikes, it will result in human tragedy. Besides, the economy will be greatly affected. In the aftermath, an economic depression will be unavoidable. Stock markets will collapse. Loans will not be able to be repaid any longer. Even if insurers were to survive all these evils, they would face bankruptcy because they will have insured too many triggered events.

Many people and organisations are ever more concerned about the threats lying ahead. That goes, inter alia, for prestigious international institutions such as the United Nations and a series of UN fora, development banks, the World Bank, the World Health Organisation, and the African Commission on Human Rights. A growing number of banks and (re)insurers are concerned too. So are leading NGOs.

91 UN, General Assembly, A/HRC/17/31/Add.2, 18 ff.

So far, most banks, insurers, investors (such as retirement funds) do not seem to care. Supervisory institutions seemingly⁹² care even less. That is quite remarkable in view of their fiduciary duties. There happily is a change for the better: a not unimportant group of investors – that collectively represent assets of over US\$15 trillion – has chosen to speak out.⁹³ More generally, there is an emerging trend among major investors to focus on sustainability.⁹⁴ The Principles for Responsible Investment (PRI), an initiative of investors in partnership with the UN Environmental Programme Finance Initiative and the UN Global Compact,⁹⁵ stresses that investors in their fiduciary role “believe that environmental, social and corporate governance... issues can affect the performance of investment portfolios”. The *PRI Annual Report 2011* explicitly mentions climate change.⁹⁶ The executive director of the PRI Initiative, James Gifford, points at the link with human rights and the Ruggie Principles.⁹⁷

In a *World Economic Forum Report*⁹⁸ the question is posed whether “our ... investment incentives [are] strong enough to drive the development of ... energy efficiency measures adaptation and new technology development”. In the *Geneva Reports Risk and Insurance Research, The Insurance Industry and Climate Change – Contribution to the Global Debate*, one of the key messages is that major institutional investors and the insurance industry should encourage mitigation and investment in low-carbon energy

92 I do not know, of course, what happens behind closed doors.

93 Global Investor Statement on Climate Change: Reducing Risks Seizing Opportunities & Closing the Climate Investment Gap, November 2010. I do not address the difficult question who can be labeled as *investor* and who can use voting rights. In most instances, the answer is quite clear. But that is far lesser the case in relation to investment in all kinds of funds or indexes. See Melis et al. (forthcoming).

94 See Löfving & Bacani (2011:28ff.); they point at an “Initiative financière du Programme des Nations Unies pour l’Environment”. On p. 31 they explicitly mention climate change.

95 According to Löfving & Bacani (2011:28) the principles are endorsed by investors with 25 trillion USD. The annual Report of PRI (2011:1) mentions USD 30 trillion of assets. According to the PRI-website, available at <http://www.unpri.org/signatories/signatories/>, last accessed 21 April 2013, 270 asset owners, 732 investment managers and 133 professional service partners have signed the Principles; among them the pension funds of Australia, South Africa, Thailand, Norway, Denmark, the public sector of the Netherlands (ABP), BP, major banks and (re)insurers such as Danske Bank, Generali Group, Swiss Re and leading investors such as Black Rock.

96 PRI (2011:1 and 7).

97 (*ibid.*:7).

98 WEF (2009:20).

projects.⁹⁹ In a recent study, carried out by investors, most respondents viewed climate change issues as a material investment risk/opportunity.¹⁰⁰

The US National Association of Insurance Commissioners released a white paper. It “concluded that disclosure of climate change risks was important because of the potential impact of climate change on insurer solvency as well as on insurance availability and affordability across all major categories of insurance”.¹⁰¹

Banks, insurers, major investors and retirement funds are very important economic players. Politicians cannot be indifferent to their concerns and would not (easily) ignore their concerted call for action – even less so, if they were seconded by supervisory institutions such as central banks. They ought to speak out.

It is not overly clear why most of the institutions mentioned above seemingly have shown so little courage, or, worse, have outright ignored their fiduciary duties. If need be, they should be brought to their senses by injunctions and, in rather extreme cases, arguably by criminal responses and other kinds of litigation. It would be preferable by far, and it would also be more effective, if these institutions would join forces with others who try hard to stem the tide. Together, they could make the difference. They could do the world, their own interests and the interests of those who put their confidence in them a great favour. In brief: they could be allies to achieve a better and sustainable world.

Trade unions also are potential allies. They do not react differently from the rest of society and they, too, rarely seem to have long-term views. But they possibly could be brought to believe that it is very much in the interests of the employees they represent to tackle climate change. If Stern’s calculations are about right, the looming unemployment and other miseries will grossly exceed those of the financial crisis, which is seen by many as about the worst eventuality that could strike the world.

More promising, but at the same time more difficult to forge, are alliances between countries with largely the same interests. The author is inclined to believe that this holds true for many Asian and African countries, arguably

99 The Geneva Association (2009).

100 IIGCC (2010:40).

101 Ishihara (2010). Others are more optimistic. See, e.g., Lord et al. (2011:28, 30 and 52).

together with a few Latin American countries.¹⁰² The author may however be mistaken, and other alliances may stand better chances. The point being made is that the bargaining power of a group of countries would be much stronger than the power of single countries. So, it might be worthwhile exploring which countries could develop common strategies.¹⁰³

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102 Scholtz (2010:7f.) casts doubts about this point, although he observes that the African Union aims at arriving at a common position, Scholtz (2010:10 and 12). According to Gupta (1997:98 and 94ff.) there are “financial, political, information, ideological and other reasons” why developing countries are unable to form a substantial common negotiating strategy”. In the context of COP17 (Durban) African States and a number of States in Latin America (the ALBA-group of countries) have coordinated their strategies; see Bolivarian alliance calls for extending and strengthening the Kyoto Protocol and climate change adaptation aid to poor countries, and opposes the commodification of forests under REDD, www.climate-justice-now.org, last accessed 21 April 2013; COP17 and the Future of the African Common Position, www.stakeholderforum.org/sf/outreach/index.php/cop17-day1-home/467-cop17-day1-item1, last accessed 21 April 2013.

103 For regional initiatives see Lord et al. (2011:60).

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Climate Change Law: Objectives, Instruments and Structures of a New Area of Law*

Hans-Joachim Koch

Abstract

Over the past two decades, Germany has created a sophisticated climate change legislation framework which in many instances implements international and particularly European Union (EU) requirements. This article points out that in some areas Germany has played a pioneering role in shaping the development of EU law. As an environmental problem of truly global scale, climate change mitigation is heavily reliant on the achievement of international consensus. But it also requires effective, level-specific solutions to problems at all rungs of the multilevel policy hierarchy comprising the international community, the EU and the Federal Republic of Germany with its sixteen states and numerous cities and municipalities. Much progress has therefore already been made, but efforts must be greatly intensified right across the board.

A. Introduction: Climate Change Policy in Germany and the European Union: Objectives and Strategies

As a European Union member state, Germany was an early starter in efforts to specify emission reduction commitments¹ under the United Nations Framework on Climate Change Convention and in pursuing what were at

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1 See SRU (2002:para. 427ff.); SRU (2004:para. 15ff.); SRU (2008a:para. 104ff.).

the time ambitious reduction targets of its own: the German government aimed to cut greenhouse gas emissions from German sources by 25% by 2005 based on 1990 levels.² Subsequent to the Kyoto Protocol,³ Germany agreed under the EU burden-sharing scheme to reduce its greenhouse gas emissions by 21% during the period 2008 to 2012 compared with 1990 levels.⁴ This target will be met.⁵

A milestone in Germany's more recent climate policy came in the form of the Meseberg Resolutions on Integrated Energy and Climate Policy adopted by the German government on 23–24 August 2007.⁶ This climate change programme affects almost all significant emitter groups (industry, transport, buildings and consumers) and comprises 29 measures with quantified CO₂ reduction targets for the period up to 2020. On this basis, Germany aims to cut greenhouse gas emissions by 40% by 2020 based on 1990 levels.

The core components of the Meseberg Energy and Climate Programme involve improving energy efficiency by, among other things, promoting combined heat and power, and a range of measures relating to electricity consumption in buildings. Also, use of renewable energy is to be considerably intensified in the electricity and heating sector. For the transport sector, use of biofuels and the integration of shipping and air transport into the

2 Emissions in CO₂-equivalents 1990: 1,036 million tonnes; of which 15.7% from the transport sector, 40.1% from the energy industry, 20.9% from private households and private consumers, 14.9% from the manufacturing sector, and 8.1% from industry; see also the table in UBA, Nationale Trendtabellen für die deutsche Berichterstattung atmosphärischer Emissionen seit 1990, Emissionsentwicklung 1990–2007 (information as of 12.11.2008). See Emissionsentwicklung 1990 – 2010, Treibhausgase, inkl. erweiterte Auswertung und Äquivalentemissionen der Treibhausgase, available at <http://www.umweltbundesamt.de/emissionen/publikationen.htm#AktuelleBerichterstattungen>.

3 Ratified by Germany by law enacted 27 April 2002; BGBI II 2002, 966.

4 See Council Decision 2002/358/EC of 25 April 2002 concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder, 2002/358/EC, Official Journal of the European Union – Legislation (OJ L) 130, 15 May 2002, 1. For the subsequent period see Decision 406/2009/EC by the European Parliament and the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020, OJ L 140, 05 June 2009, 136.

5 For the German Government's opinion see, BMU (2007a); BMWi & BMU (2007); UBA (2007); UBA (2009:2ff.); SRU (2008a:para. 102ff.).

6 See BMU (2007a); BMWi & BMU (2007); and also Bosecke (2008:122); SRU (2008a:para. 104ff.); UBA (2009:4ff.).

Emissions Trading Scheme will lead to significant reductions in CO₂ emissions. The Meseberg Programme is less clear as regards ways to reduce greenhouse gas emissions in agriculture – each of the approaches it contains requires considerable further enhancement of prevailing (climate change) law.⁷ This will be addressed in more detail later (in Section C).

The Meseberg Energy and Climate Programme serves as Germany's contribution to achieving the ambitious targets agreed on by the EU heads of state and government under the German EU presidency on 9 March 2007. Accordingly, by 2020, greenhouse gas emissions in the EU are to be reduced to 30% below 1990 levels, subject to other industrialised countries agreeing to comparable targets and emerging economies reducing their emissions commensurate with their abilities and resources. Aside from this package of measures, the EU has agreed to reduce its emissions by 20% by 2020 in any event, even though under the Kyoto Protocol the EU is only required to cut emissions by 8% by 2012.⁸

In advance of the Climate Change Conference in Copenhagen in December 2009, which in many respects failed, the European Union and Germany adopted very clear positions, and not just in respect of the 2°C target⁹ long called for by the scientific community.¹⁰ The EU repeatedly and vigorously called for global warming to be restricted to 2°C compared with pre-industrial levels. At the same time, the EU proposed specific reduction targets and associated measures linked to financing models. The German government spoke out strongly in favour of complying with the 2°C target.¹¹ Unfortunately, in the Copenhagen Accord, the Copenhagen Conference achieved little more than half-hearted political recognition of the 2°C target. International climate change policy is consequently at risk of collapse.

*Climate Policy Post-Copenhagen*¹² is more challenging than ever. The EU continues in its efforts to present a credible example and has analysed ways of moving forward on the road to a reduction target of 80–95% by 2050

7 See BMWi & BMU (2007). The report contains 14 proposals for primary and secondary legislation. See also the background report by BMU (2007a).

8 See EU Council Conclusions 7224/01/07 REV 1, in the version dated 2 May 2007.

9 See WBGU (2009a:9ff.); and WBGU (2007).

10 For greater detail see the Communication from the EU Commission (2009a); see also EU Commission, (2009b); WBGU (2009b); German Government (2008:5).

11 Statement by Chancellor Angela Merkel, German Government (2009a:7ff.).

12 Thus the title of a WBGU policy paper, WBGU (2010).

and of reaching a binding commitment on the 30% target.¹³ The German government endorsed these aims in its Energy Concept of 28 September 2010.¹⁴ Negotiations in advance of the Conference of the Parties (COP16), held at Cancún in December 2010, went in two directions, one concerning a continuation of the Kyoto Protocol and the other a new global climate change accord.¹⁵ As we now know, the conference in any case brought legal recognition of the 2°C target. The Conference of the Parties (COP17) in Durban in December 2011 achieved an agreement to negotiate an accord for climate protection which binds all member states and defined a second stage of Kyoto beginning in 2013. The UN Climate Summit in Doha in December 2012 finally developed a binding agreement with the following main items:

- An obligatory second obligation period based on the Kyoto Protocol from 2013–2020, and
- A working plan for the negotiation of a new global convention for climate protection to come into force in 2020.

B. Climate Change Law: A New Area of Law

Climate change policy has in the meantime produced a steadily growing body of legislation. From a legal systematics standpoint, the subject of climate change policy in the law is followed with growing interest and increasing intensity¹⁶ and is now often recognised as a legislative field (climate change law) in its own right.¹⁷ In agreement with Gärditz, it appears reasonable to define climate change law as “the sum of legal standards designed to protect the climate against anthropogenic effects”.¹⁸ It must also be remembered in this regard that climate change law is a cross-sectoral area,

13 COM 2010 (265) final: Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage.

14 BMWi & BMU (2010:4).

15 For an academic perspective on the two options see Hansjürgens (2009).

16 Koch & Caspar (1997); Koch & Behrend (1996); Koch & Verheyen (1999); Bail et al. (2003:§ 54); Köck (2007); Weinreich (2006); Müller (2008); Czybulka (2008).

17 Winkler (2005); Gärditz (2008); Kloepfer (2008:10); Müller & Schulze-Fielitz (2009:15); for a still cautious view, Schlacke (2010:121), with a useful overview of the diversity of regulatory regimes.

18 Gärditz (2008); concurring Müller & Schulze-Fielitz (2009:12).

which has been integrated along with its objectives and instruments into a myriad of regulatory resources, and must continue to be so integrated in the future.¹⁹ Also, climate change law is typical of multilevel legislation with rules that apply at international, EU and national level. It is virtually paradigmatic for the increasing globalisation of environmental law.²⁰

International, European and national climate change law has acquired clear structures in its just under 20 years of development. Structure-giving regulatory strategies in climate change law can be grouped – broadly – into strategies for the reduction of greenhouse gas emissions (climate change law in the strict sense) and climate change adaptation strategies (climate change adaptation law). Regarding greenhouse gas reduction strategies, the action areas to be distinguished comprise substitution of fossil fuels with renewable energy sources, improving energy efficiency, and the (as yet under-developed) measures relating to arable and livestock farming.

With regard to energy efficiency, sector-specific command-and-control regimes have been created for buildings, energy-using or energy-related appliances and equipment, and motor vehicles. Greenhouse gas emission trading has been or is being established for industry and aviation and may be established in future for shipping; promotion of combined heat and power (CHP) is a further instrument targeting energy efficiency. Alongside these sector-specific arrangements is the cross-sectoral approach taken in the Energy Services Directive, which has now been transposed into German law. This targets absolute energy savings by way of improvements in energy efficiency.

Concerning the substitution of fossil fuels with renewable energy, notable legislation includes the Renewable Energy Sources Act (EEG) – descended at some distance from the former Electricity Feed-in Act (Stromeinspeisungsgesetz) – and the recently overhauled EU Renewable Energy Directive. The instrumental core of the former Electricity Feed-in Act has been retained in Germany, in compliance with European law: grid operators must purchase renewables-generated electricity on a priority basis and must pay for it a price set by the state.

The core provision of the more recent Renewable Energies Heat Act (EEWärmeG) consists of a statutory obligation to use renewable energy for

19 Koch & Verheyen (1999:2); Gärditz (2008:325); Müller & Schulze-Fielitz (2009:11).

20 See Koch & Mielke (2009).

a proportion of a building's heat needs. The proportion itself depends on the type of energy used.

With regard to fossil fuel substitution, a binding biofuel quota has been adopted that must be met by all business enterprises placing motor fuels on the market. With a view to land-use conflicts and the need to safeguard nature conservation interests under increased biomass crop farming, the EU has laid down sustainability requirements for the growth of biomass crops in the Renewable Energy Directive. These requirements are transposed into German law in more specific form in the Biofuels Sustainability Ordinance (Biokraftstoff-Nachhaltigkeitsverordnung/Biokraft-NachV).

Detailed analysis of the regulatory regime in all its diversity leads, quite naturally, to difficult legal issues, as well as an on-going need for harmonisation and also individual points needing correction. At the same time, it may be concluded that in just under two decades a body of climate change law has been created that is diverse, complex and, in its core structures, essentially suited to the task. By the very act of undertaking a synoptic review of this new area of law, the academic law discipline is able to provide the kind of critical and constructive support that is ever necessary for the on-going legislative process. It is nonetheless important to distinguish between the level of sophistication achieved by the body of law itself and the standard needed to attain climate policy targets. In this light, the conclusion to be drawn is that efforts must be stepped up considerably in all areas if the 2°C target is not to become unattainable in the near future.

The analysis in the following section is restricted to the main decarbonisation strategies, i.e. to the legal frameworks for the promotion of energy efficiency and for the promotion of renewable energy.²¹

C. Legal Framework for the Promotion of Energy Efficiency

A dramatic increase in energy efficiency is a vital prerequisite for successful climate change mitigation.²² The general consensus is that there are huge efficiency reserves. The European Union and Germany have therefore

21 A comprehensive treatment including constitutional issues, legal issues concerning the reduction of greenhouse gas emissions in agriculture and legal approaches for climate change adaptation is published in GfU (2011).

22 For an in-depth view see SRU (2008a:para. 109ff.).

launched an energy efficiency initiative in all key sectors.²³ Notable sectors involved in the implementation of successful energy efficiency policy include:

- Boosting competition in energy efficiency in the course of energy market liberalisation²⁴
- Promoting energy efficiency in residential buildings²⁵
- Efficiency requirements for energy-using appliances and equipment²⁶
- Creating the conditions to increase energy efficiency in motor vehicles,²⁷ and
- Promoting energy efficiency in industrial facilities.

Both the European Union²⁸ and Germany²⁹ have introduced a range of statutory regulatory regimes in the key sectors mentioned above. While these are largely promising, they must still be enhanced and developed further. The following sets out the most important elements of the regulatory regime.

I. Promotion of Energy Efficiency Using Combined Heat and Power (CHP)

With the major revisions of the Combined Heat and Power Act (KWPG) in 2008 and 2009 under the framework of the German government's Integrated Energy and Climate Programme,³⁰ the percentage share of high-efficiency CHP plants in electricity and heat generation (primary energy use over 90%) is to be increased from 12 to 25% (Section 1 KWPG).³¹ District heat networks will also be expanded. According to the statutory definition in the first

23 EU Commission (2006a); BMU (2007a); and also SRU (2008a:para. 104ff.); and further BMWi (2007).

24 SRU (2008a:para. 123ff.).

25 (ibid.:para. 129ff.).

26 SRU (2008a: para. 147ff.).

27 SRU (2008a:para. 152 ff.).

28 See the instructive overview by Reimer (2009); further see Prall (2010:§ 9); for a comprehensive treatment of European and German law, Keyhanian (2008).

29 See the comprehensive critical appraisal by SRU (2008a:para. 104 ff.).

30 Gesetz für die Erhaltung, die Modernisierung und den Ausbau der Kraft-Wärme-Kopplung (KWKG) [Act on the Conservation, Modernisation and Development of Combined Heat and Power (CHP)] of 19 March 2002, BGBI I 2002, 1092, last amended on 21 August 2009, BGBI I 2009, 2870 and on 25 October 2008, BGBI I 2008, 2101.

31 See BMWi & BMU (2007:9).

sentence of Section 3 (1) KWKG, combined heat and power is “the simultaneous conversion of primary energy into electrical energy and useful heat in a stationary technical installation”. In this way it is possible to attain a primary energy conversion efficiency of over 90%, compared with 35 to 50% in electricity generation without CHP and up to 58% in a combined cycle gas and steam power plant.³² CHP also enables substantial reductions of CO₂ and other emissions.³³

The more recent overhaul of the Combined Heat and Power Act significantly improved the set of policy instruments used to promote CHP. The central instrument is a statutory obligation on grid operators to connect CHP units to the grid and to purchase and pay for the generated energy (Sections 4 to 8 KWKG).³⁴ Under Section 4 (1) KWKG, grid operators are required “to connect CHP installations within the meaning of Section 5 to their grid and to purchase the CHP-generated electricity from such installations on a priority basis. The purchase obligation is of equal rank to that for electricity from renewable energy sources” (second sentence of Section 4 (1) KWKG).³⁵

Remuneration is provided on a finely graded scale (see Sections 5 to 7 KWKG). Remuneration normally consists of a price – a negotiated price or the prevailing price – plus a surcharge as a special incentive to build and upgrade CHP units. The major revision of the Act in 2008/2009 brought important changes in this regard that promise an improvement in its economic effectiveness:

- Whereas under the previous act only existing CHP units were promoted with the surcharge and the construction of new units was left to private-sector initiative (since found wanting), the surcharge is now additionally payable for CHP units with an electrical capacity of over 2 MW taken into operation after 1 January 2009 that meet the criteria for high-efficiency cogeneration under the EU Cogeneration Directive³⁶ and do not displace existing district heating systems (Section 5 (3) KWKG).

32 See Keyhanian (2008:footnote 1318 with further references).

33 See data provided by the BMU (2007b:9).

34 On the deficiencies of the previous regime see Keyhanian (2008:356ff.).

35 See below, section D. I.

36 Directive 2004/8/EC on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC, OJ L 52, 21 February 2004, 50; for greater detail see Keyhanian (2008:267ff.).

- A sharper distinction is applied with regard to existing units, with modernised and most of all high-efficiency modernised CHP units attracting a larger surcharge than old and new existing units (Section 5 read in conjunction with Section 7 KWKG).
- Under Section 4 (3a) KWKG, CHP electricity consumed by the unit operator is also subject to the surcharge.

Over and above this, the targeted expansion of CHP use is promoted by the newly introduced surcharge entitlement for new and upgraded district heat networks (Sections, 5a, 6a and 7a KWKG).

An interim review, notably with a view to the German government climate policy goals, is due to be carried out in 2011 by the Federal Ministry of Economics and Technology (BMWi) and the Federal Environment Ministry (BMU) in collaboration with industry associations.³⁷ The new Energy Concept of September 2010 does not provide any additional stimulus with regard to CHP.

II. Promotion of Energy Efficiency in Buildings

Buildings account for some 40% of final energy consumption in the EU, and also in Germany. The building sector generates 25 to 30% of all CO₂ emissions.³⁸ The potential for energy savings through energy efficiency gains is generally rated as large and by the German government in its new Energy Concept as “huge.”³⁹ The main potential savings are in the existing stock of older buildings: about three-quarters of the residential housing stock were built before the inception of modern policies on thermal insulation with the first Thermal Insulation Ordinance of 1979.⁴⁰ For economic reasons, however, the requirements under the Thermal Insulation Ordinance in its various versions and the later Energy Saving Ordinance (EnEV) generally lagged significantly behind the state of the art, including the requirements for new buildings. The existing housing stock has largely been spared demands to upgrade insulation. Stricter requirements have only been laid down more recently in the major revisions of the EnEV in 2007, 2008 and 2009, with

37 For further detail on the promotion of CHP see Burgi (2009).

38 For further detail and additional references see Keyhanian (2008:370ff.).

39 BMWi & BMU (2010:26).

40 For an instructive discussion of the saving potential see Keyhanian (2008:373ff.).

notable impetus from the EU Energy Performance of Buildings Directive.⁴¹ The resulting regulatory regime can be outlined as described below.

The Energy Saving Ordinance (EnEV)⁴² distinguishes between residential and non-residential buildings and takes an integrated energy efficiency approach in that the legal requirements target total building energy demand. In this it implements the corresponding requirements of the EU Energy Performance of Buildings Directive. Accordingly, under Section 3 (1) EnEV, it must be ensured that the annual primary energy requirements for heating, water heating, air conditioning and ventilation do not exceed those of a reference building. A point worth special note is the focus on ‘primary’ energy requirements, so that system conversion losses, losses in energy transmission and all other upstream losses are taken into account.

The rules limiting the total primary energy requirement are supported by more rules on thermal insulation. Section 5 (2) EnEV sets maximum limits for thermal transmission losses from heat-transmitting external surfaces. Section 6 EnEV lays down rules for the air-tightness of building elements; Section 7 EnEV demands a minimum of thermal insulation in accordance with generally accepted standards. The purpose of these cumulative rules on thermal insulation is to prevent sole focus on total energy requirements from creating too much leeway for builders. Otherwise, for example, an ultra-efficient heating system could be taken as a reason to save on thermal insulation. The scope for trade-offs of this kind is limited by the rules on thermal insulation. One point of criticism does remain, however, and that is the use of ‘generally accepted standards’ as a benchmark rather than the ‘state of the art’, as this results in efficiency levels that fall short of what is actually attainable.⁴³

The rules in EnEV 2007, however, only apply to existing buildings when carrying out major renovation work (see Annex 3 EnEV). In such instances, the rules are also significantly less stringent than for new buildings (see

41 Directive 2002/91/EC of the European Parliament and the Council of 16 December 2002 on the energy performance of buildings, OJ L 1, 4 January 2003, 65.

42 Verordnung über energieeinsparenden Wärmeschutz und energieeinsparende Anlagentechnik bei Gebäuden [Ordinance on Energy-saving Thermal Insulation and Energy-saving Appliances in Buildings], BGBI I 2007, 1519, most recently amended by Article 1 of Ordinance dated 19 April 2009, BGBI I 2009, 954; for an instructive discussion of the EnEV 2007 see Keyhanian (2008:394ff.); for the ensuing revisions see Stock (2008:648).

43 See, with further references, Keyhanian (2008:403f.).

detailed rules in Section 9 EnEV).⁴⁴ This is owed partly to the strict concept of economic viability applied under Section 5 (1) of the Energy Saving Act (EnEG). While some form of grandfathering arrangement is called for under the constitutional safeguards for property owners, given the large – according to the German government huge – potential for efficiency gains in the existing building stock, fair application of the proportionality principle would probably allow a greater burden to be placed on owners.⁴⁵

In view of the fact that the new EnEV – in line with the EU directive – is targeted on the total (primary) energy demand of a building, it is only consistent for the EnEV to include requirements for heating, ventilation, air-conditioning and hot water heating systems (Section 13 ff. EnEV).⁴⁶ Very generous transitional periods are allowed with regard to the retrofitting of heating systems in existing buildings (Section 10 EnEV).

In conformity with the European Energy Performance of Buildings Directive, the EnEV provides an important information instrument in the form of energy performance certificates (Section 16 ff. EnEV). When erecting a building, and on selling, renting or leasing, the owner, tenant or lessor must present, or at least be able to present, an energy performance certificate showing the building's energy performance. The certificate can be made out on the basis of calculated energy demand or measured energy consumption. For new buildings, the certificate must contain the calculated energy demand; on structural modifications and for existing buildings, the figures can be partly based on the less informative energy consumption figures.⁴⁷ The certificate must also include a wide range of other information on building energy efficiency, including recommendations for cost-efficient improvements to the building's energy performance (see Section 17 (4) EnEV together with Annexes 6 to 9). It is expected that energy performance certificates will in future help to make the energy performance of a building an important decision criterion when properties are bought, rented or leased.⁴⁸

44 See Keyhanian (2008:397ff.).

45 Fischer & Klinski (2007:11).

46 See Keyhanian (2008:400).

47 For further detail see Schmidt (2008); Schlarmann & Marold (2009).

48 Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings, OJ L 153, 18 June 2010, 13, recital 27 of the Directive.

July 2010 brought the entry into force of a new EU Directive on the Energy Performance of Buildings.⁴⁹ As before, it remains the sole responsibility of member states to set minimum requirements for the energy performance of buildings.⁵⁰ This is scarcely likely to spur joint effort by member states to the extent needed. At least the harmonisation of calculation and testing methods will bring more transparency regarding member state efforts (see in particular Article 3 of the Directive together with Annex I). It is to be welcomed that existing buildings are now included in the efficiency requirements under Article 7. However, member states are left considerable leeway in this regard: the overall requirements legislated by member states must only be complied with in “major renovations”. The Directive does not specify whether the requirements have to be applied to the renovated building as a whole or to the renovated building elements only. On the other hand, it introduces various environmental improvements. Among other things, member states are required to ensure that “by 31 December 2020, all new buildings are nearly zero-energy buildings” (Article 9 (1) a).⁵¹

Another point to consider is that both EU law and German law contain other regulatory regimes that affect building energy efficiency, raising difficulties in some respects when it comes to streamlining and harmonising the diversity of rules and regulations. Examples include –

- the recently revised Ordinance on Small Combustion Installations (Kleinf Feuerungsanlagen-Verordnung) with limits for flue losses that have an impact on efficiency⁵²
- the Heating Costs Ordinance (Heizkosten-Verordnung), also revised, that promotes energy economy by requiring consumption-based allocation of heating costs among residential units⁵³
- local government powers under the municipal code (Gemeindeordnung) in each of the German Länder to decree – now on the basis of climate change policy objectives – mandatory connection to and use of a district

49 (ibid.:13).

50 See in particular recital 10 of the Directive.

51 The reasons for enacting the directive are instructive in this regard, notable recital 17 of the Directive.

52 1. BImSchV [First Ordinance on the Implementation of the Federal Immission Control Act] of 26 January 2010, BGBl I 2010, 38.

53 Verordnung über die verbrauchsabhängige Abrechnung der Heiz- und Warmwasserkosten (Verordnung über Heizkostenabrechnung-HeizkostenV) [Heating Costs Ordinance] of 5 October 2009, BGBl I 2009, 3250; see Wall (2009).

heating network linked to a CHP plant,⁵⁴ some approaches adopted in *Länder* building codes⁵⁵

- *Länder* climate change legislation that – for example in Hamburg – at least for a time laid down stricter thermal insulation requirements for buildings than the then EnEV,⁵⁶ and
- municipal land-use planning law, which in its objectives is now expressly geared to “general climate protection”⁵⁷ and which, in laying down what can be stipulated in a land-use plan and in urban development contracts,⁵⁸ provides a wide range of approaches for promoting energy efficiency and energy economy in buildings.

It should be borne in mind when contemplating this mass of legislation that under Section 1 (3) EnEG, the provisions of the EnEG apply without prejudice to other stipulations of law that lay down stricter requirements for thermal insulation.

All in all, a complex body of energy efficiency law has been developed, including many constructive approaches and also increasingly strict requirements, even if these are limited to new buildings. Given the substantial share of greenhouse gas emissions accounted for by existing buildings and the great scope for energy efficiency and economic gains, again most of all in existing buildings, any grandfathering arrangements in this regard must be scaled back in future to the constitutionally necessary minimum.⁵⁹ While the German government’s Energy Concept of September 2010 in its analysis of potential energy savings and of energy savings needed in the existing building stock accords with the line of argument developed here, and also formulates truly ambitious targets, the choice of policy instruments so far looks inadequate to the task. The government aims for “a building stock which is almost climate-neutral” in the long term, i.e. by 2050, and acknowledges

54 BVerwGE 125, 68. It is now laid down in national law, in Section 16 EEWärmeG, that if there is a *Länder* law stipulation empowering local governments to decree mandatory connection to and use of a public district heating network, then they may now additionally make use of those powers to further climate change policy objectives.

55 See Kahl (2010a:400ff.); Kahl (2010b).

56 HmbKlimSchG read in conjunction with HmbKliSchVO of 11 December 2007, HmbGVBl 2008, 1; noted as early as 2008 in SRU (2008a:para. 139); Braun (2008).

57 Koch & Hendler (2009:§ 14 para. 39 (with further references); BVerwGE 118, 33, 41; BVerwGE 125, 68, 73; BGHZ 151, 274, 285.

58 See in particular Section 11 (1) 4 BauGB.

59 Emphatically concurring on this point, SRU (2008a:163 para 143 ff.).

that existing instruments will not suffice to meet these targets. At the same time, the government emphasises that experience shows there to be “limits to the economic strain that owners can be expected to bear”. It therefore concludes that a new strategic approach is needed with the focus on incentives.⁶⁰

III. Efficiency Requirements for Energy-related Appliances and Equipment

Mainstream environment policy was developed as an accompaniment to advancing industrialisation and, as a body of law regulating industrial facilities, aimed to protect human health and the environment from air pollution, noise, water pollution, etc. With the spread of mass-produced goods from industrial manufacture, the environmental impacts of the products themselves increasingly became a focus of environment policy attention. In time, noise and air pollution, particularly from construction machinery, motor vehicles, aircraft, rolling stock, etc., were recognised as major hazards and became regulated. Product-related environment policies of this kind gained increasingly clear recognition as a separate environment policy responsibility and have been put forward by the European Commission as part of what is referred to as integrated product policy.⁶¹ Integrated product policy aims to take into consideration and adequately regulate the environmental impacts of products over their entire life cycle, from the mining of raw materials to production, distribution, use and waste management.⁶²

A central instrument of integrated product policy is the Ecodesign Directive of 2005,⁶³ which underwent substantial additions in 2009.⁶⁴ The

60 BMWi & BMU (2010:22ff.).

61 EU Commission (2001), EU Commission (2003).

62 For further detail see EU Commission (2001:5).

63 Directive 2005/32/EC of the European Parliament and of the Council of 6 July 2005 establishing a framework for the setting of ecodesign requirements for energy-using products and amending Council Directive 92/42/EEC and Directives 96/57/EC and 2000/55/EC of the European Parliament and of the Council, OJ L 121, 22 July 2005, 29.

64 Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products, OJ L 285, 31 October 2009, 10; for a detailed treatment of the onward development of the Ecodesign Directive see Schomerus & Spengler (2010); Lustermaun (2007).

Ecodesign Directive provides the powers and legal framework for the Commission implementing regulations laying down environmental requirements for “energy-using products”. An energy-using product is one which “once placed on the market and/or put into service, is dependent on energy input ... to work as intended” (see Article 2 indent 1 of the Ecodesign Directive). The 2009 recast extends the scope of the Directive to all “energy-related products”. These are defined in Article 2 indent 1 of the Directive as any good that “has an impact on energy consumption during use”. This broad definition of energy-related products – as will be discussed below – results in various difficulties of legal systematics and hence also practical difficulties.

The focus on energy-related projects in the Ecodesign Directive stems from the EU’s ambitious climate change policy, whose demanding targets require exploitation of all significant potential for energy efficiency gains. The potential energy savings through efficiency improvements on energy-related products – excluding means of transport for persons or goods (see Article 1 (3) of the Directive) – are estimated at 190 TWh per year.⁶⁵ The Ecodesign Directive also creates powers to lay down comprehensive environmental impact requirements for products (see Article 15 (2) c). For the time being, however, the priority is laid on energy efficiency for climate change policy purposes.⁶⁶

To date, the Commission has enacted implementing measures in regulations on the following product groups: set-top boxes,⁶⁷ non-directional household lamps,⁶⁸ fluorescent lamps and high-intensity discharge lamps,⁶⁹ external power supplies,⁷⁰ electric motors,⁷¹ glandless circula-

65 Commission press release of 22 July 2009, IP/09/1179.

66 See recital 14 of the Ecodesign Directive.

67 Commission Regulation (EC) No 107/2009 of 4 February 2009, OJ L 36, 5 February 2009, 8.

68 Commission Regulation (EC) No 244/2009 of 18 March 2009, OJ L 36, 24 March 2009, 3; amended by Commission Regulation (EC) No 859/2009 of 18 September 2009, OJ L 247, 19 September 2009, 3.

69 Commission Regulation (EC) No 245/2009 of 18 March 2009, OJ L 76, 24 March 2009, 17.

70 Commission Regulation (EC) No 278/2009 of 6 April 2009, OJ L 93, 7 April 2009, 3.

71 Commission Regulation (EC) No 640/2009 of 22 July 2009, OJ L 191, 23 July 2009, 26.

tors,⁷² televisions,⁷³ and household refrigerating appliances.⁷⁴ To these is added the previously issued, non-product-specific Standby Regulation governing the electric power consumption of household and office equipment.⁷⁵ The Standby Regulation alone enjoys considerable practical importance by virtue of the fact that the power consumption of devices on standby is estimated at some 3.5% of total consumption in the EU. A major stir was caused by the Household Lamps Regulation, which imposed a *de facto* ban on incandescent light bulbs, as it is impossible for these to meet the efficiency requirements laid down for them.⁷⁶ According to the Commission's working plan, implementing regulations are soon to be expected for washing machines, dishwashers and fans.⁷⁷

Germany has transposed the Ecodesign Directive into German law in the Energy Using Products Act (EBPG);⁷⁸ transposition of the recast Ecodesign Directive was required by 20 November 2010 (Article 23 (1) of the Ecodesign Directive, first sentence). Like the Ecodesign Directive, the EBPG does not lay down binding eco-design requirements. In this regard, Section 2 (3) 1 of the EBPG explicitly refers to the implementing measures already enacted or still to be enacted by the Commission as European Community law of direct effect. Under Section 3 of the EBPG, the German government additionally has powers to enact secondary legislation, allowing detailed rules to be laid down promoting the implementation of the EU Commission's implementing measures. The German government has evidently so far had no occasion to issue rules of this kind supplementing the implementing measures enacted by the Commission.

The main legislative substance of the EBPG consists of provisions to ensure that the eco-design requirements laid down by the Commission are ac-

72 Commission Regulation (EC) No 641/2009 of 22 July 2009, OJ L 191, 23 July 2009, 35.

73 Commission Regulation (EC) No 642/2009 of 22 July 2009, OJ L 191, 23 July 2009, 42.

74 Commission Regulation (EC) No 643/2009 of 22 July 2009, OJ L 191, 23 July 2009, 53.

75 Commission Regulation (EC) No 1278/2008 of 18 December 2008, OJ L 339, 18 December 2008, 45.

76 See Wegener (2009); Brenncke (2009).

77 See EU Commission (2008a).

78 Gesetz über die umweltgerechte Gestaltung energiebetriebener Produkte [Act on the Ecodesign of Energy-Using Products] of 27 February 2008, BGBl I 2008, 258; on this see Nusser (2010).

tually complied with in Germany. Under Section 4 EBPG, an affected product may only be placed on the market if –

- it meets the requirements in the implementing legislation
- it is labelled with a CE mark in accordance with Section 6 EBPG, and
- a declaration of conformity has been issued for the product in which the manufacturer warrants that all requirements of the applicable implementing legislation are complied with.

Also of considerable importance are the market surveillance measures provided for under Section 7 EBPG to ensure compliance by producers and vendors. Section 7 (1) EBPG requires the competent authorities to compile a surveillance plan. Section 7 (3) to (5) provides for a wide range of surveillance measures, including sample taking, (temporary) prohibition from placing a product on the market, and product recall or withdrawal orders.

The broader scope of the recast Ecodesign Directive raises difficult issues of where to draw the line. As the Directive now applies not only to “energy using products” but to “any good that has an impact on energy consumption during use”, it will probably become necessary to define the boundary with other regulatory regimes. Recital 4 of the Directive, for example, also applies to products used in construction such as windows and insulation materials, and shower heads and taps. Construction materials – as discussed at length above – are already subject to energy-related requirements under the regime established by the EU Energy Performance of Buildings Directive and the EnEV. Additionally, considering that Article 21 requires the Commission to assess the appropriateness of extending the scope of the Directive to non-energy-related products, the Ecodesign Directive could – as Schomerus put it – develop to become an “environment super-directive”. But that is going beyond the subject of climate change policy.

IV. Promotion of Energy Efficiency in Industrial Facilities, Aviation and Shipping through Emissions Trading

Transposition of the Intergovernmental Panel on Climate Change Directive into German law made energy efficiency a basic requirement for installations subject to licensing under the Federal Immission Control Act (BImSchG). Section 5 (1) 4 of the earlier BImSchG was prevented from gaining

widespread application,⁷⁹ however, notably owing to a lack of supporting detail rules at a subordinate legislative level. With the introduction of emissions trading, the energy efficiency requirement in the first sentence of Section 5 (1) 4 BImSchG was overruled in that “the objective of compliance with the obligation to ensure efficient energy use must not lead to requirements related to carbon dioxide emissions based on combustion or other processes in the installation that go beyond the requirements laid down in the Greenhouse Gas Emissions Trading Act” (Section 5 (1) BImSchG, fourth sentence).⁸⁰ The decisive factor for energy efficiency improvements under law relating to industrial facilities is thus the greenhouse gas mitigating efficiency of emissions trading as the “central instrument” of European climate change policy.

The emissions trading system enshrined in international law in the Kyoto Protocol has been one of the most important policy instruments in the EU for the reduction of CO₂ emissions and for the combating of climate change since the enactment of the Emissions Trading Directive of 13 October 2003.⁸¹ It is a key part of the European climate change policy package of 2008⁸² and of the German government’s Integrated Energy and Climate Programme (IEKP) of 2007.⁸³ Emissions trading was introduced into national law mainly through the Greenhouse Gas Emissions Trading Act (TEHG) of 8 July 2004,⁸⁴ the 2007 Allocation Act (Zuteilungsgesetz) of 26 August 2004⁸⁵ and the national Allocation Plan I of 31 March 2004.⁸⁶

A first trial trading phase from 2005 to 2007 was negotiated with bureaucratic efforts but achieved little or nothing in terms of climate change mitigation. This was due to an over-elaborate allocation plan that was not only influenced both by German government industrial policy objectives and by

79 See Koch (1998); Rebentisch (2001:430ff.).

80 The aim being allow extensive scope for emissions trading for reasons of cost-efficiency: see e.g. Rehbinder & Schmalholz (2002); for a critical view: Koch & Wieneke (2001).

81 Directive 2003/87/EC of 13 October 2003, OJ L 275, 25 October 2003, 32; amended by Directive 2008/101/EC of 19 November 2008, OJ L 8, 13 January 2009, 3 and Directive 2009/29/EC of 23 April 2009, OJ L 140, 05 June 2009, 63.

82 EU Commission (2008b).

83 BMU (2007a.).

84 BGBI I 2004, 1578, last amended on 16 July 2009, BGBI I 2009, 1954.

85 BGBI I 2004, 2211; last amended on 22 December 2004, BGBI I 2004, 3704.

86 BMU (2004).

industry (and notably coal industry) lobbying,⁸⁷ but also led to companies being allocated too many emission allowances.⁸⁸ Neither any impact on emission reductions nor an efficient reduction trajectory could be expected to be attained in this way. That individual studies should nonetheless have arrived at analysis models giving a positive assessment of the first trading phase is hard to comprehend.⁸⁹

In the meantime, on the basis of the Allocation Act 2012 of 7 August 2007⁹⁰ and National Allocation Plan II of 28 June 2007,⁹¹ emissions trading has entered the Kyoto Phase (2008 to 2012). The allocation plan has been simplified with regard to allocation criteria, giving the efficiency of emissions trading a greater chance of coming into its own.⁹² Over-allocation of emission allowances seems to have been avoided this time under pressure from the European Commission.⁹³

The European Commission rightly identified weaknesses in emissions trading in the form in which it was initially institutionalised, and responded to the criticism. Following thorough consultation,⁹⁴ Directive 2009/29/EC⁹⁵ brought substantial adjustments to the emissions trading scheme that support expectations that emissions trading will be made more effective in future.

Three points should be noted in this revision of the Emissions Trading Directive:⁹⁶

- Firstly, the preamble sets down the EU's climate policy objectives in the form of the 2°C target and a voluntary commitment by the EU to reduce emissions by 20% and under certain circumstances by 30% by 2010.⁹⁷

87 (ibid.:123:ff.).

88 For a detailed treatment of the critique see SRU (2006:11); SRU (2008a:para. 164).

89 Concerning these studies see DEHSt (2009:129ff.).

90 BGBl I 2007, 1788.

91 BMU (2006).

92 SRU (2008a:para 173ff.).

93 See EU Commission (2006b); on this see SRU (2008a:173f.).

94 EU Commission (2006c), and even earlier EU Commission (2005a).

95 Directive 2009/29/EC amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community, OJ L 140, 5 June 2009, 63.

96 For further detail see SRU (2008a:para. 184ff.).

97 OJ L 140, 5 June 2009, 63.

- Secondly, allocation of allowances is essentially to be prescribed at EU level in future by setting a maximum quantity of allowances with allocation schedules for member states.⁹⁸
- Finally, the Directive codifies in law one of the central demands made by the Sachverständigenrat für Umweltfragen (SRU): a fundamental obligation on member states to auction the available quantity of allowances instead of allocating them free of charge as in the first trading period (see Article 10). This is the only way to prevent over-allocation of allowances and to ensure an efficient emission trading system.⁹⁹ For this very reason, however, the revised Emissions Trading Directive is to be criticised for incorporating transitional arrangements in Articles 10a, 10b and 10c that mean full auctioning is not required until 2027, and even then with exemptions allowed for certain industries that are subject to international competition.

The emissions trading system was substantially extended by an amending directive, 2008/101/EC.¹⁰⁰ Under this directive, all aircraft operators whose aircraft take off or land in EU member states are generally included in the emissions trading system (Article 3a read in conjunction with Annex I (b)).¹⁰¹ From 1 January 2010, operators must report CO₂ emissions from their flights (Article 14 (3)). From 2012, allowances must be surrendered for flight emissions (Article 3c (1)). The legal foundation for data collection in Germany has the power to issue secondary legislation in Section 27 of the Greenhouse Gas Emissions Trading Act (TEHG) – inserted by the First Act

98 See Article 9; Erling & Wiggershauser (2008:176); Wegener (2009:285); Peine (2008:106).

99 See also SRU (2006:para. 36); SRU (2008a:para. 190).

100 OJ L 8, 13.1.2009, p. 3; the directive was transposed into German law with regard to the data collection required from 2010 in the *Erstes Gesetz zur Änderung des Treibhausgas-Emissionshandelsgesetz* [First Act Amending the Greenhouse Gas Emissions Trading Act] of 16 July 2009, BGBl I 2009, 1954, and the *Datenerhebungsverordnung 2020* [Data Collection Ordinance 2020] of 22 July 2009, BGBl I 2009, 2118.

101 A list of ‘administering member states’ was established in Regulation (EC) No 748/2009 of 5 August 2009, OJ L 219, 22 August 2009, 1. This assigns aircraft operators to the EU member states responsible for them; Annex I (c) excludes from the emissions trading system, inter alia, flights transporting heads of state and government on official mission, military flights, rescue flights, humanitarian flights, scientific research flights, round flights, flights by aircraft with a maximum take-off mass of less than 5,700 kg, and flights by a commercial air transport operator with total annual emissions lower than 10,000 tonnes per year.

Amending the TEHG (1. TEHGÄndG) of 16 July 2009¹⁰² – and, issued under that power, the Data Collection Ordinance 2020 (DEV 2010) of 22 July 2009.¹⁰³ The ruling is that 15% of allowances must be auctioned. This percentage can be increased from 1 January 2013 as part of the general review of the Directive (Article 3d (1) and (2)).

The extension of the emissions trading system to aviation – a change not yet incorporated in the Kyoto Protocol – is to be welcomed. While aviation only causes about 3% of global greenhouse gas emissions,¹⁰⁴ the rapid growth in air traffic¹⁰⁵ and the greater climate impact of greenhouse gas emissions at flight altitudes¹⁰⁶ make aviation one of the sectors where climate change policy must apply. The inclusion of aviation in emissions trading is criticised from various quarters. The SRU is in favour of including aviation in emissions trading in principle, but considers the setting of the emissions budget on the basis of average aviation emissions in the period 2004 to 2006 to be too undemanding (see Article 3 c (1) read in conjunction with Article 1 (1) s).¹⁰⁷ Other parties, with regard to Europe going its own way, fear competitive disadvantages for European, including German, aviation and raise doubts about the regime's compatibility with international aviation law.¹⁰⁸

The European Union has now put the inclusion of shipping in emission trading on the agenda. Global CO₂ emissions from shipping are considerable.¹⁰⁹ European maritime trade accounts for about 32% of global greenhouse gas emissions from maritime transport.¹¹⁰ The International Maritime Organization has come out against including shipping in the emissions trading system, however, and instead proposes the setting of technical standards

102 BGBI I 2009, 1954.

103 BGBI I 2009, 2118.

104 EU Commission (2005:2).

105 On developments in Germany see Koch (2010:277f. with further references); see also SRU (2008a:para. 195); with a view to the increase in greenhouse gas emissions from aviation, the EU Commission notes: "If the growth continues as up to now, emissions from international flights from EU airports will by 2012 have increased by 150 % since 1990." EU Commission (2005:2).

106 IPCC (1999).

107 SRU (2008a:para. 197).

108 Pegatzky & Nixdorf (2009:1399); Erling (2009:349 ff.).

109 European Economic and Social Committee (2009:22, section 5.2); EU Commission (2009c).

110 UBA (2010:2).

on CO₂ reduction to secure faster adoption of new low-emissions and more energy-efficient technologies.¹¹¹ Because consensus was not reached by 31 December 2011, the Commission plans to propose a corresponding revision of the Emissions Trading Directive.¹¹²

How the EU emissions trading regime will develop is also very much of an open question, given the lack of progress in international negotiations on a continuation of the Kyoto Protocol or a new global climate regime post-2012. The Copenhagen Conference in December 2009 regrettably delivered no more than a half-hearted, non-binding acknowledgement of the 2°C target.¹¹³ At least the 2°C target was bindingly adopted at the Cancún Conference.

V. Increasing Energy Efficiency in Motor Vehicles

The German motor vehicle fleet accounts for about 12% of national CO₂ emissions.¹¹⁴ Technically there are numerous options for reducing vehicle greenhouse gas emissions. These include different forms of motive power¹¹⁵ (hybrid vehicles, electric vehicles and biofuel admixtures) and also efficiency improvements to conventional power trains. As CO₂ emissions correlate one-to-one with fossil fuel consumption, efficiency requirements can be laid down in law with the aid of CO₂ emission limits. The regulatory toolbox includes command-and-control instruments such as CO₂ emission limits with fines if exceeded, duties, and inclusion of road transport in emissions trading.¹¹⁶

The European Commission's initial goal was a significant reduction in CO₂ emissions from road transport by way of a voluntary commitment by the European automotive industry, consisting of a reduction in average fuel consumption in the new car fleet to 140 g CO₂/km by 2008; this target was not attained.¹¹⁷ 'Soft' regulation and support for voluntary action not backed

111 See IMO, Prevention of air pollution from ships, second IMO GHG study 2009, MEPC/59/4/7 Annex, p. 6, available at http://www.imo.org/includes/blastDataOnly.asp/data_id%3D26046/4-7.pdf, last accessed 2 October 2012.

112 European Economic and Social Committee (2009).

113 Copenhagen Accord of 18 December 2009, FCCC/CP/2009/L.7, 1.

114 BMU (2009b).

115 For a comprehensive discussion see SRU (2005:para. 301ff.).

116 See the brief overview in SRU (2008a:para. 155ff.).

117 SRU (2008a:para. 152).

by sanctions thus failed. Based on the Commission proposal of 19 December 2007,¹¹⁸ Regulation (EC) No 443/2009 of 27 April 2009¹¹⁹ laid down binding requirements for annual reductions in CO₂ emissions from the new vehicle fleet with noncompliance sanctioned with fines (Article 9). The European Commission aims to attain a reduction in average CO₂ emissions to 95 g/kg by 2020.¹²⁰ To attain this target of the European Community, Article 4 of the Regulation provides for phased, obligatory CO₂ reductions, by means of improvements in engine technology, to 130 g/km for the entire new car fleet by 2015. This is to be achieved in stages by requiring the 130 g/km target to be met by 65% of each manufacturer's new passenger cars registered in 2012, 75% in 2013 and 80% in 2014 (see Table 1 below). A further reduction of 10 g CO₂/km or equivalent is to be achieved by technical improvements and increased use of biofuels.¹²¹

Table 1: Average CO₂ Emissions of the German New Car Fleet (g/km)

| | 1995 | 2006 | 2008 | EU targets | | | |
|--------|------|------|------|------------|------------|-----------------------|------------|
| | | | | 2012 | 2013 | 2015 | 2020 |
| Diesel | 194 | 173 | 166 | 65% 130 | 75% 130 | 100% 120 or 130 | 100% 95 |
| Petrol | | 172 | 164 | | | | |

Source: SRU (2008b:para. 152); EU Commission (2007a).

From a model-based impact assessment, it is assumed that the stipulated fleet emission limits will attain a reduction in CO₂ emissions, relative to the trend with no action taken, of 17.9% by 2020 and 38% by 2030. In absolute figures this is equivalent to 32 million t by 2030.¹²²

The SRU has already shown in a 2005 special report that greater efficiency improvements are indeed possible.¹²³ This would require a trend reversal in car manufacturing, however, because past efficiency gains have been partly wiped out by a continuous increase in vehicle weight, engine power and

118 EU Commission (2007a).

119 OJ L 140, 5.6.2009, p. 1.

120 EU Commission (2007b:3).

121 (ibid.).

122 See BMU (2009b).

123 See SRU (2005:para. 301ff.).

engine capacity.¹²⁴ Road transport is a policy area where the limits of the efficiency paradigm are particularly in evidence. Efficient use of energy will have to be supplemented by energy saving. What effect is to be had from the use of other power trains and particularly from the (limited) use of biofuels is something that – for cars as for other energy-using products – will have to be determined in a life-cycle analysis and by taking primary energy requirements into account.

The European Commission has meanwhile presented proposals for fleet emission limits in respect of light commercial vehicles.¹²⁵ The phased approach is shown in Table 2 below.

Table 2: CO₂ Emission Limits for Light Commercial Vehicles < 3.5 t

| | |
|-------------------|--|
| 2020 target | 135 g CO ₂ /km |
| 2014 to 2016 | Phased reduction to 175 g CO ₂ /km |
| 2014 | Target applies for 75% of vehicles |
| 2015 | Target applies for 80% of vehicles |
| Beginning in 2016 | 175 g CO ₂ /km limit applies for all vehicles |

Consensus has not yet been reached.¹²⁶ Germany and France have rejected the proposals.

Alongside the central, command-and-control instrument of fleet CO₂ emission limits, there are a number of further policy instruments for the improvement of efficiency in motor vehicles. Ancillary incentives for buyers are the aim of Germany's revised Energy Consumption Labelling Ordinance (Pkw-En-VKV) of 2009.¹²⁷ A 2009 road tax reform¹²⁸ makes CO₂ emissions

124 See SRU (2008a:para. 153).

125 EU Commission (2009d).

126 Council Conclusions on clean and energy-efficient vehicles for a competitive automotive industry and decarbonised road transport as adopted by the Competitive-ness Council on 25 May 2010, 10151/10.

127 Verordnung über Verbraucherinformationen zu Kraftstoffverbrauch und CO₂-Emissionen neuer Personenkraftwagen [Ordinance on Consumer Information Regarding Fuel Consumption and CO₂ Emissions of New Passenger Vehicles] (Pkw-Energieverbrauchs-kennzeichnungsverordnung – Pkw-EnVKV) of 28 May 2004, BGBl I 2004, 1037, last amended by Article 400 of the Ordinance of 31 October 2006, BGBl I 2006, 2307.

128 Kraftfahrzeugsteuergesetz [Road Tax Act] of 26 September 2002, BGBl I 2002, 3818; last amended on 27 May 2010.

a determinant of the amount of road tax payable for new vehicles, with €2 added for each g CO₂/km in excess of 120 g/km, plus €2 for each 100 cc engine size or part thereof. This first phase of what is referred to as a CO₂-based road tax will scarcely have an impact on purchase decisions.¹²⁹

VI. The Energy Services Directive and the Energy Services Act

With the Energy Services Directive of 2006,¹³⁰ the EU selected a cross-sectoral approach with the objective of creating a market for energy services of such a kind that competition would emerge for the best services for the improvement of end-use energy efficiency. As an interim objective of these efforts, Article 4 of the Energy Services Directive sets member states an overall national indicative energy savings target of 9% by 2016 to be reached by way of energy services and other energy efficiency improvement measures. Under Article 14 (2) of the Directive, member states must submit national energy efficiency action plans by 30 June 2007, 2011 and 2014, describing the energy efficiency improvement measures planned to reach the interim targets and the final target. The directive demands not only energy efficiency improvements, but an absolute energy saving as a result.

Annex 3 of the Directive contains an indicative list of energy efficiency improvement measures relating, among other things, to heating, building insulation and the use of CHP plants. This presents a problem of legal systematics, and hence a practical problem of this cross-sectoral directive in the form of a potential collision with the sector-specific energy efficiency requirements discussed earlier. With a view to the intensive development of sectoral energy efficiency requirements in secondary legislation, the Directive should be supplemented with clarifying provisions.

The regulatory programme under the Energy Services Directive must also be distinguished from the energy-efficiency-related provisions in the internal market in energy legislation. Self-evidently, environment protection, being a cross-sectoral policy area (see also Article 11 TFEU), creates a need for added stipulations alongside and in some cases within energy law. More and more environment-related provisions have thus found their way into the

129 For numerous details, see Gawel (2010).

130 Directive 2006/32/EC on energy end-use efficiency and energy services, OJ L 114, 27 April 2006, 64; for further detail see SRU (2008a:para. 123 ff.); further Keyhanian (2008:143ff.).

internal market in energy legislation. More still were added in the third internal market package.¹³¹ The original Internal Market in Electricity Directive already contained provisions requiring efficiency improvements and its successor added to them. The requirements mainly relate to energy efficiency in generation and conversion and to energy transmission, whereas the Energy Services Directive targets end-use energy efficiency and related energy services.

There are, however, questionable overlaps, for example regarding the energy management services that energy undertakings are expected to provide for energy users under Article 3 (11) of the Internal Market in Electricity Directive. The Energy Services Directive makes similar stipulations, but far more emphatically, for example with the indicative energy savings targets for member states, including the obligation to submit national energy efficiency action plans. In other respects, too, the energy-efficiency-related provisions in the internal market in energy legislation tend to be mostly programmatic, and most of all they are not backed up with adequate instruments – for which reason they are not discussed in greater depth here.

The Energy Services Directive was meant to be transposed into national law by 17 May 2008, and in parts earlier (see Article 18 (1)). Germany's first attempt – a proposal for an Energy Efficiency Improvement Act (EnEfG-E) of 30 January 2009 – failed at the interdepartmental consultation stage.¹³² The Act on Energy Services and other Energy Efficiency Measures (EDL-G) of 4 November 2010¹³³ has since entered into force. This short act with 13 sections is a one-to-one transposition of the Directive. In the explanatory notes, reference is made to the many sector-specific regulatory regimes on energy efficiency and the new act is described as a “Stammgesetz”, the principal act on the policy area. Notable points are the creation of a Federal Agency for Energy Efficiency at the Federal Office of Economics and Export Control (Section 9), together with an advisory council (Section 10). In many cases, details are left to be laid down in secondary legislation (Sections 4, 5, 7 and 11 EDL-G).

The Federal Ministry of Economics and Technology (BMWi) presented a National Energy Efficiency Action Plan and submitted it to the European Commission at the end of 2007.¹³⁴ This describes how the 9% indicative

131 Instructive on numerous details, Britz (2010).

132 See Kachel (2009); Pielow (2010:122).

133 BGBl I 2010, 1483.

134 BMWi (2007) for further detail see SRU (2008a:para. 127ff.).

energy savings target is to be attained by 2016. The key sectors of buildings, energy-using products and transportation covered in this section are likewise major areas of focus in the Nationaler Energieeffizienz-Aktionsplan (EEAP). Some of the action plan has already been put into effect, such as the CO₂-based road tax and the tightening of requirements in the EnEV. In its assessment, the Commission was critical of some parts of the plan.¹³⁵

VII. Interim Assessment of Energy Efficiency Law

As a positive overall outcome, a remarkably complex body of energy efficiency law relating to climate change has been developed at the level of the European Community with national additions on transposition into national law. The degree of complexity is generally appropriate, given the challenges to be dealt with. Under the climate change objectives pursued by the Community and by Germany, it is to be welcomed that a body of energy efficiency law has been created for all key sectors where it is possible and imperative to reap energy efficiency gains – buildings, appliances and equipment, industry, and transportation – with constructive regulatory strategies, innovative regulatory structures and, in many cases, demanding requirements. One striking aspect is the renaissance of command-and-control regulation. This applies to the buildings sector, product-related law and now motor vehicles. Whether it is still possible to speak of emissions trading as the “central instrument” of climate change policy appears highly questionable.

This brings us to the conspicuous shortcomings of energy efficiency law as a means of addressing climate change. The revised EU Emissions Trading Directive raises hopes for improvement, however. The effectiveness of emissions trading has yet to be tested in the aviation sector; it is even more of an unknown with regard to the shipping sector, where it may never be adopted for shipping at all.

In the particularly important building sector, certainly too little has been done with regard to existing buildings. The German government’s latest Energy Concept is disappointing on precisely this issue. The much-vaunted constitutional limit to the burden that can reasonably be placed on building owners has not yet been reached by far and does not stand in the way of

135 EU Commission (2008c); for another critical appraisal see SRU (2008a:para. 127ff.).

scaling back grandfathering arrangements in the way that would be desirable on climate policy grounds. The command-and-control rules on vehicle CO₂ emissions are too complicated for it to be possible to predict their effectiveness.

As a rule, when evaluating any climate efficiency strategy, consideration must be given to the fact that such strategies are countered by growing energy demand. Thus, alongside the efficiency ‘revolution’, efforts must also be made to achieve energy savings. The energy savings target in the Energy Services Directive must consequently be developed further and be backed up with suitably sophisticated policy instruments at national level. For road transport, for example, a simple CO₂ reduction strategy based on command-and-control requirements on vehicle emissions is not enough. What is needed instead is an integrated regulatory strategy that operates at source – in planning and traffic management – under the banner of “more mobility with less traffic”¹³⁶ Consideration must also be given to the second central precondition for successful climate change policy – that of substituting fossil fuels with renewable energy. This is discussed in the following section.

D. Legal Framework for the Promotion of Renewable Energy

Substitution of carbon-based fossil fuels coal, mineral oil and gas through the use of renewable energy is of fundamental importance in climate change mitigation.¹³⁷ Renewable energy sources include wind, hydropower, solar power, biomass, tidal energy and geothermal energy. These primary energy sources have the basic advantage that no CO₂ emissions occur in their use, or, in the case of biomass, that its use is at least carbon neutral. Renewable energy resources are also seen as infinite This must, however, be seen from different perspectives. In particular, it must be remembered that the production of biomass often conflicts with other uses of agricultural land and that,

136 See SRU (2005:para. 134ff.); see also Groß (2010).

137 For a recent discussion see BMU (2009a); Bundesregierung (2009b); see the economic critique by Wackerbauer (2009:176), according to which the EEG only has a “very limited environment policy function” following the introduction of emissions trading. The National Action Plan on Renewable Energy is unable to dispel this criticism.

in the interest of preserving nature and the landscape, its production must take account of nature conservation provisions.¹³⁸

I. The Renewable Energy Sources Act

Germany has long played a pioneering role in the promotion of renewable energy, particularly wind energy. With the Electricity Feed-In Act (Stromeinspeisungsgesetz) of 7 December 1990 (see II above), Germany adopted a successful promotion strategy, which received a positive evaluation from the EU Commission,¹³⁹ was confirmed by the Federal Court of Justice¹⁴⁰ and the EU Court of Justice¹⁴¹ as being compliant with the German constitution and EU law, and has been emulated by many EU member states. The Electricity Feed-In Act has since undergone a number of major revisions. The resulting body of law in force today is contained in the Renewable Energy Sources Act (EEG) of 25 October 2008.¹⁴² Under Section 1 (2), the aim of the new Act is to generate 30% of electricity supply from renewable energy resources by 2020.

The instrumental core of the former Electricity Feed-in Act has been retained: grid operators must feed renewables-generated electricity on a priority basis into the grid and charge a state-specified price for it. The initial, fundamental debate whether the requirement for grid operators to pay for renewables-generated electricity represented an unlawful levy under constitutional fiscal rules and/or unlawful state aid under Community law is largely over.¹⁴³ In particular, it has been clarified in European law that the

138 Emphatically on this point SRU (2007:para. 69ff.).

139 See Directive 2009/28/EC of the European Parliament and the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ L 140/16 (particularly Article 16); EU Commission (2005b:4).

140 BGH, NVwZ 2003, 1143, decision of 11 June 2003.

141 EU Court of Justice, decision of 13 March 2001 – C 379/98, 2001, I – 2099.

142 Renewable Energy Sources Act (EEG) of 25 October 2008, BGBI I 2008, 2074; last amended on 11 August 2010, BGBI I 2010, 1170; see also the instructive work by Oschmann (2009); and Weißenborn (2009).

143 On these controversies, see Koch & Schütte (1998).

definition of state aid is only satisfied if there is direct funding from state resources,¹⁴⁴ which is not the case with a feed-in tariff.

In the Renewable Energy Directive of 23 April 2009,¹⁴⁵ the Community now has an elaborate legal framework for the promotion of renewable energy sources.¹⁴⁶ Unlike its 2001 predecessor, the new Renewable Energy Directive covers all major uses of renewable energy; alongside electricity generation, it thus also includes heating, refrigeration and – following on from the former Biofuels Directive – the production of fuels from renewable energy sources. As a target, Article 3 (1) of the Renewable Energy Directive lays down that renewable energy sources are to account for at least a 20% share of the Community’s gross final energy consumption by 2020. The individual member states are each assigned national targets, the target for Germany being 18%. The German government’s current Reference Scenario 2009 projects that renewables will account for 20% of final energy consumption by 2020.¹⁴⁷ In the transportation sector, Article 3 (4) of the Renewable Energy Directive requires all member states to attain a 10% renewables share by 2020. Apart from this, member states are left to decide the contribution to be made by each sector towards the overall target.

Member states are thus essentially left to decide by which means they will attain the target. They are able to apply a broad range of “support schemes” (Article 3 (3) of the Renewable Energy Directive). Under the legal definition in Article 2 (k) of the Directive, these include investment aid, tax exemptions, feed-in tariffs, premium payments and green certificates. The Community thus does not make a choice between the two competing systems with regard to electricity generation – the quota approach and the German feed-in approach.¹⁴⁸ Under the quota approach, the state specifies what percentage of electricity consumption, as measured at the supplier or the end consumer, must come from renewables. The feed-in approach combines a

144 EU Court of Justice, decision of 13 March 2001 – C 379/98, 2001, I – 2099; the dispute regarding compatibility with free movement of goods under the TFEU has flared up again, however, see Cremer, (2009:130ff. with further references).

145 Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources, OJ L 140, 5 June 2009, 16.

146 For further detail see Müller (2009); Lehnert & Vollprecht (2009); instructively on the genesis of the Directive: Cremer (2009) and Prall & Ewer (2013:§ 9 para. 30ff.); Ringel & Bitsch (2009).

147 See BMU (2009: Zusammenfassung, para. 4).

148 See the instructive presentation in Lauber & Schenner (2009).

requirement for grid operators to accept renewables-generated electricity with the obligation to pay a state-specified tariff. Both modelling-based analyses and practice-based efficiency analyses show advantages in favour of the feed-in approach.¹⁴⁹

Regardless of what promotional instrument they use, member states must ensure that grid operators provide priority access for renewables-generated electricity (Article 16 (2) (a) and (b) of the Renewable Energy Directive). Ensuring this in practice requires corresponding grid capacity. It is thus only consistent that Article 16 (1) of the Directive establishes an obligation to develop adequate infrastructure. Finally, under Article 4 (1) of the Directive, member states each had to submit to the Commission a national renewable energy action plan by no later than 30 June 2009. These had to set out overall national targets for the share of energy from renewable sources consumed in transport, electricity and heating and cooling, together with adequate measures to be taken to achieve those targets.¹⁵⁰

The requirements of the Renewable Energy Directive concerning heating and the sustainable production of biofuels are discussed in the next two sections (2 and 3).

The revised EEG already corresponds in substantial parts with the requirements of the Renewable Energy Directive; indeed, when it comes to stipulating the feed-in approach, it now has greater endorsement in European law than before. The following may be regarded as the most important onward developments in national law:¹⁵¹

1. The connection of renewable energy facilities required to purchase, transmit and distribute the electricity must occur “immediately” and “as a priority” (Section 5 (1) and the first sentence of Section 8 (1) EEG).
2. If grid capacity is inadequate despite consistent priority access for green power, the grid system operator has “upon the request of those interested in feeding in electricity” to improve, boost and if necessary expand their grid infrastructure to guarantee the purchase, transmission and distribution of the electricity (Section 9 (1) EEG). For the transitional period until supply shortages have been remedied, detailed “feed-in management” arrangements must be met (Sections 11 and 12 EEG).

149 EU Commission (2005b).

150 See German Government (2009b).

151 For details see Oschmann (2009:264ff.); and Weißenborn (2009); further Prall & Ewer (2013:para. 104ff.).

3. With regard to who pays the feed-in tariff, the mechanisms of vertical and horizontal compensation between grid system operators and electricity supply companies have been enhanced into a finely balanced system that levels out regional differences in the feed-in tariff burden faced by grid operators across the country. Important detail is added in the Equalisation Scheme Ordinance (AusglMechV).
4. The ever-controversial provisions on tariff levels have likewise been revised in favour of wind energy and biomass, although there are various problems with the latter. Separately from this, the feed-in tariff for solar power has recently been reduced owing to “over-subsidisation”.¹⁵²
5. Where electricity is generated from biomass, a premium for biomass within the meaning of Section 27 and Annex 2 EEG is paid, provided that sustainability requirements laid down in the Biomass Electricity Sustainability Ordinance are met.¹⁵³

Transposition of the Renewable Energy Directive into national law is not fully complete, however.¹⁵⁴ Specifically, this applies to the following elements of the Directive:

- Article 16 (5) of the Renewable Energy Directive creates a detailed obligation requiring grid operators to provide information for new producers of energy from renewable sources. The less precise Section 5 (1) EEG could well benefit from clarification.
- With regard to the guarantees of origin under Section 55 EEG, the mechanisms to ensure that guarantees of origin are issued electronically (Article 15 (5) of the Renewable Energy Directive) need to be established and included.

The German government has now adopted an act amending German renewable energy legislation in line with European law. This includes:

- amendments to the EEG relating to the requirement of grid operators to provide information as just mentioned, guarantees of origin, and the powers of enactment with regard to the Biomass Sustainability Ordinance (BioNachV), and

152 Act dated 11 August 2010, BGBl I 2010, 1170; for an instructive efficiency analysis of the various feed-in tariffs see also Schröer & Zierahn (2010).

153 On the complex details see Weißenborn (2009); further Vollprecht (2010).

154 For further detail see Ringel & Bitsch (2009).

- amendments to the EEWärmeG, notably with regard to the example-setting role of the public sector in adding thermal insulation to public buildings.¹⁵⁵

II. The Renewable Energies Heat Act

In line with the Meseberg Integrated Energy and Climate Programme, new instruments were introduced under the Renewable Energies Heat Act (EEWärmG) of 7 August 2008,¹⁵⁶ which was designed to foster and enforce the use of renewable energy for heat supply.¹⁵⁷ This is of particular importance in climate policy because around half of the energy used in Germany goes to supplying heat and for refrigeration.¹⁵⁸ The aim is thus not only to reduce energy consumption by improving energy efficiency, with, among other things, the aid of the EnEV, but also to switch the unavoidable portion of energy consumption over to renewable energy. It is hoped that the share of renewables in heat supply will be increased from the current 6.6% to 14% in 2020 (see Section 1 (2) EEWärmG).

The regulatory core of the Renewable Energies Heat Act (EEWärmG) comprises a statutory obligation to cover a percentage of heat demand from renewable energy sources. The percentage involved depends on the type of energy used and ranges from 15% for solar energy (Section 15 (1) EEWärmG) to 50% for biofuels (Section 5 (3) No. 1 EEWärmG). The obligation to meet heat demand using renewables may be replaced by other measures, however. This applies, for example, if at least 50% of heat demand is met from high-performance CHP plants (Section 7 (1) b EEWärmG). Also, it is permissible to substitute the use of renewable energy by meeting a greater percentage than that prescribed with high energy efficiency in buildings. This means that building owners must exceed the EnEV require-

155 German Government, Gesetz zur Umsetzung der Richtlinie 2009/28/EG zur Förderung der Nutzung von Energie aus erneuerbaren Quellen, BGBI 2011, S. 619 vom 15.04. 2011 [Draft Act Transposing Directive 2009/28/EC on the promotion of the use of energy from renewable sources] (EAG EE) of 28 September 2010.

156 BGBI 2008, 1658; last amended on 15 July 2009, BGBI 2009, 1804.

157 For greater detail see Wustlich (2008a and b).

158 BMU (2007a:44); Legislative justification for the EEWärmG, BT-Drs. 16/9476 of 04 June 2008.

ments by 15%.¹⁵⁹ The aim of these and other provisions is to keep the financial burden arising from the various climate-change instruments at a reasonable level. There are doubts, however, regarding the conformity of these substitution rules with the Renewable Energy Directive, in which the third paragraph of Article 13 (4) stipulates that “minimum levels” of energy from renewable sources must be used in all new buildings and also in existing buildings subject to major renovation by no later than 31 December 2014.¹⁶⁰

Alongside the command-and-control requirement to use renewable energy, the first sentence of Section 1 EEWärmeG provides for €500 million a year in grant funding up to 2012 primarily for modifications to existing buildings. This addresses a central point of building-related climate change regulation with regard to both energy efficiency and renewable energy sources: namely, without substantial improvements in existing buildings, the effects of legislative provisions on climate change will remain very unsatisfactory.

The statutory obligation to make use of renewable energy sources and the grant funding for modifications to existing buildings are supplemented by promotion of district heating networks under Section 16 EEWärmeG as the third pillar of the act. As mentioned earlier, this adds climate change policy to the grounds for which local governments are allowed to exercise powers under Länder law to impose an obligation to connect and utilise district heat.

III. Biofuels for Motor Vehicles

In view of the considerable contribution – approximately 12%¹⁶¹ – made by road traffic to greenhouse gas emissions, the European Union and also Germany have adopted targets for the use of biofuel – which were initially highly ambitious, although they have been lowered since.¹⁶² The Meseberg Integrated Energy and Climate Programme included a 17% target for biofuels for use in motor vehicles by 2020. The German Advisory Council on the Environment (SRU) found this target to be far too high, because no consideration had been given when setting the biofuel quota to land use conflicts

159 For greater detail see Wustlich (2008a:1044ff.).

160 For further detail see Ringel & Bitsch (2009:811).

161 See BMU (2009b).

162 For more see SRU (2007:para. 149ff.).

and adequate nature conservation standards, let alone climate efficiency.¹⁶³ Arguing from a climate change standpoint, the Council favours biomass use in stationary CHP plants.¹⁶⁴ It is thus to be welcomed that the European Union in Article 3 (4) of the Renewable Energy Directive¹⁶⁵ prescribes a renewables share of ‘only’ 10% for the transport sector as a whole.

The German government aims to attain the national target under the Renewable Energy Directive of an 18% renewable energy share of final energy consumption by 2020 with 30% of renewable energy in electricity generation, 14% in heating and 12% in transportation.¹⁶⁶ As a result of the Biofuels Quota Act of 2007 as revised in 2009,¹⁶⁷ the statutory provision for a biofuels quota is now to be found in Section 37a-f BImSchG. This lays down an overall biofuels quota for petrol and diesel of 6.25% for the years 2010 to 2014 (section 37a (3) of the revised BImSchG). The quota requirement applies to business enterprises that place fuels on the market. The quota can be met both by admixing biofuels and by placing pure biofuels on the market.¹⁶⁸

The quota requirement introduced, in 2007 brought in a command-and-control measure that took the place of the previous tax incentives for biofuels. Doubts raised under German constitutional law and European law under the heading of the protection of legitimate expectations were dismissed by the Federal Constitutional Court¹⁶⁹ and the European Court of Justice¹⁷⁰

Given the prevailing conflicts regarding its use – with food production in particular – and the environmental risks involved, biomass production re-

163 SRU (2007:para. 105ff., 150).

164 See also SRU (2008a:para. 146).

165 See Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ L 140, 16.

166 German Government (2009b:12).

167 Biokraftstoffquotengesetz [Biofuels Quota Act] of 18 December 2006, BGBl I 2006, 3180; most recently amended by Gesetz zur Änderung der Förderung von Biokraftstoffen [Act Amending the Support for Biofuels] of 15 July 2009, BGBl I 2009, 1804; for further detail see BMU, Roadmap Biokraftstoffe – Gemeinsame Strategie vom 14 November 2007; on the legislation as initially enacted in 2006 see Jarass (2007).

168 For an instructive discussion with numerous details see Brinktrine (2010).

169 BVerfG-K NVwZ 2007, 1168.

170 EuGH Rs. C- 201/08, decision of 7 September 2009, ZUR 2009, 604; EU Court of Justice, decision of 7 September 2009 – C 201/08, 2001, I – 2099.

quires effective regulation. Hence it is to be especially welcomed that, in the Renewables Energy Directive already mentioned on several occasions, the European Union has introduced sustainability requirements for the production of biomass. Article 17 of the Renewable Energy Directive requires that:¹⁷¹

- adequate greenhouse gas emission savings be achieved for biofuels, i.e. a 35% reduction in such emissions
- land of recognised high biodiversity value, which is specified in detail, should not be used for biomass production
- biomass must not be made from crops grown on land with high carbon stocks, and
- cross-compliance requirements be observed.

Article 18 of the Renewables Directive contains monitoring provisions whose focal point comprises a compliance verification system.

The decisive provision for practical enforcement of the sustainability requirements is the first sentence of Article 17 (1) of the Renewable Energy Directive, under which biofuels can only be taken into account when measuring compliance with the national renewable energy targets if the sustainability criteria set out in Article 17 (2) to (6) of the Directive are met. These criteria are transposed into German law in more specific form in the Biofuels Sustainability Ordinance (Biokraft-NachV) of 30 September 2009.¹⁷²

Attainment of the German national target is backed up by sanction in Section 37c (2) BImSchG, which requires business enterprises to pay a levy if they fail to meet their biofuel quota. Overall, the conclusion may be permitted that overblown expectations have given way here to a realistic assessment where, under EU influence, the sustainability requirements have been recognised for what they are capable of achieving.¹⁷³

171 For more see Ludwig (2009); and also Nitsch & Osterburg (2007); BfN (2009).

172 Verordnung über Anforderungen an eine nachhaltige Herstellung von Biokraftstoffen (Biokraftstoff-Nachhaltigkeitsverordnung) [Ordinance on Requirements for Sustainable Production of Biofuels], BGBI I 2009, 3182; last amended on 22 June 2010, BGBI I 2010, 814; see Franken (2010).

173 Very helpful for details: Ludwig (2009).

IV. Use of Biogas

A key component in the promotion of renewable energy involves greater use of biogas. Accordingly, the German government has introduced a package of rules which simplify the procedure for feeding biogas into the gas grid. The package includes a revised Gas Network Access Ordinance (GasNZV) and the Gas Network Charges Ordinance (GasNEV).¹⁷⁴

V. Interim Assessment of Renewable Energy Law

With the original Electricity Feed-in Act, Germany embarked on a path towards promoting renewable energy sources that has since become a Europe-wide success story. With the major revision of the EEG in 2009, the revision of the EEWärmeG likewise in 2009 and the Biofuels Quota Act of 30 September 2009, Germany is aiming to achieve widespread use of renewable energy sources. With the revised Renewable Energy Directive of 23 April 2009, the EU, too, has created a comprehensive legal framework to promote the use of renewable energy, with clear quantified targets for member states. Germany, for its part, is to meet 18% of gross primary energy consumption from renewable energy sources by 2020 and plans to accomplish this with a 30% renewables share in electricity generation, 14% in heating and 12% in transportation.

These are ambitious goals overall and appear to be backed up with a promising set of policy instruments. Whether the legal framework for sustainable biofuel production proves able to avoid mistakes in the long term is something that will have to be carefully watched.

The medium-term substitution strategy with 30% renewables by 2030, 45% by 2040 and 60% by 2050 also requires further assessment to determine if additional legal instruments are needed.

174 Verordnung über den Zugang zu Gasversorgungsnetzen (Gasnetzzugangsverordnung) [Ordinance on Access to Gas Supply Grids (Gas Grid Access Ordinance)] of 25 July 2005, BGBI I 2005, 2210, last amended on 17 October 2008, BGBI I 2008, 2006; Verordnung über die Entgelte für den Zugang zu Gasversorgungsnetzen (Gasnetzentgeltverordnung) [Ordinance on Fees for Access to Gas Supply Grids (Gas Grid Fee Ordinance)] of 25 July 2005, BGBI I 2005, 2197, last amended by the Verordnung zum Erlass von Regelungen über Messeinrichtungen im Strom- und Gasbereich [Ordinance Regulating Access to Metering Points in the Electricity and Gas Sectors] on 17 October 2008, BGBI I 2008, 2006.

E. Outlook

Overall, in the relatively short period of 20 years since the Rio Summit of 1992, a remarkably complex body of climate change law has been created at international level and notably also at European and EU member state level. This legal framework features a diverse range of instruments, encompassing not only the great experiment of emissions trading, but also highly controversial command-and-control regulation in certain areas of energy efficiency law and renewable energy law. Particularly noteworthy is that the regulatory regimes now generally feature explicitly formulated targets. This encourages transparent and rational debate on the necessary onward development of the legal framework.

The Federal Government of Germany decided, after the catastrophic accident in the nuclear energy plants in Fukushima (2011), to phase out the use of nuclear energy for power generation. A big package of alterations of statutes were passed by the legislative bodies (Bundestag and Bundesrat), including the phasing out of nuclear energy and the introduction of regulations to reinforce renewable energy and energy efficiency, as well as statutes providing electricity from renewable energies.¹⁷⁵ This agenda includes the necessity of planning and constructing about 3,000 km of high-voltage power lines.¹⁷⁶

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175 Alternation of: AtG, BGBI I 2011, S. 1704; EEG, BGBI I 2011, S. 1634; EnWGÄndG, BGBI I 2011, S. 1554; new regulations: NABEG, BGBI I 2011, S. 1690; EKFG, BGBI I 2011, S. 1702; Gesetz zur Stärkung der klimagerechten Entwicklung in den Städten und Gemeinden, BGBI I 2011, S. 1509; see the instructive overviews by Sellner & Fellenberg (2011); Scholtka & Hermes (2011); Attendor (2012); Prall & Ewer (2013).

176 Prall & Ewer (2013) Rn. 137.

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**PART II:
CLIMATE CHANGE AND HUMAN
RIGHTS**

Christian Roschmann

Homines enim sunt hac lege generati, qui tuerentur illum globum.
Cicero, Somnium Scipionis

Abstract

Today, climate change occurs to a large and measurable extent through the production of warming gases, called *greenhouse gases*, and simultaneously through the depletion of the ozone layer by humans. The consequences are serious threats to human life, health, property and freedom of action – all representing human rights.

To capture the essence of this process, human rights will not be discussed as a fixed canon of well-defined legal rights, but rather as a moral concept which is open to innovation.

The submission sets out to identify the nexus between human rights and climate change brought about by humans. It looks at what spheres of life are seen as needing and worthy of protection, for which legal recognition should, therefore, be claimed. In a further step, with a view to human rights, the submission also examines the existing legal regime regarding climate change, and concludes that the human rights regime and the climate change regime aim at different goals. Only recently have these two regimes been linked – an approach the submission advocates should be taken further. The submission then examines the existing human rights framework as well as access to justice in human rights matters and the execution of human rights judgments by international tribunals. Finally, the conflict of the human rights of gas emitters and climate change victims is looked at, and greater protection for victims is advocated in consideration of underlying moral values.

A. Background to Climate Change

Climate change has occurred naturally throughout the ages, and continues to occur without human interference.¹ But climate change events caused by “human forcings”² have become an increasing concern worldwide. However, it is scientifically challenging to make the relevant distinctions as the discerning criteria are difficult to establish. Moreover, the extent of climate change cannot serve as a yardstick. Ice ages, for example, show that, over time, climate change has been significant without human interference. Nonetheless, in recent years, human activities can be clearly identified as being the most significant contribution to climate change.

Climate change occurs to a large and measurable extent through the production of warming gases called *greenhouse gases* (GHGs) and, simultaneously, through the depletion of the ozone layer.³ The ozone layer, which lies within the earth’s atmosphere, filters sunlight and thereby protects the earth from ultraviolet radiation.⁴ These two sources of climate change are interlinked:⁵ the depletion of the ozone layer is in itself a major contributing factor to global warming,⁶ and GHGs contribute to causing ozone layer depletion. Other nitrous oxides, carbon monoxide and source gases for aerosols (carbonyl sulphide/OCS and carbon disulphide/CS₂)⁷ are further causes of ozone layer depletion.

The GHGs⁸ are carbon dioxide (CO₂), methanol (CH₄), nitrous oxide (CN₂O), halocarbons (CFC substances, mainly CFC₂ halons), sulphur hexafluoride (SF₆) and water vapour. Halocarbons are used as coolants in refrigeration processes, propellants in spray cans, solvents, components in plastic foam and agents in medical equipment sterilisation.⁹ In 1750, carbon dioxide was present in the atmosphere at a concentration of 280 parts per

1 *Climate change* is defined as “significant variations of the mean state of climate relevant variables”; see Swain et al. (2011:14).

2 (ibid.).

3 See Kindt & Menefee (1989:261–282).

4 The degradation or loss of this protection has a long-term, irreversible effect on human health and agriculture.

5 Birnie et al. (2009:336).

6 Kindt & Menefee (1989:277–282).

7 (ibid.).

8 As defined in Annex B of the Kyoto Protocol, ILM 37 (1998:22).

9 Kindt & Menefee (1989:277–282).

million (ppm); by 2005, the concentration was at 379 ppm.¹⁰ Concentrations of methanol increased from 715 ppm to 1,774 ppm in the same period.¹¹ The warming potential of methanol is 70 times greater than that of carbon dioxide.¹²

The emission of GHGs and the other ozone-depleting agents is mainly due to industrialisation based on the burning of fossil fuels. However, global warming is notably also caused by deforestation: since forests serve as sinks which are break down agencies for carbon dioxide, deforestation also causes climate change. Deforestation, in turn, is caused by, among other things, acid rain,¹³ which contains the same aforementioned substances that are responsible for the greenhouse effect and ozone layer depletion. What are the consequences of this?

Experts estimate temperature rises of 6.4°C by 2099, and sea level rises of 65 cm by 2200¹⁴—caused exclusively by human activities. These increases will be traced to the melting of ice caps on glaciers and on the continent of Antarctica, among other factors. Climate changes of such magnitude can change the face of the earth and, especially, human life to an extent as yet unknown. The experts' predictions are grisly. Sea-level rise will destroy living space, commercial space and infrastructure such as harbours, streets and industrial plants; in the Pacific, a number of islands will be submerged and forever lost, and vast expanses of fertile land will no longer be usable; while water resources will be depleted worldwide.¹⁵ Salt water will increase, which will consequently threaten river ecosystems and salinise agricultural lands to an extent that will make them unusable.¹⁶ The capacity of ecosystems to store water will be affected due to increased evaporation because of temperature rises, and floods and droughts will result.¹⁷ Scarcity of water and food will cause famines.¹⁸ Increased evaporation and changing rain patterns will cause desertification with all its attendant effects on agriculture and human settlements. Oases in deserts will disappear and, with them, their populations; entire towns in many countries will be abandoned.

10 IPCC (1995:14–20). See also IPCC (2007).

11 IPCC (1995:14–20).

12 (*ibid.*).

13 Birnie et al. (2009:336).

14 IPCC (1995:14–20).

15 Swain et al. (2011:21).

16 (*ibid.*).

17 (*ibid.*:15, 17).

18 (*ibid.*:17).

It is estimated that the United States will lose 50–80 per cent of its coastal wetlands by 2100. Fisheries in lakes or lagoons such as the coastal backwaters of western India and Sri Lanka – and, with them, many livelihoods – are threatened. Entire plant and animal species, including some of those used for agriculture, will face extinction.¹⁹ Agricultural losses in West Africa are expected to reach up to 4 per cent, and in Egypt between 11 per cent (rice) and 28 per cent (soy beans).²⁰

Dwindling water supplies will fuel violence in the form of armed conflicts between countries, and uprooted groups will battle for the control of remaining agricultural lands. Internecine strife within countries will arise in the quest to secure shares of resources that are becoming scarcer. For example, this is feared for the Nile Valley, the Jordan Basin, the Aral Sea Basin and the Chad Lake Basin.²¹ A negative impact on labour productivity, health and agriculture and an increase in crime are widely seen as very likely.

Major migratory movements will be triggered – upsetting the economies of a number of countries, causing internal unrest there, and engendering crimes against life and property. In some countries, the individuals or groups affected will be forced to sell themselves into slavery or comparable conditions in order to survive. Diseases will spread into areas where they are hitherto unknown and where they will find no natural defences, particularly temperature barriers or enemies. This is feared especially for malaria, which is expected to creep up to the highlands of East Africa and cause tens of thousands of deaths, especially among children.

The impacts of these anticipated changes can be very different on different groups and peoples. It is precisely those groups that are already marginalised – such as the poor, women, children, the handicapped and indigenous ethnic minorities – that could be “disproportionately affected”²² and marginalised even further.

Also, on a country level, such impacts will be unevenly felt. Unfortunately, the poorest and least-developed countries will suffer the most. The worst hit will be African countries,²³ not only because of their geographic position, but also because they are the poorest and the least structured. They suffer from endemic poverty, imperfect and at the same time complex and

19 IPCC (1995:14–20).

20 (ibid.:448).

21 Swain et al. (2011:19).

22 Mwebaza (2009:227–261, 233).

23 Ruppel & Ruppel-Schlichting (2012:32–71).

non-transparent institutions and governance,²⁴ a deficient infrastructure and limited access to markets, as well as undercapitalisation.²⁵ Such countries, therefore, lack the necessary mechanisms to counteract the impacts of climate change; and, in emergency situations, the observance of human rights tends to be more difficult²⁶ and human rights violations far more severe.

As the world climate has already warmed significantly, and since the warming effect is threatening to increase even more, the internationally identified goal is not to reduce but to stabilise warmth. This goal may be considered ambitious, as stabilising the output of GHGs at their present level would already inevitably lead to an increase in such gases, simply by accumulation.

One of the problems is to assess, with scientific certainty, what impacts the remaining GHG production has, and where those impacts will be felt. For example, it seems clear that a sea level rise of a few centimetres will impact countries differently; and with the difference in factual impact might come a difference in legal impact – which may also vary from country to country on the same factual impact. Thus, differing or identical factual impacts may have varying legal impacts.

In sum, to describe the scenario with which we are confronted, we should note that climate change is caused by an increase in GHGs. The depletion of the ozone layer – partly by those gases and partly by others – adds to the global warming and climate change effect. Another factor contributing to climate change is the degradation or elimination of forests which act as carbon sinks and, thus, reduce GHGs. The reduction of these sinks is caused mainly by deforestation and air pollution, the latter manifesting itself as acid rain that destroys forests.

A great number of countries have in the past few decades come to realise the severity of the problem, and have been taking measures in one way or another.²⁷ The international community is also continuously addressing it on a multilateral level.

24 Mwebaza (2009:229).

25 (*ibid.*:228).

26 ICHRP (2008:4–5).

27 For an overview, see KAS (2011).

B. The History of Human Rights

As this submission focuses on the human rights aspects of climate change, we have to restrict ourselves to looking at human behaviour, since rights and laws in general can only deal with human behaviour and its consequences. Climate change caused by geophysical factors, such as those which occur during an ice age, can and should be considered in this context only as contingencies that might give rise to the need for legal responses. With respect to the human rights aspects of climate change, we are dealing with the human factors in its causes as well as its consequences. Human rights play a significant role in both of them.

What is the nexus between climate change and human rights? In order to answer this question, we have to look first at what *human rights* are. The idea of human rights entered the world of international law only in 1948 with the United Nations Universal Declaration of Human Rights (UDHR).²⁸ This Declaration is only programmatic, however, and expresses the will to protect spheres it calls *human rights*. The Declaration reflects the shocking experiences of two World Wars and of atrocities committed against humans in many countries.

The concept of *human rights*, however, is much older, and originated in the era of enlightenment in political philosophy. Once centralised political power became more and more despotic due to the increased potential to monopolise revenue, and as prominent thinkers spearheaded a widespread movement of those who felt oppressed by state power, the intellectual focus shifted away from the protection of the individual by the state and onto protection from the state.

This happened against the backdrop of philosophical enlightenment in the wake of the Renaissance and was marked by enlarged economic power bases, bringing forth philosophical concepts in which the individual took centre stage.

An economically and, hence, politically more powerful bourgeoisie demanded protection from the interference of arbitrary despotism, and with that, they demanded spheres of freedom which guaranteed life and property, as well as personal freedom and the freedom to conduct certain activities.

28 United Nations (UN) General Assembly Official Records (GAOR), Third Session, Resolutions Part I, 71.

These demands were based on the idea of *natural law* – which can be traced to Aristotle, Cicero and St Thomas Aquinas – and reason, in line with the political and philosophical shift from community and state to the capabilities and possibilities of the individual whose rights of action were assessed and weighed against her/his duties towards the state. The relationship between the individual and the state was also reflected in classical literature and in philosophical-theological thought, and was embedded in cosmological conjectures. Claims were made for the individual to enjoy a sphere of absolute freedom from interference by the state, and defence mechanisms against interference with that sphere were reflected. The enjoyment of these freedoms – then named *human rights* – was seen as part of human nature, protected by natural law and, thus, inalienable. Notably, the concept and the claims incorporated in it originated in the philosophical realm of ethics, not in law. We shall revert to this aspect later.

The idea of human rights received its first introduction into the legal world in the US Constitution, which came into effect in 1789 and the French Revolution, which began in the same year. Also in 1789, the French Revolution's Declaration of the Rights of Men was elaborated. In 1791, the first ten amendments to the US Constitution were enacted and came to be known as the Bill of Rights. These amendments were adopted after the Declaration of Independence of 1776 had already made a programmatic statement about the "pursuit of happiness" and "certain inalienable rights".

In the wake of the French Revolution, however, human rights did not become part of French legislation. Yet the idea continued to be discussed in Europe. In the US, the enshrinement of such rights in the Constitution prevails to this day.

In the late 19th and early 20th Centuries, many European and American states incorporated rights into their constitutions that are in essence congruent with what are known as human rights in international instruments today, but are in most cases named differently. The term *human right*, as a legal concept, refers generally to rights under international law.

As mentioned above, the process of introducing human rights in international legal instruments started with the 1948 UDHR.²⁹ Also as stated above, this document was devised as a reaction to cruelties committed against our fellow human beings in the 20th Century and was programmatic in nature. Although the UDHR was a milestone achievement, it did not establish spe-

29 (ibid.).

cific rights as such. Moreover, there was no legal definition of *human right* that would distinguish such rights from others, and give them a special legal quality. Nonetheless, there was a general understanding that human rights were of a fundamental nature. However, the Conventions that followed the UDHR strove to protect specific rights – which were then named *human rights*. Since then, two important general Conventions – the International Covenant on Civil and Political Rights (ICCPR)³⁰ of 1966, which represented the first body of human rights specifically established as such, and the International Covenant on Social, Economic and Cultural Rights (ICESCR)³¹ – as well as numerous specific ones, such as the Convention on the Elimination of all Forms of Discrimination against Women (CEDAW)³² and the Convention on the Rights of the Child (CRC)³³ have made human rights part of international law. The ICCPR and the ICESCR are the most thematically comprehensive bodies of international human rights law.

C. *The Sources of the Moral Aspect*

The prevailing philosophical concept behind human rights is still the same since their first conceptualisation in the 17th Century. They are seen as part of human nature and as inalienable. As the term *human right* is not a factual and verifiable description of anything tangible but a normative deontic postulate, its recognition is a view based on consensus. This could be seen as problematic as neither human nature nor the extent of human rights is clearly defined – and neither is probably definable. In practice, this lack of definability has led and continues to lead to extensive innovation in creating new human rights, a process which is ongoing and which reflects changes not only in factual conditions, but also in societal conditions and restrictions on human actions, as well as changes in philosophical and political thought and their bearing on the idea of human nature and human rights. On the other hand, the lack of definability leaves human rights vulnerable to changes in ethical and even political views.

30 UN Treaty Series, International Legal Materials, 999 (1967:368).

31 UN Treaty Series, International Legal Materials, 993 (1967:360).

32 UN Treaty Series, International Legal Materials, 1249 (1967:13).

33 UN GAOR, 44th Session, Resolutions, 166.

These findings prompt a brief reflection on the nature of human rights. Human rights originate in the sphere of ethics, not law.³⁴ They are “ethical pronouncements”³⁵ in political connotations. Amartya Sen quotes Jeremy Bentham,³⁶ who says such rights are not a “child of the law”,³⁷ meaning that they are not laws in the legal sense; for this reason, Bentham calls them “nonsense on stilts”.³⁸ Sen, however, points out that Bentham fails to see that human rights – even though they bear the name *rights* – do not originally belong to the legal sphere but to the moral one. Sen goes on to quote Herbert Hart,³⁹ who says that human rights belong to a “branch of morality”⁴⁰ and give rise to legal rules. Sen concludes by comparing Bentham’s view of a human right as a “child of the law” with Hart’s, which Sen paraphrases as human rights being “parents of the law”.⁴¹

Looking at the two apparently opposing views outlined by Sen, one can discern that Bentham fails to see beyond the legal sphere to which he limits the term *right* and, hence, misses the departing point for human rights. Hart, on the other hand, looks at the origin and nature of human rights and perceives them as a legal concept grounded in ethics.

It is only by looking at human rights as moral propositions that we can understand the meaning their creators gave them. Of course, as Sen also observes,⁴² there are motivational connections between moral and legal rights. But if we look closely, most legal rights – not just human rights – originate as moral propositions before being incorporated into legislation. These origins give them acceptance and legitimise them. Once they become legislation they are seen as legal rights, with their moral basis continuing to legitimise them. What distinguishes legal human rights from other legal rights is that their moral basis is not only seen as legitimising: it also does not step out of the foreground, and remains their principal aspect. Incorporating or not incorporating them in legal norms is basically seen as respectively giving or not giving them their deserved legitimate form. Human rights are discussed more as legitimate rights than as legal rights. Thus, the con-

34 Sen (2009:355–366).

35 (*ibid.*:359).

36 Bentham (quoted in Sen 2009:362).

37 Bowring (1843:362, 523).

38 (*ibid.*:501); see also Sen (2009:356).

39 Sen (2009:363).

40 Hart (1955:363).

41 Sen (2009:363).

42 (*ibid.*).

tinuous emergence of new and generally socially accepted moral norms determines the extent of human rights, and allows for ongoing innovation that keeps pace with humankind's societal development.

To capture the essence of this process, in the following discussion, the notion *human rights* will not be discussed as a fixed canon of well-defined rights, but rather as a concept open to innovation. The need for spheres of freedom and their protection changes in accordance with the factual and societal environment. Thus, human rights will first be discussed as spheres of freedom required by societies, claimed from governments, and reflecting factual restrictions and prevailing concepts. We will look first at what spheres of life are presently regarded as worthy of protection from climate change and its causes and consequences, and which can and should, therefore, claim legal recognition.

Human rights enshrined in legal instruments and, thus, formally accepted and identifiable as such will be discussed in a second step, where we will look at the substantive extent of existing legal human rights protection codified in international instruments, and at the spheres of life that they protect. In this step, we will identify the existing legal situation regarding recognised human rights. We will then look at international instruments, international customary law and, briefly, at individual countries' constitutions.

As our approach to human rights is principally an ethical one, and is not exclusively legalistic, we will not limit ourselves to focusing on existing legal rights but will also consider moral demands and further needs for legal rights. Therefore, in a third and last step, we will also assess whether additional or modified rights might be necessary for an effective protection of freedoms threatened by the new environmental phenomenon of climate change, and which we are under a moral obligation to protect.

D. The Content of the Moral Aspect

Having looked at the moral sources of human rights, we can now proceed to examine their substantive ethical content. What do they aim to protect? Here, we shall look at the spheres of human life which are threatened by climate change today and in the foreseeable future, and which, from a moral point of view, are or should be legally protected.

The most violent threat climate change presents is to life and health. Climate change does not destroy life per se, but by destroying human habitats and the agricultural bases of farming, it destroys the foundations of one's

livelihood and life. Through increasing temperatures, water dries up and plants and pastures die. People starve and die as a consequence. It is estimated⁴³ that the increase in deaths caused by climate change already exceeds 15,000 per year. Deaths are largely being – and will continue to be – caused by the flooding of agricultural lands and human dwellings, as well as by starvation by way of diminishing agricultural land, the lack of water caused by droughts and desertification, and especially through diseases, malaria being the biggest culprit.

In all these cases, death will be caused by climate change, which is in turn caused by human activities. This means that those specific activities are costing lives and are, thus, active violations of the right to life. The most vulnerable and defenceless when it comes to these violations are children⁴⁴ or indigenous peoples without lobbies.⁴⁵ There can be no doubt that the right to life is the most basic that any person has; and it is a moral obligation for any state to protect the lives not only of its citizens, but of every individual existing within its boundaries. Thus, there is a moral claim against states to actively protect each person from activities that can cause her/his death, and those that are more deeply affected can rightfully claim increased protection.

Another human right which can be violated is the right to health. It is safe to say that the causes of death mentioned above are also causes of health prejudice when consequences of human activities reach a mitigated harmful level. Arguably, what can be said about protection from activities that can cause death can also be said about protection from health hazards, especially since those are the same activities whose impacts are – by design or by accident – somewhat weaker. Even if one argues that, in an industrial society, prejudice to health is inevitable to a certain extent, and that the exact course of causation of each emission cannot be determined, incremental overall increases in GHG emissions can well be linked causally to health prejudice.

For these reasons, every state has a moral obligation to protect human rights. What makes it difficult to assess the extent of the necessity of this protection – considering that zero emissions causes zero negative consequences – is that any protective measure may threaten the human rights of

43 Mwebaza (2009:236), with further references.

44 Article 6 of the CRC therefore specifically protects children's right to life.

45 See, for example, the decision in *Maya Indigenous Community of the Toledo District v Belize*, Case 12.053, Report No. 40/04, Inter-American Court of Human Rights, OEA/Ser. L/V/ii.122 Doc. 5 Rev. 1 (2004:126).

GHG emitters as well as those of consumers: and they, too, are entitled to the same consideration as anyone else. This issue will be looked at in a general context later herein; what can meanwhile be said here is that the extent of protection has to be determined reasonably.

Further moral human rights that may be threatened are claims to secure the substances of survival, such as food, water and shelter. These claims are being discussed as specific rights,⁴⁶ mainly in the sphere of legal rights. In effect, they are necessary ancillary claims to the right to life and health. Without them, life is impossible – or, in the case of the right to shelter, at least devoid of human dignity.

The second sphere of freedom affected is that of enjoying personal property. Rising water levels submerge land and, thus, destroy property. Desertification caused by rising temperatures makes land useless. So do uncontrollable diseases. Human dwellings, commercial real estate and infrastructure will be destroyed or will have to be abandoned. Arable land and pastures dry up, and animals and plants die. There can be no doubt that property is the material basis of well-being and, therefore, of paramount importance to humankind, and that any state is under a moral obligation to protect it.

The corresponding material basis of human life is a person's ability to earn a living. In most cases, this is done on markets. People's abilities enable them and their interests motivate them to do so. The possibility of interacting on markets gives people's lives purpose and meaning to a large extent. Seen from a macro level, that possibility is the essence of any economy: it secures the survival and wealth not only of countries, but of humankind as a whole.

The freedom to exercise commercial activities can be violated by existing businesses being destroyed or business opportunities being frustrated through the destruction of agricultural space in the wake of climate change. These repercussions are brought about in two ways. The first entails agricultural businesses dying or shrinking. The second entails debilitation and emigration reducing the number of potential customers for any business, whether agricultural or not. Markets simply fade away and, with them, opportunities in all lines of business. With diminishing markets, the set-back on individuals' commercial opportunities takes on a new dimension: it creates an emergent negative effect by allowing the micro level to influence the macro level. By limiting individual economic activities, the size of the econ-

46 UN Committee on Economic, Social and Cultural Rights, General Comment No. 15; see also Mwebaza (2009:236–237).

omy as a whole shrinks. People get poorer. This state of the economy again influences the individual. In a shrinking economy, on average, each individual loses opportunities⁴⁷ and wealth.

As the same phenomenon influences the position of individuals and of groups (an economy being a group that consists of individuals), it should be treated as a human rights violation on both the micro and macro level. On the macro level, the phenomena described above in this section as human rights violations on the micro level present a threat to the right to prosperity or, as far as developing countries are concerned, to development (into prosperous economies). By the same token, the right to life and health and their ancillary rights to food, water and shelter can of course be – and indeed are – seen on a macro level, and be named the “right to a healthy environment”, i.e. an environment that is propitious to life.⁴⁸

Thus, we can identify several areas in which moral rights that are seen as legitimately important to people’s lives can be affected by climate change:

- The individual’s health and life, including the necessary substances to maintain those, namely food, water and shelter
- The individual’s (productive) property
- The possibilities open for the individual to earn a living
- The group’s economic development, and
- The group’s environment.

In the following section we will look at how moral rights and obligations translate into legal rights and obligations, and how they are protected under the existing legal regime.

E. The Law-based Climate Change Regime

Proceeding from the specific to the general, we will first look at the present international climate change regime to determine which human rights can be discovered in or deduced from its instruments.

The law-based climate change regime will be regarded as a framework which we will examine to see whether specific human rights emerge from it. Considering the interconnectedness between climate and other environ-

47 Coleman (1990:23–28).

48 However, the claims to a right to a healthy environment are wider. They include all rights to ensure a generally toxin-free environment.

mental factors relevant to climate change, such as carbon sinks, (de)forestation, and air pollution through acid rain which leads to deforestation, we also need to look at the environment-related legal regime as far as it relates to climate change.

The beginning of documented international concern with environmental issues was marked by the 1972 Declaration of the United Nations Conference on the Human Environment (also known as the *Stockholm Declaration*). This Declaration remained programmatic, and is important mainly as the starting point for environmental negotiations and treaties.

In 1979, the Geneva Convention on Long-range Transboundary Air Pollution⁴⁹ was concluded. It addresses the degradation of forests in Europe by acid rain, which at the time had taken on an alarming dimension, and had begun reducing Europe's carbon sink capacities. The Convention represents the first legal acknowledgement of the "air mass as a shared resource",⁵⁰ and deals with regionally compounded pollution rather than individual cases – a new approach in international law. Its purpose was mainly that of notification, assessment, and prevention. It was quite successful, and led to a decrease in acid rain and an increase in European forestation. However, it was successful only because governments willingly cooperated with each other, convinced of the necessity of such collaboration.

The next step was the 1985 Vienna Convention for the Protection of the Ozone Layer,⁵¹ whose purpose was to deal with the rapid depletion of the world's ozone layer, which in turn accelerates climate change. It was a framework treaty with no significant concrete obligations for the signatories. Its emphasis lay on monitoring, research and technology transfer to developing countries.

This was followed by the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer,⁵² which for the first time focused on the reduction and eventual phasing out of GHGs by way of reducing the profitability of chlorofluorocarbon (CFC) substances (halons). This Protocol provided special treatment for developing countries, incentives to reduce gases by 50 per cent by 1998, and for developing countries to receive technology transfers relating to the substitution of CFCs. It created further incentives for non-parties to sign, as it imposed restrictions on trade with them. CFCs were

49 UN Treaty Series, International Legal Materials, 18 (1979:1442).

50 Birnie et al. (2009:344).

51 UN Treaty Series, International Legal Materials, 26 (1987:1529).

52 UN Treaty Series, International Legal Materials, 26 (1987:1550).

listed in the Montreal Protocol as substances that were subject to international control. The Protocol has since been amended several times to include new substances, but not all co-signatories have ratified the amendments.

A problem that arises in this context is a conflict with Article XX b of the General Agreement on Tariffs and Trade (GATT),⁵³ which guarantees free trade – a right that can only be restricted if human life or health are at stake. Thus, it is not possible to restrict imports solely because they are not coherent with environmentally responsible productive standards. An important case in point is sustainable forestry.⁵⁴ Irresponsible logging has reduced important carbon sinks to a dangerous extent. This could only be stopped under Article XX b if it were “necessary” to protect lives or health. However, World Trade Organization (WTO) institutions have so far interpreted “necessary” restrictively;⁵⁵ hence, logging and its consequences do not fall under Article XX b so as to avoid the protection of local industries under the guise of environmental trade measures,⁵⁶ especially if such measures are unilateral. Furthermore, all cases decided by WTO institutions had to do with environmental hazards, not climate change. The necessary protection measures can, of course, be argued from case to case, but there is no sufficiently concrete jurisprudence to establish the required guidelines.⁵⁷ Moreover, causality between specific gas emissions and specific threats to health or even life will, in most cases, be extremely difficult – if not impossible to prove. To overcome this hurdle, the WTO resolved that, in environmental cases, there need only be a “reasonable connection”⁵⁸ established between actual risk potentials and trade-restrictive measures, which has to be assessed on a case-by-case basis.⁵⁹

53 UN Treaty Series, International Legal Materials, 55 (1979:187).

54 Kibel (1996:736).

55 GATT Dispute Settlement Panel, United States, Restrictions on Imports of Tuna 1994 WL907620 para. 5.19; and Thailand, Restrictions on Internal Taxes on Importation of Cigarettes, GATT BISD 375/200 (1990).

56 Foster (1998).

57 GATT Dispute Settlement Panel, United States, Restrictions on Imports of Tuna 1994 WL907620 para. 5.19; and Thailand, Restrictions on Internal Taxes on Importation of Cigarettes, GATT BISD 375/200 (1990). The 1992 UN Conference on Environment and Development in Rio de Janeiro also produced the Forest Principles, namely a statement of principle on sustainable forestry. Unfortunately, that statement remained a statement.

58 See Appellate Body Report, European Communities – Measures concerning Meat and Meat Products (Hormones), Dispute Settlement 26.

59 (*ibid.*). The case decided dealt with the effects of hormones in meat.

The first UN Convention to specifically address climate change was the 1992 UN Conference on Environment and Development in Rio de Janeiro (also known as the *Earth Summit*), which produced the UN Framework Convention on Climate Change⁶⁰ (UNFCCC). This Convention was accompanied by the Declaration of the UN Conference on Environment and Development (Rio Declaration,⁶¹ which could be seen as a programmatic preamble), and Agenda 21, a comprehensive work of recommendations to governments. The UNFCCC establishes a small number of guiding principles relating to the international climate change regime. For example, the principle of “common but differentiated responsibility” establishes individual degrees of emission standards for each country. However, using this principle, developed – and, therefore, emission-rich – countries can simply relocate their production facilities to less-developed, emission-poor countries. This they have done to some extent, hence neutralising the UNFCCC provision.⁶² The Convention’s intention was to stabilise GHG emissions, using the year 1990 as a point of reference. Other principles established in the Convention were the “right to sustainable development” and “intergenerational equity”; these principles, which try to balance the preservation of a livable environment with economic development, were by then clearly seen as antagonistic. The Convention was based on the idea of cost-effectiveness in order to offer incentives for compliance in order to make the latter financially workable. Noteworthy are its efforts to create comprehensive carbon sinks as a countermeasure, and its concern with providing technology to developing countries.

The Convention’s Article 4(2)d provides for regular meetings of the states parties (“Conference of Parties” or *COP*). The COP to the UNFCCC was instituted as the supervising body to effect the review and development of the UNFCCC’s execution at certain intervals (the last having been the Qatar COP18 meeting in December 2012). A permanent Secretariat was also established. The stakeholders soon recognised the insufficiency of the UNFCCC provisions to significantly reduce the greenhouse effect:⁶³ even at continued emissions on the 1990 level, GHG concentrations would inevitably rise for two centuries.⁶⁴

60 UN Treaty Series, International Legal Materials, 31 (1992:851).

61 (*ibid.*:876).

62 Birnie et al. (2009:357).

63 This was recognised at the latest at the 1995 Berlin follow-up COP; see IPCC (1995).

64 Birnie et al. (2009:360).

This led to the 1997 Protocol to the Framework Convention on Climate Change (the Kyoto Protocol),⁶⁵ so far the most comprehensive international instrument regarding climate change. For the first time, the Protocol quantifies restrictions on emissions seeing the necessity of going below the 1990 level used by the UNFCCC as a yardstick. The Protocol lays down different levels for each country, and provides for carbon sinks to be offset. Its validity period expired in 2012, however.

A novelty of the Kyoto Protocol is its so-called flexibility mechanisms. The clean development mechanism, for example, allows industrialised countries to carry out emission-reducing projects in developing countries and receive emission credits in doing so. The joint implementation mechanism allows an agglomeration of countries to behave as a single emission-reducing agent, thus allowing them to operate on average outputs. Another example is the emission trading mechanism, which means gas emission debits can be traded with other countries, provided that the trading is supplemented by domestic emission-reducing activities.

It was soon discovered that even these emission reductions and the flexibility mechanisms were “overwhelmingly inadequate”;⁶⁶ hence, the perceived necessity of amendments led to further consultations. The Bali meeting in 2007 increased the possibilities of technology transfer and specifically addressed deforestation. Today, it is clear that global warming is still not being adequately combated.⁶⁷

If we look at this framework of Conventions making up the international climate change regime from the perspective of human rights, we cannot detect any of the latter rights – with the exception of the recognition of a right to development in Principle 3 of the Rio Declaration. Thus, it is probably safe to say that human rights are not explicitly established under this regime. From a moral point of view, this might come as an unpleasant surprise. But it is due to the fact that human rights regimes and climate change regimes have developed separately and largely without taking notice of each other over time, with a view to different goals.⁶⁸ The Cancun COP in 2010 was the first time a decision was made to link human rights and climate

65 UN Treaty Series, International Legal Materials, 37 (1998:22).

66 Birnie et al. (2009:371).

67 See the contributions in Helm & Cameron (2009).

68 McInerney-Lankford et al. (2011:8–10).

change.⁶⁹ This initiated the slow shift in focus to the interlinking of human rights with climate change.

F. Policy Approaches

However, as Rose Mwebaza points out, international law uses a “dichotomy in approach”⁷⁰ and comprises both formal human rights and the “soft-law policy-oriented approach”⁷¹ of the UNFCCC, which sets policy goals without creating specific, enforceable obligations. If we look at those policy goals, we can see the overarching objective to reduce emissions – which would be the primary tool for reducing the climate-change-induced violations of human rights or the threat thereof. However, the framework of Conventions also contains ‘soft-law’ policy mechanisms securing the attainment of those goals that incorporate a ‘hard-law’ element as those goals represent specific obligations. Soft-law policy mechanisms are designed to secure the attainment of those goals by creating an attainment-friendly environment. For example, states parties are obliged to install human rights commissions that have a watchdog function, even though they have no enforcement mechanisms at their disposal.

Then there are accountability mechanisms such as reports, monitoring, research, inspections and compliance committees that have been enshrined in a number of Conventions. Provisions for public participation also secure that the affected have a voice. A milestone on this route is the 1998 Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters⁷² (Aarhus Convention), which is designed to give effect to certain provisions of the 1992 Rio Convention, particularly Article 10.⁷³ The Aarhus Convention only has regional scope, but the significance of its legal concepts can and should be seen as global.⁷⁴ Article 4 of the latter Convention gives *quivis ex populo* a right to information. This enables widespread public information to serve as a base for voicing concerns. On the other hand, participatory rights in pro-

69 Cancun Decision 1/CP. 16.

70 Mwebaza (2009:231).

71 (*ibid.*).

72 UN Treaty Series, International Legal Materials, 37 (1998:999).

73 Article 10 deals with the participation of the concerned public.

74 Annan (2000).

ceedings were only given to “the public concerned”,⁷⁵ *concerned* being a term which is rather broadly defined as “affected or likely to be affected”.⁷⁶

It is being argued that the principles laid down in the Aarhus Convention and Principle 10 of the Rio Declaration have become part of customary human rights law.⁷⁷ The jurisprudence of the Human Rights Court of the European Union (EU), in particular, has given rise to this opinion.⁷⁸ The court held that a breach of participatory rights is, in certain cases, a breach of the right to life. Also, national law in a number of countries grants certain participatory rights in legislative procedures dealing with human rights.⁷⁹

The development of participatory rights should be warmly welcomed, and their recognition as part of international customary law regarded as highly desirable. This way, the parties concerned have a major say in the lawmaking process and can influence its outcome in public discourse – on a national level as well as by determining their countries’ international position.

As further ‘hard-law’ elements in ‘soft-law’ policy provisions, social security and health systems⁸⁰ certainly have a mitigating effect on the consequences of climate change as they can considerably cushion its negative impacts.

Complementary to such ‘hard-law’ elements is the international climate change framework that establishes a policy goal for developed nations to assist in reducing emission impacts such as human rights violations. This goal can be seen as having been expressed in Article 3 of the UNFCCC and Article 7 of the Rio Declaration (“common but differentiated responsibilities”). The obligation to pursue a policy of assistance, especially financial,

75 Aarhus Convention, Article 2(5).

76 (*ibid.*).

77 Birnie et al. (2009:295), with arguments based on the decisions in *Taskin v Turkey*, 42 *European Human Rights Reports* 50 (2006) 118; *Ilmari Lansman & Others v Finland*, International Committee on Civil and Political Rights, Comment No. 511/1992, 286; *The Social and Economic Rights Action Center & Others v Nigeria (Ogoniland case)*, African Commission on Human and Peoples’ Rights Comments No. 547/1993.

78 *Taskin v Turkey*, 42 *European Human Rights Reports* 50 (2006) 118; *Öneryildiz v Turkey*, European Court of Human Rights (2004:657). See also Birnie et al. (2009:296).

79 Birnie et al. (2009:297–298).

80 Article 12d, ICESCR.

to those who are not that favourably equipped to deal with worldwide impacts can be subsumed under these Articles.⁸¹

Furthermore, certain guidelines – however vague – can be deduced from the framework of Conventions. The World Charter for Nature⁸² states that “all areas of the earth ... are subject to principles of conservation”. It is disputable whether the atmosphere falls under the term *earth*, but sinks certainly do. Also, the principle of sustainability and the balancing of growth and environmental protection in the Rio Declaration and subsequent agreements can be cited here.

Birnie et al.⁸³ argue that, from the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, it can be deduced that “many states regard the hostile modification of the atmosphere as contrary to international law” – an argument that might be seen as linking the realm of policy to the sphere of law.

If one considers that moral obligations press for the legal protection of human rights against the consequences of human activities leading to climate change, it is important for the international legal framework to give certain guidelines for national policies. However, as this framework does not include specific human rights in the form of claims and obligations, we have now reached the point where we have to identify existing and recognised human rights in other international instruments in order to assess their ability to protect humankind against climate change.

G. The Reach of Human Rights Laws

To this effect, we will examine the existing body of laws pertaining to human rights in the three tiers of their categorisation, namely international instruments, international customary law, and national legislation.

Our first step will be to examine the structure and, with this, the reach of such rights. Legal rights incorporated into international instruments which are considered human rights are commonly divided into three groups, i.e. first-, second- and third-generation human rights. This distinction is mainly historical, and does not necessarily represent a methodological approach.

81 However, to assert, as Mbewaza (2009:243) does, that an obligation for financial support falls “squarely” under it, appears somewhat far-fetched.

82 UN Treaty Series, International Legal Materials, 23 (1983:455).

83 Birnie et al. (2009:340).

First-generation rights are the classical liberties. They emerged over a period of several hundred years in societies dealing with authoritarian states, and create a defence against the state's encroachments on the individual, on property, or on freedom of action. As such rights are designed to create an inviolable space that was seen as so fundamental to life, it was interpreted as inherent and inalienable to the human being. Those rights are negative in character, defensive rights. They are created to serve as stop signs for state power. However, of course, not all negative, defensive, rights are human rights. Since legal human rights are not defined as such – although they are rooted in moral claims, a legal right can explicitly be created as a human right in an instrument, by jurisprudence or, in some cases, even by the prevailing opinion among prominent jurists, but a legal right has to be elevated to a human right. Human rights are incorporated into UN Conventions, treaties of other intergovernmental bodies such as the EU or the African Union, or in national constitutions.

In the course of time, it was considered that human rights which consisted of negative rights were insufficient to protect the individual's sphere of freedom as many deprivations of civil liberties did not come about due to the state but due to third parties – or even represented restrictions by forces of nature. Thus, a so-called second generation of human rights has emerged. These consist of active rights, i.e. claims against the state 'to do' rather than 'to abstain from doing'. They are claims to protective action. Furthermore, those claiming second-generation human rights could now include groups. Second-generation human rights, therefore, are not defence rights but positive claims. They grant a right to protective action by the state against either human encroachment or the consequences of natural causes to secure the enjoyment of certain protected positions, namely freedoms. They have their factual limits in the limited resources of the state actors against whom they are directed, or in those state actors' allocation schemes relating to resources (which are discretionary, but have to pass the test of reasonability). The second comprehensive UN human rights Convention mentioned above, namely the ICESCR, contains not only important first-generation but also a number of second-generation human rights.

If one looks at the second-generation human rights which represent claims against the state to protect individuals or groups, it becomes clear that the borderline between them and 'soft-law' policy goals is blurred. For example, the policy goal to provide shelter for those rendered homeless from desertification caused by climate change, on the one hand, and the human right to shelter, on the other, converge on the limits of the state to provide such

shelter. Human rights of the second generation should always be seen under the condition of sufficient funds being available, while the allocation of funds is largely a policy matter. The *Grootboom* case in South Africa illustrates this.⁸⁴ The claimant, who lived in a shack, successfully sued the government under the applicable constitutional provision for adequate housing. The government could not comply due to inadequate funds, and the claimant died years later – still in her shack. The problem of dealing with such factual limits to human rights can be avoided, for example, by the methodical approach the German constitution takes in linking law and policy: it merely states that Germany is a “social state”,⁸⁵ without giving explicit second-generation human rights. This allows ample room for judicial discretion by the German Federal Constitutional Court regarding the outlines of the concept of the *social state*, and for policymaking by the political institutions regulating the concept’s details.

The dividing line between first- and second-generation human rights can, in certain cases, be disputed. A human right can be violated by a state action such as parastatals emitting GHGs; a state omission such as not preventing emissions of GHGs by private parties; and a state omission to take preventive measures to avoid GHG effects⁸⁶ as consequences of emissions.⁸⁷

In Germany as well as in the US, it was argued that a state action in favour of a wrongdoer was an active state encroachment on human rights. The US Supreme Court qualified a court judgement sanctioning a discriminatory agreement between private parties as a “state action”,⁸⁸ and saw the judgement as an encroachment on civil (human) rights. The German Federal Constitutional Court took the same view regarding a restraining order by a Ger-

84 *Government of the Republic of South Africa v Grootboom & Others*, 2001 (1) SA 46 CC.

85 Article 20(1), Grundgesetz (“Basic Law”).

86 Cases before the EU Courts include *Öneryıldız v Turkey*, European Court of Human Rights (2004:657); *Fadayeva v Russia* (2005), www.elaw.org/node/2032; *Taskin v Turkey*, 42 *European Human Rights Reports* 50 (2006); see also Birnie et al. (2009:284).

87 Of course, those effects that originate from human behaviour, such as the emission of gases, have to be distinguished from natural causes – which are much rarer. As human rights are claims to respect or protect certain positions, they cannot be violated by events of nature (a flood cannot ‘violate’, in a legal sense, the right to life), but rather by human omissions to protect individuals or groups from natural events or mitigate the latter’s causes and effects.

88 In 334 US 1, 1948.

man court, which had ordered an individual not to publicly incite the boycott of a movie by an allegedly politically discredited director.⁸⁹

This principle of state responsibility has been strongly endorsed by the European Court of Human Rights, which states firmly that the state not being the operator or owner of emission facilities is irrelevant in environmental cases.⁹⁰ This view applies to GHG emitters too. Any wrongful state action – by administrations or courts – in favour of an emitter, such as giving out wrongful licences for industrial plants⁹¹ which emit GHGs, can be seen as an active encroachment on the established human rights of others, regardless of the causality in each specific case.

In the course of time, however, the protection offered by second-generation human rights was also widely regarded as inadequate. There emerged a further need, namely that of protecting specific group interests, which led to a third generation of human rights. The third generation consists of the rights of groups, not individuals. They reflect collective claims such as the one to development, or to a healthy and protected environment. This third type of human rights presents the difficulty of identifying the party against which the claim is directed, as well as with identifying the content of the claim.⁹²

Looking at this structure of the three generations of human rights, we can see that, in the evolution of human rights, all such rights are essentially claims to protect the freedom of certain spheres of life. Yet, structurally, human rights are not absolute, like property rights are; instead they are claims to abstain, to respect, and – in their second generation – to protect delineated spheres.

Using this understanding as a point of departure, we can distinguish four types of human rights claims:

- Restraining claims by individuals against states to refrain from encroachments
- Such restraining claims by groups

89 BverfGE 7, 198, 203.

90 Cases before the EU Courts include *Öneryildiz v Turkey*, European Court of Human Rights (2004:657); *Fadayeva v Russia* (2005), www.elaw.org/node/2032; *Taskin v Turkey*, 42 *European Human Rights Reports* 50 (2006); see also Birnie et al. (2009:284).

91 Di Fabio (2009:37–48).

92 Ruppel (2009:101–119).

- Claims by individuals against states to take specific action, and
- Such claims by groups.

Therefore, a human right cannot be invoked as such by the injured party against simply any encroacher – even though the legal system has to be structured so as to ensure a claimant can enjoy her/his sphere of freedom against encroachments committed, no matter by whom – as it is the responsibility of a state to prevent encroachments on human rights.⁹³ As a rule, this prevention is done in national legislation.

H. Human Rights Law – The Substantive Content

After having dealt with the structure of human rights in the legal sphere, we shall now look at the substantive content of human rights in international law and in national legislation.

In international law, the following UN instruments contain human rights:

- **General Declaration of Human Rights:** Article 17 covers the right to property. This includes an institutional, albeit programmatic, guarantee of protection from collectivism and nationalisation as well as a guarantee of the protection of specific existing property rights
- **ICCPR:**⁹⁴ Article 6 deals with the right to life, which is also specifically recognised for children in Article 6 of the Convention on the Rights of the Child;⁹⁵ Article 23 covers the protection of the family, which can be seen as protecting breadwinners from forced migration; Article 27 recognises the right of indigenous people to live according to their cultural traditions,⁹⁶ which includes the right to preserve the substances such as ecosystems (forests, water basins and the like) which enable such lifestyles. The preservation offered under Article 27 is also induced by indigenous customary law, which includes ancient wisdom in dealing with ecosystems, and⁹⁷

93 *The Social and Economic Rights Action Center & Others v Nigeria (Ogoniland case)*, African Commission on Human and Peoples' Rights, Comments No. 547/1993.

94 UN Treaty Series 171, 999.

95 UN Treaty Series, International Legal Materials, 20 (1989:1448).

96 See the decision in *Ilmari Lansman & Others v Finland*, CCPR/C/52/D/511/1992 (1994), UN Human Rights Committee.

97 Hinz (2012:1–28); Ruppel (2011:308–316); see also the contributions in Hinz & Ruppel (2008).

- **ICESCR:** Article 1.1 covers the prohibition of deprivation of individuals' means of existence; Article 6 covers the right to economic activities; and Article 11 deals with the right to food and, specifically, recognises the right to shelter. As the Committee on Economic, Social and Cultural Rights concretised in General Comment No. 12,⁹⁸ Article 11 does not only comprise a right to adequate food, i.e. a right not to be undernourished, but also to be able to procure food in dignity, meaning that one has the right not to be subject to inhumane treatment in the legitimate quest for food in order not to die from starvation. In Article 12, the right to health is guaranteed. Article 12(2) specifically obliges signatory states to protect children (which corresponds with Article 24 of the Convention on the Rights of the Child) and births, to improve hygienic standards, to prevent and combat diseases, and to provide medical services.

A right to water can be subsumed under Article 12 of the ICESCR as a special case. This case is seen as so important that it is considered by the UN Committee on Economic, Social and Cultural Rights as a right in itself. The Committee states that water has to be “sufficient, safe, acceptable, physically accessible and affordable”.⁹⁹ It is noteworthy, however, that this concretisation has not yet been incorporated into the international Convention framework. Hopefully it will become part of international customary law over time, unless it is made part of a Convention.

A right to development was recognised by the UN General Assembly in Article 1(1) of the 1986 Resolution on the Declaration of the Right to Development,¹⁰⁰ and enshrined in Article 3 of the Rio Declaration. This is a third-generation human right. However, it has only been incorporated into the international Convention framework on the programmatic level of the Rio Declaration; hence, its legally binding effects are less clear.

98 UN Committee on Economic, Social and Cultural Rights, *General Comments*, 5 December 1999, HRI/GEN/1/Rev. 9 (Vol. I), available at http://www2.ohchr.org/english/bodies/icm-mc/.../HRI.GEN.1.Rev 9_sp.doc, last accessed 8 February 2013.

99 General Comment No. 15.

100 A/Res/41/128.

A number of regional instruments also incorporate human rights. These include the following:

- **Convention for the Protection of Human Rights and Fundamental Freedoms (European Convention on Human Rights):**¹⁰¹ Article 2(1)1 covers the right to life. This Convention was concluded in 1950 before climate change or even the environment per se became a concern. However, the EU Court of Human Rights held that it had to be interpreted according to today's standards,¹⁰² which includes today's threats such as climate change.¹⁰³
- **Additional Protocol to the European Convention on Human Rights:**¹⁰⁴ Article 1 deals with the protection of property (which corresponds with Article 17 of the Charter of the Fundamental Rights of the European Union).¹⁰⁵
- **Charter of the Fundamental Rights of the European Union:** Article 16 deals with freedom of enterprise. Article 37 states that a "... high level of environmental protection ... must be ... ensured in accordance with the principle of sustainable development".¹⁰⁶
- **European Social Charter:**¹⁰⁷ Article 12 deals with the right to social security. This includes effective protection from the consequences of (climate) disasters.
- **American Convention on Human Rights:**¹⁰⁸ Article 21 covers the protection of property.
- **African Charter on Human and Peoples' Rights:**¹⁰⁹ Article 14 specifies the right to property, while Article 16 deals with the right to health. This Charter also contains explicitly certain interesting group rights, namely Article 22, which covers the right of peoples to development, and

101 UN Treaty Series, 213, 221.

102 *Soering v United Kingdom*, 11 *European Human Rights Reports* 439 (1989) 275; *Öcalan v Turkey*, 37 *European Human Rights Reports* 10 (2003) 275.

103 This view is also specifically asserted in the jurisprudence of the Indian Supreme Court; see, for example, *Bandhua Mukti v Union of India* (1984) 3 SCC (Supreme Court Cases India) 161; *MC Mehta v Union of India* (1997) 2 SCC 87; *Jagganath v Union of India* (1997) 2 SCC 87.

104 European Treaty Series No. 9.

105 Official Journal of the European Communities 2000/C 364/01.

106 European Treaty Series No. 9.

107 UN Treaty Series 529, 89.

108 OAS Official Records OEA/Ser.K/XVI/I.I, Document 65, Rev. 1, Corr. 2.

109 UN Treaty Series, International Legal Materials, 21 (1982:52).

Article 24, the right of peoples to a satisfactory environment and one that is propitious to development.¹¹⁰ Unfortunately, this Charter ranks as the least observed by its members.

- **Arab Charter on Human Rights:**¹¹¹ Article 37 specifies the right to development, while Article 38 recognises the right to a healthy environment. Also enshrined is the right to property via Article 31.

Departing from the *Trail Smelter* case,¹¹² a doctrine – albeit contested by many authors¹¹³ – has been established that states are under an obligation not to allow within their jurisdiction any activities that could harm other states,¹¹⁴ including individuals in other states.

The doctrine was established to deal with compensation cases, but in an *argumentum a maiore ad minus*, one can safely deduce that, where an obligation to compensate exists, there is also an obligation to safeguard from the very evils that call for such compensation. In the said case, a Canadian smelter enterprise exhausted toxic fumes that caused damage in the neighbouring US state of Washington. The case went to international arbitration, and the arbitrators held that states were under an obligation to prevent their territories from being used to cause harm in other countries.

This has since become established doctrine in international law as the principle of good neighbourliness. The European Court of Human Rights affirmed states' obligation not to allow the causation of negative effects outside their territory, and held them responsible for such effects.¹¹⁵ In the *Corfu Channel* case,¹¹⁶ a British ship hit an Albanian mine in the Channel of Corfu and sank. The International Court of Justice held that Albania was liable because it had an obligation to prevent activities in its waters causing

110 See the decision of the African Commission on Human and Peoples' Rights in *The Social and Economic Rights Center & Others v Nigeria (Ogoniland case)*.

111 League of Arab States, Arab Charter on Human Rights, 15 September 1994, available at <http://www.unhcr.org/refworld/docid/3ae6b38540.html>, last accessed 8 February 2013.

112 Reports of International Arbitral Awards, *American Journal of International Law*, 3 (1939:182).

113 Birnie et al. (2009:217).

114 See *Cyprus v Turkey* (2001 European Court of Human Rights No. 25781/94). However, legislation on individual international liability is only in its first stages of development; see Declaration of the United Nations Conference on the Human Environment, UN Doc. A/Conf/48/14/Rev. 1, Principle 22.

115 *Cyprus v Turkey*.

116 International Court of Justice Reports (1949:18–22).

harm to others. In this case, Albania should have warned the victim – provided it had a valid reason to have the mine in place. In both cases, human rights were violated, namely the right to health and the right to property.

Article 2 of the Rio Declaration¹¹⁷ obliges states not to allow activities that cause harm to the environment in other states. This can be seen as an enshrinement of the principle of good neighbourliness in a legal instrument for specific circumstances, even though climate change cannot safely be subsumed under the notion *environment* and the right to a healthy environment is not (yet) generally recognised as part of customary international law.¹¹⁸ But the underlying principle – not to cause transboundary harm – can and should be applied analogously to climate. I am not referring here to the debate on the legal status of the atmosphere,¹¹⁹ since the potential harm is global and is effected by gas emissions – no matter how one qualifies the intermediary agents (in this case, the atmosphere).

Furthermore, the principle of “reasonable use”¹²⁰ has become an underlying interpretative principle in environmental law, and can also be adduced to climate change law.¹²¹

These general underlying principles, emphasised by the standards adopted in the 1987 Montreal Protocol and the 1997 Kyoto Protocol as well, can be seen as a strong current in international law. However, international customary law is still not a generally recognised source of human rights.

We can conclude by observing that all moral human rights obligations are enshrined unequivocally in international law – with the exception of the right to a healthy environment,¹²² which has undisputed legal status only for Africa and the Arab states. But this latter right is precisely a human right that specifically addresses climate change; for this reason it is desirable, as stated above, to incorporate it unequivocally into international law. A healthy environment is one of the most basic conditions for life.

117 Report of the UN Conference on Environment and Development (UN Doc.A/Conf. 151/26/Rev. 1).

118 Birnie et al. (2009:336). See also Churchill & Freestone (1991:340).

119 Birnie et al. (2009:339).

120 (ibid.:201). See also *United Kingdom & Germany v Iceland*, International Court of Justice Reports (1974:3, 174).

121 Guruswamy et al. (1999).

122 This right was specifically seen by the European Court of Human Rights as enshrined in the EU Convention; see *Kyriatos v Greece*, European Court of Human Rights (2003:242).

On a national level, we can see that many countries have human rights or basic rights embedded in their constitutions.¹²³ The following may serve as examples:

- Article 95(1) of the Namibian Constitution deals with ecosystems and sustainable resources, and protecting the environment as a whole
- Section 24 of the Constitution of the Republic of South Africa protects a “healthy environment and sustainable development”
- Article 69(1)a of the Kenyan Constitution obliges the state to ensure conservation of the environment, and Article 69(1)f even calls for systems of environmental impact assessment
- In a programmatic manner, Article 20a of the German Basic Law protects the natural foundations of life
- Article 48A of the Indian Constitution declares that “the state shall endeavour to protect and improve the environment”. This provision allows Indian courts to interpret human rights in an environmental light¹²⁴
- Article 225 of the Brazilian Constitution states that “everyone has the right to ... a healthy environment”
- Article 56 of the Turkish Constitution is almost identical to the aforementioned provision in the Brazilian Constitution, and
- Article 42 of the Russian Constitution grants every person the right to a favourable environment.

I. Individual Protection of Human Rights – Standing in Courts

To approach the problem of how individuals and groups can be protected against human rights violations, we begin by asking which legal actions they can take in the case of such violations. For recognised human rights incorporated into international instruments, this can only be determined by looking at the law that embodies specific human rights.

Parties to international agreements can only be states (or international organisations chartered by states). Human rights originate as contractual

123 Listed in Birnie et al. (2009:275, Footnote 35).

124 This view is also specifically asserted in the jurisprudence of the Indian Supreme Court; see, for example, *Bandhua Mukti v Union of India* (1984) 3 SCC (Supreme Court Cases India) 161; *MC Mehta v Union of India* (1997) 2 SCC 87; *Jagganath v Union of India* (1997) 2 SCC 87. See also *Charan Lal Sahu v Union of India* (1986) 2 SCC 176; *MC Mehta v Kamal Nath* (2000) 6 SCC 213.

obligations by one state towards another, considering that human rights are incorporated into international agreements. Obligations under agreements are obligations of the parties to the agreement; and claims under an agreement are claims of a party to the agreement against another party to such agreement. The problem this structure of international law presents is that only “injured states”¹²⁵ have standing before international courts. In exceptional cases,¹²⁶ international law allows the standing of states to bring claims on behalf of the international community. This is when goods that are considered global commons are involved. This principle has so far not been discussed with specific regard to climate change, but the prevailing opinion now seems to be¹²⁷ that Conventions protecting any recognised global goals, especially those seen as global commons, give any state party a standing.

In order to give individuals or groups enforceable human rights claims and standing against states, the latter have to transform international Conventions into domestic law. A state’s failure to protect or abstain from encroachments then becomes a breach of domestic law. Such domestication gives individuals or groups a direct claim against states and standing before their domestic courts.

However, as we have seen, human rights are not only part of international law: most countries have constitutions containing a substantive body of human rights or basic laws. Of course, these are directly binding on the individual states and claims can be brought directly against those states. Consequently, a violation of domestic law can be brought before a domestic court – notwithstanding the fact that a breach of domestic law in such cases also constitutes a breach of international treaties.¹²⁸ In international courts, individuals or certain groups have standing to sue a state only if they are specifically accorded a standing in international Conventions. A state, however, cannot be sued in a domestic court for violating an obligation under international law which has not been domesticated, unless norms in international

125 Article 42, International Law Commission, *Draft Articles on Responsibility of States for Internationally Wrongful Acts*, November 2001, Supplement No. 10 (A/56/10), chp.IV.E.1, available at <http://www.unhcr.org/refworld/docid/3ddb8f804.html>, last accessed 8 February 2013.

126 *Barcelona Traction* case, International Court of Justice Reports (1970:3, 15).

127 Article 4, International Law Commission, *Draft Articles on Responsibility of States for Internationally Wrongful Acts*, November 2001, Supplement No. 10 (A/56/10), chp.IV.E.1, available at <http://www.unhcr.org/refworld/docid/3ddb8f804.html>, last accessed 8 February 2013.

128 *Taskin v Turkey*, 42 *European Human Rights Reports* 50 (2006) 117.

instruments specifically provide for suing the state that is party to the Convention in its own courts for violations of specific norms of the relevant international instruments, and provided that the state concerned agreed in the relevant Convention to such a procedure. In the case of such self-executing norms, a claim can only be brought against states to comply with the relevant international instruments.

A third group of norms in international instruments goes even further. To enhance the protection of individuals and groups, certain treaties establish international courts of law directly accessible to individual or groups of citizens of countries that are parties to a specific Convention. The most important is the standing of individuals before the European Court of Human Rights and the UN Human Rights Committee. In such cases, of course, domestication of the international law in question is not necessary. Actions can be brought against states. Moreover, since 2009, the Optional Protocol to the ICCPR¹²⁹ and the Optional Protocol to the ICESCR¹³⁰ are open for state signature. These two Optional Protocols provide for aggrieved parties to petition the UN Human Rights Committee about human rights violations, provided all local remedies have been exhausted.

The jurisdiction of the aforementioned institutions depends on the extent of the treaties establishing them. They effectively circumvent national court systems as well as national legislation and, thus, are in practice often a comparatively very effective remedy for complainants in countries with defective court systems, such as those in many African countries. The extent of the jurisdiction of these institutions also refers to the extent of standing before them. As a rule, only citizens of signatory states have standing there¹³¹ and, in most cases, domestic remedies first have to be exhausted.

Lastly, it has to be mentioned that the Charter of Fundamental Rights of the European Union also includes the right of states to complain about human rights treaty violations by other states. However, the practical importance of this provision is very limited.

The issue of standing can be summed up as follows: departing from the principle that only states have standing to bring international claims,¹³² we

129 UN Treaty Series 999, 302.

130 A/Res/63/117.

131 In many cases, this applies to domestic fora too.

132 Birnie et al. (2009:232). See also International Law Commission, 2001, Articles on State Responsibility, Article 42.

can distinguish three points of conjecture regarding the standing of individuals and groups:

- **Do domestic groups have standing in domestic fora?** This question is answered by national law for domestic law, and in each individual international Convention regarding self-executing norms.
- **Do foreign individuals or groups have standing in domestic courts?** This question is also determined by national legislation. However, based on the principle of non-discrimination,¹³³ foreigners have to be given equal access to national remedies.¹³⁴ However, the principle might be restricted under the provisions of domestic private international law, especially those regarding ‘forum-shopping’ and in countries with a tradition of common law, where the *forum non conveniens* rule gives courts discretion in admitting actions, and
- **Do individuals or groups have standing in international fora?** The specific norms in international treaties dealing with an individual or group’s standing in international tribunals are explicit about this in each instrument concerned.

J. Individual Protection of Human Rights – Compliance and Enforcement of Judgments

The specific impact of any given emission on climate change is, in most cases, not measurable in any other state. This makes it largely impossible to sue any specific wrongdoer or any state on the grounds of human rights violations. This holds true for human rights violations under international Conventions as well as under customary law. Under customary international law, individual compensation claims as well as claims for injunctions can only be brought if a specific emitter can be identified¹³⁵ and a breach of customary law could possibly have occurred.

In many cases, the factual problem of identifying emitters leaves such claims without any chances of success. Thus, what needs to be emphasised is the conclusion of collective protection mechanisms, ways and means to

133 Organisation for Economic Co-operation and Development (OECD) Council Recommendations C74 (224), C(76) 75. See also Francioni (2001).

134 Article 26, ICCPR.

135 Trail Smelter Arbitration (*US v Canada*, 3 (1941) UNRIAA 1938–81; *Corfu Channel* case (*United Kingdom v Albania*), ICJ 1949, 4.

ensure state compliance with them, and compliance with court rulings against states based on them.

How can national compliance with (international) court rulings on human rights be ensured once a claim has been adjudicated? There is currently no international mechanism in place to ensure states comply with the rulings by international courts or tribunals.

The existing structure of human rights gives individuals and groups only the following options for enforcing court rulings in their favour:

- When a state has domesticated a treaty and it has become domestic law, domestic enforcement laws apply with regard to rulings of a domestic court
- The self-executing norms of a treaty give the individual or group standing to sue the state party to the treaty before a domestic court; domestic enforcement laws apply in such cases too, and
- Certain norms in treaties give individuals or groups standing before an international tribunal or court. Any enforcement of such courts' rulings has to be domestic in these cases, too. However, some states seem reluctant to execute international judgments against themselves,¹³⁶ thus violating international treaties.

In this context, it should be mentioned that supervisory bodies established by treaties, such as the states parties to the Montreal Protocol or the Compliance Committee for the Kyoto Protocol, represent compliance mechanisms which produce lower-level effects. Those effects are related to Conventions themselves, not court rulings on them. The means at the disposal of such bodies to ensure state party compliance do not go beyond persuasion and diplomatic pressure. Under the Kyoto Protocol Compliance Mechanism, state treaty rights can be suspended. Another albeit less effective means of attaining compliance is by way of contractual reporting obligations, as many states in Asia, Latin America and Africa do not comply fully with their reporting duties – mostly due to a lack of resources.

136 This need not be related to climate change. For example, the Zimbabwean Government refused to execute a judgment by the Southern African Development Community Tribunal ordering the restitution of private property expropriated by the state or compensation for it. Rulings in national courts backed the government's view.

K. Reconciling Clashing Human Rights and the Way Forward

As discussed earlier, the victim's perspective is only one side of the human rights coin when it comes to climate change. The flipside is that, by reducing the sources for human-activity-induced causes of climate change, i.e. GHG emissions and deforestation, and by reducing the degree of human rights violations of victims of temperature rises, the human rights of GHG emitters may be encroached on. The latter rights are freedom of commerce and action and, to a certain extent, property rights, as an established business represents a property whose production capacity would be throttled – not to speak of the devaluation of commercial real estate.

In addition, group rights to economic development might also be involved since economic output would suffer from a reduction in commercial activities that produce GHGs. It has already been stated that freedom of commerce and property rights and the right to development are law-based human rights backed by corresponding underlying moral values.

To make things more complicated, putting a halt to deforestation and the destruction of other carbon sinks that help protect the rights of victims of temperature rises may, on the other hand, also encroach on the possible rights of (legal) forest loggers, timber merchants, and other entrepreneurial sink destroyers. These rights are the ones mentioned above, namely the right to freedom of commerce, the right to property, and the group right to development.

It becomes clear that the extent of a human rights protection regime within the climate change regime needs to be flexible and should mitigate any opposition between human rights, which confront each other in a zero-sum game.

When we now consider remedying the human rights of climate change victims, namely the individual rights to life, health, property and commercial activity, and the group rights to development, and add the right to a healthy environment, we have to take into consideration that the protection of climate change victims' human rights will in many cases consist in a restriction of emitters' gainful commercial activities. In some cases, of course, this restriction could lead to a devaluation of individuals' property and a slowdown of national economies.

As the GHGs described above are almost exclusively emitted through industrial activities or the use of industrially manufactured products, and as we have to note that a major part of harmful GHGs are produced by activities protected through human rights, we need to consider the problem of violating

human rights by protecting human rights very seriously. As a forced reduction of the production of GHGs represents a violation of human rights, it has to be weighed carefully against the human rights of the GHG producers. Moreover, we have to consider that a forced reduction of GHGs can violate the human rights of groups – particularly the human right to development, which is the right of a group that consists not only of GHG producers but also of the victims of climate change (some of whom might find themselves on both sides of the struggle) and of non-affected third parties – as development involves entire economies.

On the other hand, it appears difficult to find a general and abstract formula with respect to how much prejudice to life, health, property and commercial gain can be tolerated when it comes to maintaining and enhancing individual gains and economic growth. If it were only a matter of weighing gain against gain, this problem might be solved quantitatively, in the sense that whoever has the higher turnover has the right of way. However, in practically all cases, there are many more aspects to consider. Only one of them is the time frame of the consequences in question. How long should a polluter be allowed to realise gains and contribute to developing the economy? How long does it take for natural resources to be replenished? Can such time frames be judged adequately at all?

What do higher gains mean in comparison with the loss of home and livelihood and the threat of death by starvation, or the migration of uprooted people which cannot be dealt with and which weaken economies and political systems and cause humanitarian disasters – not to speak of crime and civil and inter-state wars?

A particularly problematic aspect of this balancing of protected positions is that it cannot be carried out with regard to individuals or countries. One cannot give Victim A preference over Polluter B on a general basis. We are dealing with mass effects; therefore, we have to consider the problem on a global scale. Moreover, we can only look for global solutions as it is not possible to establish the extent to which each polluter or each country contributes to specific human rights violations and damages. Thus, actions against polluters or states aiming at compensation are in many cases bound to fail because it is difficult to prove violations and damages. Thus, it is of paramount importance to make states responsible for not permitting emissions in excess of certain counts, while being aware that each state has to

limit itself to a certain agreed amount of emissions in order to achieve an acceptable global count.¹³⁷

The balancing problem then presents itself on two levels: the first occurs when the overall country count is established; the second appears on the national level, when one has to determine who is allowed to contribute to a combined national emission count, and to what extent they are permitted to do so.

One way to deal with the balancing problem is by way of participatory rights. These can be seen as procedural, not substantive, human rights. Participatory rights ensure that groups or even the individuals concerned can participate in the lawmaking process by voicing their interests and opinions, and in this way determine the outcome of legislation dealing with human rights. Thus, interests can be openly discussed; moreover, the balancing of interests is an open issue. Hence, such interests can be more thoroughly scrutinised so that the outcome of legislation and the extent of human rights protection are less controversial.

Whether a participatory right can be seen as annexed to the human right to a decent environment or whether it should be regarded separately, as a non-human right of its own,¹³⁸ can be left to academic discussion. What is important is that such participatory rights help greatly in balancing conflicting human rights in a pacifying way. For example, the 1998 Aarhus Convention¹³⁹ mentioned earlier gives the “concerned public”¹⁴⁰ participatory rights in such decisions. Interest groups can, therefore, exercise great influence in negotiating compromises in respect of each individual country.

However, as with all legislative decision-making processes, the last word lies with the decision-makers. How can they, in the final analysis, balance these rights with each other? In order to answer this, we have to look at the need to protect the interests behind these rights, and we have to do this within the limits of existing legal provisions as well as moral parameters.

137 There can be no doubt that this, in itself, limits national sovereignty. But as gases and climate know no national boundaries, the principle of national sovereignty as the basic principle of international law (and *realpolitik*, for that matter) clearly has to be modified. See also Werner Scholtz with the contribution on *Greening Permanent Sovereignty through the Common Concern in the Climate Change Regime: Awake Custodial Sovereignty!* (in Volume II of this publication).

138 Birnie et al. (2009:290).

139 UN Treaty Series, International Legal Materials, 37 (1998:999).

140 (*ibid.*:Article 2(5)).

Generally speaking, the interest of a producer to increase her/his gains and, correspondingly, of an economy to grow, reflects less basic needs than the interest of individuals not to die or be entirely dispossessed and deprived of a livelihood, and of groups to have their environment as their theatre of life changed in a way that makes living profoundly difficult and unpleasant – if not impossible.

Therefore, emitters' interests are generally less worthy of protection.¹⁴¹ Of course, a reasonably assessed critical mass is also always crucial. For example, if the consequences of emissions-induced climate change are marginal, e.g. 1 cm of sea level rise set against massive economic advantages (capital gains and the creation of jobs), the economic advantages will prevail and get priority.¹⁴²

However, assessing impacts is just as difficult as assessing critical masses, as this involves a value judgment. The guidelines for such judgements are set out in GATT Article XX b, which was mentioned above with reference to the reduction of carbon sinks by the timber trade; but these guides are very vague. The pivotal criterion in Article XX b is the term *necessary*. Assessing necessities in this context of conflicting rights relies heavily on values and interests not expressed in GATT. To make things worse, there are no decisions available as guidelines. As GATT's purpose is to promote free trade, the instrument cannot be construed as regulating commerce with a view to preventing climate change; thus, its view of climate change will have to be construed cautiously and restrictively.

Yet the international climate regime – as expressed by and in the cited climate Conventions at large – does establish very general principles for balancing the interests and values at stake,¹⁴³ and which should be used for further regulations and decisions in individual cases.

One such principle seems to be to stop any further increase in emissions. This purpose also reflects on the interpretation of human rights: such rights have to be protected against infringements beyond the ones caused by already existing emissions.

I do not see that the approach to limit increases in emissions clashes with fundamental human rights concepts. All human rights are subject to limita-

141 *Pine Valley Developments Ltd v Ireland* (1991), European Court of Human Rights, *International Environmental Law Review* (2001:287). See also *Katsoulis & Others v Greece* (2004), European Court of Human Rights, at 287.

142 *Hatton v United Kingdom* (2003), European Court of Human Rights, at 126.

143 See Chapter 6 therein for guidelines for national policies.

tions by other people's rights as long as their core is not tampered with. For instance, if the future should reveal that a sufficiently large number of people living on low-lying islands in the Pacific are threatened with submersion caused by GHG emissions, a worldwide reaction might be required to protect their fundamental human rights.

The UN Committee on Economic, Social and Cultural Rights notes that states have a "core minimum obligation" to ensure a minimum standard of living.¹⁴⁴ Of course, this has an effect on budgetary allocations, as states have to operate with scarce resources.

If one considers that the continuation of existing levels of emissions poses serious threats to basic human rights, the way forward has to be to create further and more compelling and precise instruments to reduce the present level of emissions. Of course, this might cause business and property losses. However, firstly, these are losses incurred by groups of people with assets and opportunities, and economies will suffer to a moderate extent; these carry less weight than the loss of life, health, and shelter and – on a much more basic level – assets and opportunities as well. Secondly, adjusting emitters' activities to the required standards is much easier – and more feasible – than, say, farming on farmland that has suffered desertification. However, there should always be a mechanism in place to deal with the conflict between the two sets of interests.

Or, in more general words, the interests of humankind should be given general preference to individual interests.¹⁴⁵ This needs a policy shift to more awareness about human rights issues and more responsibility¹⁴⁶ from a global perspective, which should underpin any further legal instruments.

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144 UN Committee on Economic, Social and Cultural Rights, General Comment No. 14 (2000).

145 Msafiri (2007:60–63).

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Abstract

This article focuses on the links between climate change and economic, social and cultural rights. The negative effects of climate change on the enjoyment of economic, social and cultural rights and some response measures (mitigation or adaptation policies) to address climate change are discussed. International human rights standards are outlined, especially the International Covenant on Economic, Social and Cultural Rights, which provide important safeguards for individuals and groups whose rights are affected by climate change, particularly vulnerable individuals and groups. The article furthermore addresses the role of the UN Committee on Economic, Social and Cultural Rights in the field of climate change and the legal obligations, national and international, of states and other actors.

A. Introduction

First, what is climate change? According to the United Nations Framework Convention on Climate Change (UNFCCC) –¹

climate change means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

This definition clarifies that the legal climate change framework addresses changes in climate caused by humans. The most relevant human activity affecting the climate is the emission of greenhouse gases into the atmosphere. Consequently, the ultimate objective of the climate change legal framework is to achieve “stabilization of greenhouse gas concentrations in

1 Article 1 UNFCCC.

the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”²

B. Links between Climate Change and Economic, Social and Cultural Rights

The interdependence and interrelatedness of human rights and environmental protection is widely recognised these days. In 1972, the Declaration of the United Nations Conference on the Human Environment (the Stockholm Declaration) initially combined human rights and the environment in a particular provision. Principle 1 of the Stockholm Declaration states that there is “a fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being.”³

The Covenant on Economic, Social and Cultural Rights (hereinafter *the Covenant*), however, does not refer to a specific right to a safe and healthy environment but recognises “the intrinsic link between the environment and the realization of a range of human rights, such as the right to life, to health, to food, to water, and to housing”.⁴

The UN Committee on Economic, Social and Cultural Rights Committee (hereinafter *the Committee*) has clarified that the right to adequate food requires the adoption of “appropriate economic, environmental and social policies”⁵ and that the right to health

embraces a wide range of socio-economic factors that promote conditions in which people can lead a healthy life, and extends to the underlying determinants of health, such as food and nutrition, housing, access to safe and potable water and adequate sanitation, safe and healthy working conditions, and a healthy environment.⁶

The Committee has also defined the right to water as the right of everyone to sufficient, safe, acceptable, physically accessible and affordable water for

2 Article 2 UNFCCC.

3 1972 Stockholm Declaration on the Human Environment, text available at <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=97&articleid=1503>, last accessed 10 December 2012.

4 UNHRC (2009:para. 18).

5 CESCR (1999:para. 4).

6 CESCR (2000: para. 4).

personal and domestic uses, such as drinking, food preparation and personal and household hygiene.⁷

It is to be noted that climate change, just like other causes of water stress, such as population growth, environmental degradation, poor water management, poverty and inequality, will exacerbate existing stresses on water resources and compound the problem of access to safe drinking water which is presently denied to an estimated 1.1 billion people globally and is a major cause of morbidity and disease.⁸

The right to adequate housing has been defined by the Committee as “the right to live somewhere in security, peace and dignity” and the core elements of this right include security of tenure, protection against forced evictions, availability of services, materials, facilities and infrastructure, affordability, habitability, accessibility, location and cultural adequacy.⁹

It is significant that until now only the African Commission on Human and Peoples’ Rights (hereinafter *the African Commission*) has protected “a right to a satisfactory environment” as specified in the African Charter of Human and Peoples’ Rights.¹⁰

In the Ogoni case, the applicants had claimed that certain oil companies had, through their extraction operations, caused environmental degradation and health problems to the people of Ogoniland in Nigeria in that toxic wastes had been disposed of and numerous avoidable oil spills had occurred near villages so that the region’s soil and water had been contaminated and poisoned.¹¹

According to the African Commission, the right to a general satisfactory environment imposes clear obligations upon a government requiring the state “to take reasonable and other measures to prevent pollution and ecological degradation, to promote conservation, and to secure an ecologically sustainable development and use of natural resources.”¹²

7 CESCR (2002: para. 2).

8 UNHRC (2009:para. 29).

9 CESCR (1991:paras 7 and 8).

10 Article 24 of the African Charter of Human and Peoples’ Rights provides for “the right to a general satisfactory environment”.

11 Orellana et al. (2010:13).

12 *The Social and Economic Rights Action Center and the Center for Economic and Social Rights v Nigeria*, African Commission on Human and Peoples’ Rights, Communication No. 155/96, 2001, para. 52, available at <http://www1.umn.edu/humanrt/s/africa/comcases/155-96.html>, last accessed 10 December 2012.

C. Negative Effects of Climate Change on the Enjoyment of Economic, Social and Cultural Rights

Climate-change-related impacts can affect human rights differently. While extreme weather events such as heat waves, floods, storms and droughts, initially, are of a direct nature as they cause immediate threats to the right to life and other human rights, they will also often have an indirect and gradual effect on human rights, such as increasing stress on health systems.¹³

The rights to food and water, for example, will also be affected as climate change reduces the supply and security of both while raising their costs. Furthermore, the right to adequate housing is seriously threatened. Rises in sea level, the flooding of coastal areas, as well as the increase of hazardous areas affect habitability and cause important internal relocation and displacement which will lead to a substantial increase in shelter needs but also requires people to be protected from forced evictions, without appropriate forms of legal or other assistance, including adequate consultation with affected persons.¹⁴

Climate change also impacts negatively on the right to culture of indigenous peoples since their climate-sensitive ways of life are affected by global warming “such as the loss of hunting opportunities for the Inuit or the loss of traditional territories for the pastoral, forest or coastal communities”.¹⁵

Climate change, as indicated already, poses a threat to the fulfilment of human rights but finding solutions to climate change may also threaten human rights.

Response strategies to address climate change are of two types:

- Mitigation aimed at minimising the extent of global warming by reducing emission levels and stabilising greenhouse gas concentrations in the atmosphere, such as building a dam for hydropower, reforestation or other land-use changes; and
- Adaptation aimed at strengthening the capacity of societies and ecosystems to cope with, and adapt to, climate change risks and impacts, such as switching to biofuels and shifting agricultural land use from food to fuel.¹⁶

13 UNHRC (2009:para. 18).

14 Orellana et al. (2010:5).

15 (ibid.).

16 UNHRC (2009:para. 12).

State-managed relocation or displacement of local communities from the lands they occupy for the purpose of building a dam, for example, may impact adversely on those communities and call for their effective participation in the decision-making process e.g. access to information, prior consultation, free and informed consent, compensation or suitable alternative accommodation and access to justice.¹⁷ Moreover, reforestation may involve interfering with the rights of indigenous peoples and forest dwellers and ensuring that land is not used for food production.¹⁸ Switching to biofuels and shifting agricultural land use from food to fuel are likely to increase food prices as has happened already and further worsen the plight of the hungry globally.

Since “climate change places an additional burden on the resources available to States, economic, social and cultural rights are likely to suffer”¹⁹, with state parties often citing climate-change related environmental degradations as causes for non-compliance with their legal obligations under the Covenant.

Those who bear the brunt of the adverse effects of climate change are undoubtedly those sections of the population which are already in a vulnerable position, namely women, children, older persons, persons with disabilities, indigenous peoples, internally displaced persons (IDPs), refugees and migrants.²⁰

For instance, it is estimated that 85% of people displaced by the devastating floods in Pakistan are women and children.²¹ According to UN figures, over 500,000 pregnant women have been affected by the floods which have

17 Orellana et al. (2010:6).

18 At the 16th Conference of the Parties (COP) to the UNFCCC in Cancun, Mexico, the parties also referred to indigenous communities in the context of issues relating to reducing emissions from deforestation and forest degradation in developing countries. As safeguards which should be promoted and supported, the parties, *inter alia*, acknowledged the respect for the knowledge and rights of indigenous peoples and members of local communities as well as their full and effective participation in relevant actions to reduce emissions from deforestation and forest degradation. See UNFCCC, Decision 1/CP.16 The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, 26, available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>, last accessed 10 December 2012.

19 UNHRC (2009:para. 75).

20 (*ibid.*:para. 42).

21 GHWA (2010:14).

dramatically worsened health conditions in a country that has already one of the highest mortality rates in the world.²²

Moreover, a 2007 study of weather-related disasters in 141 countries provided conclusive evidence that gender differences in deaths from natural disasters are directly connected to women's economic and social rights.²³ Indeed women and children are 14 times more likely to die than men in a disaster.²⁴

The periodic report of a state party to the Covenant, namely Australia, impressively illustrates the concern the Committee had expressed and the recommendation it had made in 2009 in relation to the negative effects of climate change:²⁵

The Committee is concerned at the negative impact of climate change on the right to an adequate standard of living, including on the right to food and the right to water, affecting in particular indigenous peoples, in spite of the State party's recognition of the challenges imposed by climate change.

The Committee recommends that the State party take all the necessary and adequate measures to ensure the enjoyment of the right to food and of the right to affordable drinking water and sanitation, in particular by indigenous peoples, using a human-rights based approach, in line with the Committee's general comments No. 15(2002) on the right to water, No. 14 (2000) on the right to the highest attainable standard of health and No. 12 (1999) on the right to food. It also recommends that the State party intensifies its efforts to address issues of climate change, including through carbon reduction schemes. The State party is encouraged to reduce its greenhouse gas emissions and to take all the necessary and adequate measures to mitigate the adverse consequences of climate change, impacting the right to food and the right to water for indigenous peoples, and put in place effective mechanisms to guarantee consultation of affected Aboriginal and Torres Strait-Islander peoples, so to enable them to exercise their rights to an informed decision as well as to harness the potential of their traditional knowledge and culture in land management and conservation.

D. A Human Rights Approach to Climate Change

Although climate change is an ecological, economic and a political challenge, it is necessary to bring the human rights perspective of climate change to the centre of the climate change discussion, thus underscoring the fact that

22 UNFPA (2011).

23 Neumayer & Plümper (2007:4f.).

24 UN-Women (2012).

25 CESCR (2009:para. 27).

climate-change-related effects are felt not only by states and economies but, more importantly, by individuals and groups whose life and dignity are at stake.²⁶ Moreover, such individuals and groups are affected differently so that policy responses need to reflect such differences and target those who are most affected.

The adoption of a “human rights approach in preventing and responding to the adverse effects of climate change serves to empower individuals and groups, who should be perceived as active agents of change and not as passive victims”.²⁷ This underlines the importance of ensuring that human rights standards and principles “inform and strengthen policy measures in the area of climate change”.²⁸

A rights-based approach to climate change integrates, in essence, the norms, standards and principles of international human rights treaties and declarations into climate change strategies.²⁹ According to the Committee on Economic, Social and Cultural Rights in its Statement on Poverty, these norms, standards and principles consist of “the entire range of civil, cultural, economic, political and social rights and the right to development,”³⁰ and inform and shape policies and institutions aimed at addressing climate change and empower those affected by climate change by granting them entitlements or rights.

It is to be noted that what the Committee has stated in connection with poverty applies equally to climate change, with such modifications and adaptations as are necessary in the circumstances. Consequently, freedom from the effects of climate change is a legal entitlement or right, rather than a commodity or service provided on a charitable basis, and combating climate change becomes more than charity or welfare but a legal obligation.³¹

These entitlements or rights give rise to legal obligations on states, as primary duty-holders, which have ratified such treaties or subscribed to those declarations, to take concrete measures to respect, protect and fulfil those entitlements and to ensure that all those operating within their jurisdiction, including individuals, communities, civil society organisations and the private sector, do the same. The Committee has stressed, in this regard, that

26 See *Kompass* (2010:2).

27 UNHRC (2009:para. 94).

28 (*ibid.*:para. 95).

29 UNHRC (2010).

30 UNHRC (2001: para. 10).

31 With regard to the issue of poverty, see CESCR (2001:para. 14).

“rights and obligations demand accountability” and that international human rights law requires that “mechanisms of accountability must be accessible, transparent and effective”.³² Accountability requires that all duty-bearers, including states and non-state actors, such as international organisations, national human rights institutions, civil society organisations and the private sector, “are held to account for their conduct in relation to international human rights law”.³³

For instance, in the context of climate change, the Committee examines, in monitoring the progress achieved by state parties, whether adequate laws, policies, institutions, administrative procedures and practices and mechanisms of redress, which conform to the provisions of the Covenant and prevent third parties from abusing Covenant rights, have been adopted at the national level.³⁴

Moreover, appropriate indicators, disaggregated to reflect the condition of specially disadvantaged and marginalised individuals or groups among them, which have been identified by state parties, in terms of which they have set targets or benchmarks and time frames, will also enable the Committee to monitor the progress achieved by the state parties in addressing climate change and to recommend any remedial measures required.

In this regard, the Optional Protocol to the Covenant on Economic, Social and Cultural Rights (hereinafter *the Optional Protocol*), adopted by the UN General Assembly in 2008, which came into force on 5 May 2013 after ten state parties³⁵ had ratified it, provides for individual and group complaints at the international level in relation to any alleged violation of the Covenant rights. The Optional Protocol will, inter alia, enhance the international accountability of state parties by obliging them to fully live up to their international obligations and provide effective mechanisms of redress at the national level while giving to the Committee an opportunity of re-affirming not only the universality, indivisibility, interdependence and interrelatedness of all human rights but also the justiciability of economic, social and cultural

32 (ibid.).

33 (ibid.).

34 For more detail, see Orellana et al. (2010:20–24).

35 Namely Argentina, Bolivia, Bosnia and Herzegovina, Ecuador, El Salvador, Mongolia, Portugal, Slovakia, Spain, and Uruguay, see http://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-3-a&chapter=4&lang=en, last accessed 28 May 2013.

rights and developing its own case-law in the area of all Covenant rights and climate change.

A human rights perspective to climate change is also grounded in the principles of equality and non-discrimination which are essential elements of international human rights law, including the Covenant.³⁶ States must irrespective of resource constraints, guarantee the principles of equality and non-discrimination in access to all economic, social and cultural rights.

Such principles call for abstentions from inequalities and discrimination which may take various forms, including explicit legal inequalities in status and entitlements, policies of indirect discrimination and deeply rooted exclusions and distinctions and also impose a duty on states to take positive steps to combat inequalities and discrimination by –

- reducing, for example, the structural disadvantages suffered by disadvantaged, marginalised or socially excluded individuals and groups e.g. women and girls, children, older persons, people with disabilities, indigenous peoples, IDPs, refugees and migrants; and
- giving appropriate preferential treatment in strategies to combat climate change to such individuals or groups that are unable, on grounds reasonably considered to be beyond their control, to realise, for example, the right to an adequate standard of living.

A human rights approach to climate change also requires that all those whose rights are affected by climate change or by measures taken to respond to climate change, including vulnerable individuals and groups, “participate in the relevant decision-making processes” i.e. the formulation, implementation and monitoring of policy measures to address climate change.³⁷ For example, adequate and meaningful consultation with affected people should precede decisions to relocate them away from hazardous zones.³⁸

If those right-holders are to participate effectively in those measures, they must, apart from being able to take part periodically in free and fair elections, have the right of association, the right of assembly, freedom of speech, the right to information and the right to enjoy at least basic levels of economic, social and cultural rights, such as access to basic medical care, essential

36 For the link between participation and poverty reduction, see UNHRC (2004:18).

37 (ibid.).

38 UNHRC (2009:para. 79).

drugs, basic shelter and housing and to compulsory primary education free of charge.³⁹

The interdependence and indivisibility of economic, social and cultural rights, on the one hand, and civil and political rights, on the other, as already mentioned, is thus recognised in a rights-based approach to climate change which, in essence, addresses climate change in such a way as to fulfil and further human rights and not to impair them.⁴⁰

E. Climate Change in the Work of the Committee

Reference has already been made to the Committee's General Comments 4, 12, 14 and 15, to its Statement on Poverty and to its concluding observations made in 2009 in respect of the periodic report of Australia.

Moreover, with regard to the displacement of people, as a result of climate change, the state parties to the Covenant must provide adequate safeguards and take appropriate measures, legislative or otherwise, to avoid forced evictions, the more so as "women, children, youth, older persons, indigenous peoples, ethnic and other minorities, and other vulnerable individuals and groups all suffer disproportionately from the practice of forced eviction."⁴¹

In its Statement on the World Food Crisis, adopted in May 2008, the Committee –⁴²

urges States parties to address the structural causes [of the food crisis] at the national and international levels, including by:... implementing strategies to combat global climate change that do not negatively affect the right to adequate food and freedom from hunger, but rather promote sustainable agriculture, as required by article 2 of the United Nations Framework Convention on Climate Change.

The Committee, in its General Comment No.14 on the right to the highest attainable standard of health, cited the Preamble and Article 3 of the United Nations Framework Convention on Climate Change as emerging interna-

39 See UNHRC (2004:19).

40 The indivisibility and interdependence has been stipulated more fundamentally in the United Nation's Vienna Declaration and Programme of Action, para. 5, text available at [http://www.unhchr.ch/huridocda/huridoca.nsf/\(symbol\)/a.conf.157.23.en](http://www.unhchr.ch/huridocda/huridoca.nsf/(symbol)/a.conf.157.23.en), last accessed 28 May 2012.

41 CESCR (1997:para. 10).

42 CESCR (2008a:para. 13).

tional law and practice in relation to protective measures taken in relation to indigenous peoples, namely that –⁴³

development-related activities that lead to the displacement of indigenous peoples against their will from their traditional territories and environment, denying them their sources of nutrition and breaking their symbiotic relationship with their lands, has a deleterious effect on their health.

In its General Comment No.15 on the right to water, the Committee spoke of certain obligations of state parties in relation to the right to water:⁴⁴

States parties should adopt comprehensive and integrated strategies and programmes to ensure that there is sufficient and safe water for present and future generations. Such strategies and programmes may include: (a) reducing depletion of water resources through unsustainable extraction, diversion and damming; (b) reducing and eliminating contamination of watersheds and water-related eco-systems by substances such as radiation, harmful chemicals and human excreta; (c) monitoring water reserves; (d) ensuring that proposed developments do not interfere with access to adequate water; (e) assessing the impacts of actions that may impinge upon water availability and natural-ecosystems watersheds, such as climate change, desertification and increased soil salinity, deforestation and loss of biodiversity.

Finally, in its Statement in the context of the Rio+20 Conference on the green economy in the context of sustainable development and poverty eradication, adopted in May 2012, the Committee, in essence, emphasised the need to integrate the green economy in the broader concept of sustainable development with its close linkages with economic, social and cultural rights. In paragraph 6 of the Statement, the Committee underlined, *inter alia*:⁴⁵

- (a) the importance of international cooperation for the promotion of economic, social and cultural rights and sustainable development (art. 2, paragraph 1). In this regard, the Committee stresses the importance of raising official development assistance (ODA) contributions to 0.7 per cent of gross national income and ensuring that ODA promotes sustainable development by adopting a human rights-based approach to development;
- (b) the role of women in environmental conservation and proper use and management of natural resources, as well as the disproportionately negative impact and burden on women when natural resources are depleted and the environment is damaged (arts. 3 and 11, among other provisions of the Covenant);
- (c) the obligation to ensure a healthy working environment (art.7 (b));

43 CESCR (2000:para. 27).

44 CESCR (2002:para. 28).

45 CESCR (2012:para. 6).

(d) the obligation of a State party to avoid adverse environmental effects on the right to food of its population (art. 11, paragraph 2(a)) and, in particular, the need to fully assess the impacts of newly developed green technologies in the area of energy and in relation to access to food and water. The Committee also emphasizes the adverse implications for the right to food of cases of land grabbing and overexploitation of fisheries, which not only have detrimental effects on environmental sustainability but also gravely affect the livelihood of present and future generations;

(e) the need to conserve the natural habitat and sustainable uses of natural resources as elements of the enjoyment of the right to health (art. 12) and, in particular, access to safe and potable water and the prevention of water degradation and pollution that affect the right to health. Furthermore, the sanitation situation and the collection and disposal of hazardous waste not only have implications for the environment but can also potentially cause epidemics and waterborne diseases and thus negatively affect the right to health;

(f) the linkages between biodiversity conservation and (i) potential advances in pharmacology and medicine which are crucial to promote the right to health (art. 12), and (ii) the cultural rights of indigenous peoples and local communities, including the protection of their traditional knowledge rights (art. 15);

(g) the importance of carefully balancing the requirements of the green economy with obligations under the Covenant to respect, protect and fulfil the rights of forest dwellers and indigenous peoples to their ancestral lands and traditional culture and, in particular, deforestation measures taken without the prior informed consent of forest dwellers and indigenous peoples that directly affect their rights. The protection of their rights is deeply linked to the protection of the environment and their natural habitat, without which such communities are threatened with disappearance;

(h) the importance of States parties to the Covenant ensuring that development efforts meet the rights of the beneficiaries of development. In this context, in 2011, on the occasion of the twenty-fifth anniversary of the Declaration on the Right to Development, the Committee adopted a statement on the importance and relevance of the right to development (E/C.12/2011/2);

(i) the importance that States parties to the Covenant live up to their responsibility to ensure that the corporate sector observe the Rio principles as they bear on all the rights under the Covenant, as stressed by the Committee in its 2011 statement on the obligations of States parties regarding the corporate sector and economic, social and cultural rights (E/C.12/2011/1).

F. Legal Obligations of States and other Actors

The legal obligations of state parties under the Covenant can provide effective protection to the vulnerable individuals or groups whose rights are particularly affected by climate change or by measures taken to respond to

climate change, namely women, children, older persons, persons with disabilities, indigenous peoples, IDPs, refugees and migrants.

These obligations of state parties include taking measures towards the full realisation of economic, social and cultural rights to the maximum extent of their available resources.⁴⁶ While the Covenant recognises that some aspects of economic, social and cultural rights may only be achieved progressively over time and allows for the setting of priorities among Covenant rights, in the course of progressive realisation or making trade-offs among those rights, in the light of social priorities and resource constraints, it also imposes obligations which require immediate implementation and do not admit of any trade-off.

For instance, “States parties must take deliberate, concrete and targeted measures, making the most efficient use of available resources, to move as expeditiously and effectively as possible towards the full realization of [Covenant] rights.”⁴⁷

Furthermore, states must guarantee the principles of equality and non-discrimination in access to economic, social and cultural rights, irrespective of resource constraints.⁴⁸

Finally, –⁴⁹

States parties have a minimum core obligation to ensure, with immediate effect, the satisfaction of, at the very least, minimum essential levels of each of the rights set out in the Covenant, even in situations of conflict, emergency and natural disaster, which they are then required to improve over time.

Core obligations do not permit any trade-off since they must be met as a priority and have a first call on the resources of those states. For example, the core content of the right to social security includes –⁵⁰

an obligation on the state party to ensure access to a social security scheme that provides a minimum essential level of benefits to all individuals and families that will enable them to acquire at least essential health care, basic shelter and housing, water and sanitation, foodstuffs, and the most basic forms of education.

The Committee underlines the fact that it is particularly incumbent on all those in a position to assist, including developed states and international

46 Article 2 (1) of the International Covenant on Economic, Social and Cultural Rights.

47 UNHRC (2009:para. 76).

48 (ibid.).

49 (ibid.).

50 CESCR (2008b:para. 59).

organisations, to provide international assistance and cooperation, especially economic and technical, to enable developing countries to fulfil their core obligations, guaranteeing to the people of those countries no more than the minimum subsistence level necessary for survival and for living a life of dignity.⁵¹

If core obligations give rise to national responsibilities for all state parties to the Covenant, they engender international responsibilities for developed states and international organisations. Consequently, the core obligations corresponding to all the Covenant rights establish an international minimum threshold that all national and international developmental strategies, including strategies to address climate change, must respect.⁵²

Developed states and international organisations must assist developing countries to comply with all their core obligations and meet this international minimum threshold. Moreover, in this regard, developed states must, for example, support human rights-related development projects and ensure that their official development assistance (ODA) contributions amount to 0.7% of gross national income, as indicated already.

G. Conclusions

The following conclusions may be drawn: First, we are failing to properly address economic, social and cultural rights and climate change. For instance, the report on the Millennium Development Goals stated that 1.4 billion people are still living in extreme poverty while the number of people suffering from hunger reached one billion in 2009.⁵³ In 2009 global greenhouse gas emissions were 25% higher than they were in 2000 and 40% higher than they were in 1990 and yet the Kyoto Protocol aimed to reduce those emissions by 5% from 1990 levels by 2012.⁵⁴

Second, the non-fulfilment of economic, social and cultural rights will be made worse by climate change and the vulnerable individuals and groups who already have weak human rights protection are also most prone to climate change harms. The UN Development Programme forecasts, for in-

51 CESCR (2000:para. 45).

52 With regard to the issue of poverty, see UNHRC (2001:para. 17).

53 UN (2010:4).

54 See Humphreys (2010:1).

stance, that 600 million more people will be at risk of starving by 2080⁵⁵ while the World Food Programme (WFP) claims that global hunger levels rose in 2009 in spite of food being available.⁵⁶ Moreover, many people were unable to feed themselves not because they could not find food but because, according to WFP, they could not afford it and that “we are now living in a world where risk is the new normal.”⁵⁷

Third, people living in the least developed countries and small island states which have contributed least to global warming will be the worst affected.

Last but not least, fulfilling human rights and addressing climate change are two mutually reinforcing goals; in order to be able to do either, states need to do both.⁵⁸ This is precisely where the Committee comes in since it has the expertise and the necessary material at its disposal to monitor, in examining their periodic reports whether –

- state parties to the Covenant are fulfilling the economic, social and cultural rights of the people under their jurisdiction; and
- effective protection is provided in this regard to the vulnerable individuals or groups whose rights are particularly affected by climate change or by measures taken to respond to climate change, including women, children, older persons, persons with disabilities, indigenous peoples, IDP’s, refugees and migrants.

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55 UNDP (2007:90) citing Warren et al. (2006).

56 World Food Programme (2010:4.).

57 (ibid.:2).

58 See Humphreys (2010:5).

- CESCR/United Nations Committee on Economic, Social and Cultural Rights, 1999, *Substantive Issues Arising in the Implementation of the International Covenant on Economic, Social and Cultural Rights, General Comment No. 12*, E/C.12/1999/5, available at <http://www.unhcr.ch/tbs/doc.nsf/0/3d02758c707031d58025677f003b73b9>, last accessed 10 December 2012.
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Climate Change Adaptation and Human Rights: An Equitable View*

Margaux J. Hall & David C. Weiss

No community with a sense of justice, compassion or respect for basic human rights should accept the current pattern of adaptation. Leaving the world's poor to sink or swim with their own meager resources in the face of the threat posed by climate change is morally wrong. Unfortunately... this is precisely what is happening. We are drifting into a world of 'adaptation apartheid.'

*Cape Town Archbishop Emeritus, Desmond Tutu*¹

Abstract

There is now little doubt that human beings will be forced to adapt to impacts of a warming world. Scant doubt also remains that it is the poorest people in the poorest countries who will, in large part, bear the burden of adapting to climate consequences they had almost no role in creating. Vast inequities in resources create a gulf between richer and poorer countries' abilities to adapt, creating what Desmond Tutu has described as "adaptation apartheid". The unknowns in climate change discourse, however, are the extent of climate change that will take place and the level of harm to global citizens. The first unknown will depend on the success of the international community's efforts to mitigate climate change by reducing greenhouse gas emissions, while the second unknown will depend in large part on the success of efforts to adapt to climate change by taking proactive or reactive steps to safeguard human lives and wellbeing. Although human rights have been increasingly brought to bear to address the challenge of climate change, thus far analyses linking human rights and climate change have focused primarily on mitigation, giving short shrift to adaptation. Practitioners and commentators have

* An earlier version of this article first appeared in the 2012 *Yale Journal of International Law* 37, 309–366.

1 UNDP (2007:47–48).

recognised the challenges of applying human rights law to the global, management-based problem of mitigation because legal duties only extend within territorial boundaries to state actors and because it is difficult to tie a particular government's actions or inaction to a given harm. But human rights law can and should be a practical tool to address climate change adaptation, which can take place at the state or community level. Although the largest emitting countries should be held normatively accountable for the bulk of climate change response, all states have a responsibility for their adaptation decisions, particularly as sizeable adaptation funding starts flowing to developing countries. At the most basic level, states should adapt to the maximum of their available resources and not engage in discriminatory adaptation practices. In turn, the unique characteristics of adaptation make it an optimal candidate for a human rights approach. Consequently, governments and communities should use human rights principles to inform adaptation project selection and implementation.

A. Introduction

There is now little doubt that human beings will be forced to adapt to the impacts of a warming world. There is also little doubt that the poorest people in the poorest countries will bear most of the burden of adapting to climate consequences they had almost no role in creating.² As the United Nations Development Programme (UNDP) has explained, “In the Netherlands, people are investing in homes that can float on water. The Swiss Alpine ski industry is investing in artificial snow-making machines,” but “[i]n the Horn of Africa, ‘adaptation’ means that women and young girls walk further to collect water”.³ In the Ganges and Mekong Deltas, “people are erecting bamboo flood shelters on stilts” and “planting mangroves to protect themselves against storm surges”. A final adaptation strategy in the Mekong? “[W]omen and children are being taught to swim.”⁴

Despite these sobering realities, the question of whether climate change implicates human rights law at all has been relatively unexplored until re-

2 IPCC (2007a:19).

3 UNDP (2007:13).

4 (ibid.).

cently.⁵ In 2007, for example, the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) – the primary report from the United Nations-chartered body responsible for reviewing and assessing information on climate change – scarcely mentioned human rights in nearly 3,000 pages of analysis.⁶ However, multiple actors have begun to close this analytical gap: small island states and indigenous populations have claimed in a variety of international fora that climate change has threatened the human rights of their people;⁷ an increasing number of academic commentators have worked to explain how climate change issues implicate human rights law;⁸ and in 2009, the Office of the High Commissioner for Human Rights (OHCHR) issued the first UN report addressing the links between climate change and human rights.⁹

The recognition that climate change implicates human rights is significant because it provides a tangible legal framework for analysing state actions that lead to climate change. Indeed, because the primary blame for climate change lies with those developed states that have caused the problem,¹⁰ and because human rights analyses are typically centred on state action, human rights provides a lens through which to analyse the culpability of developed countries.

Analysing climate change through a human rights lens is also appropriate because in the worst-case scenario, climate change spells human catastrophe – rising seas, the spread of disease, and ecosystem collapse – particularly for the most vulnerable persons in the global community. Human rights analyses can frame proactive strategies to try to preempt human harm, as well as to respond to such catastrophic events *ex post facto*.

5 Of course, climate change itself does not violate human rights. As this article explains, human rights law only holds states accountable for violations of human rights through their action or inaction.

6 See IPCC (2007b, c and d); International Council on Human Rights Policy (2008:3).

7 Petition to the Inter-American Commission on Human Rights Seeking Relief from Violations Resulting from Global Warming Caused by Acts and Omissions of the United States, 7 December 2005, available at <http://www.inuitcircumpolar.com/files/uploads/icc-files/FINALPetitionICC.pdf>, last accessed 4 October 2012; Republic of the Maldives (2008); see also Knox (2009c:479f.).

8 See e.g. Hunter (2009:332); Knox (2009a:168).

9 See OHCHR (2009:5).

10 Texas (population 23 million) emits more carbon dioxide than all of sub-Saharan Africa (population 720 million), UNDP (2007:43).

So far, however, discussions of climate change and human rights have largely focused on issues such as the international mechanisms for reducing greenhouse gas (GHG) emissions,¹¹ climate justice and state interest in such reductions,¹² and impacts on communities that are likely to be entirely destroyed or forced to resettle.¹³ Indeed, in this rights-focused discourse, *mitigation* – or reducing GHG emissions to reduce the extent of climate change – has largely taken centre stage. Human rights commentators have expended significantly less effort analysing the legal framework for, or implications of, the process of *adaptation* to climate change – in other words, responding to actual or expected human and environmental consequences of a changing climate to minimise the harm from such change.¹⁴ In the coming years, states and communities will have to adapt to irreversible climate change due to cumulative GHG emissions to date, as well as to additional climate change that will occur absent significant action by the international community. Thus, the recent discourse linking human rights and climate change generally has largely overlooked a major component of the human rights issues created by climate change. Moreover, discourse on adaptation in the legal arena has lagged significantly behind discussion of adaptation in other fields – biology, economics, and geography, to name but a few – in which robust debates regarding adaptation have been conducted for years.

As Archbishop Tutu and the UNDP have made clear, there are compelling reasons to explore the legal – not to mention the moral and ethical – implications of adaptation. This article therefore argues that as legal discourse evolves to analyse the human rights implications of climate change and the duties of states – duties oriented vertically, horizontally and diagonally – to protect and fulfil those rights, it is important both analytically and normatively to separate discussions of mitigation from those of adaptation. Although the distinction between policies and projects related to mitigation rather than adaptation is functional rather than formal, the two types of policies and projects implicate human rights differently.¹⁵

The human rights argument in this article is that the conventional, mitigation-centric account of the relationship between human rights and climate

11 E.g. Streck (2009:67–75); Wiener (2009).

12 E.g. Freeman & Guzman (2009); Sunstein (2008).

13 E.g. Docherty & Giannini (2009).

14 Articles primarily devoted to climate change adaptation have appeared in the literature only very recently. See e.g. Camacho (2009); Ruhl (2010); Ruhl (2011).

15 For a more detailed discussion of these concepts, see *infra* Section B.II.

change – which applies a rigid human rights framework to the management-based problem of climate change – is, even if normatively desirable, akin to fitting a square peg in a round hole. Such management-based problems frequently involve technical experts, policy analysts and policymakers, who collectively negotiate and design long-term, coordinated solutions to a particular problem; in the case of climate change, these solutions require coordinated action at the international level to regulate public actors and the private sector alike.¹⁶ But although the human rights account of climate change has been riddled with conceptual tensions in the mitigation context (because climate change is unlikely to be stopped or fully mitigated), a human rights approach is far more able to address adaptation.¹⁷ The prevailing mitigation-based approaches are not ideally suited to the climate change problem because they contain a rigid state actor requirement and because they lack a multiscale approach – which considers actors at each level from international down to community – necessary to address climate change.¹⁸

In turn, human rights may be a powerful tool for helping to organise and unify adaptation efforts. Moreover, such policies can better moderate – if not avoid altogether – the growing threat of “adaptation apartheid”.¹⁹ Careful consideration of adaptation is thus a critical step in addressing the human effects of climate change. Despite a burgeoning and important body of literature that links human rights and climate change broadly,²⁰ many scholars have given insufficient weight to the mitigation/adaptation distinction.²¹ This article provides a detailed discussion of why a human rights approach to adaptation is less conceptually problematic than a human rights approach to mitigation (or to climate change more generally). It also presents one of the first in-depth analyses of what such a human rights approach to adaptation will require.

The article proceeds in four parts. Section B summarises the challenge that climate change poses to people and communities, particularly those that are vulnerable, as well as the recent history of the theory, policies and

16 Hunter (2009:339).

17 See *infra* Section B.III.

18 See *infra* Section B.II.

19 See *infra* Section C.I.

20 See e.g. Hunter (2009:332); Knox (2009a:168).

21 See e.g. Boyd (2011:462); Badrinarayana (2010:288); Carlson (2009:46–47 and 52); Joffe (2009:272–275); Kass (2009:137–139); Limon (2009:440); Tsosie (2009:202); Ackerly & Vandenbergh (2008:555); Atapattu (2008:39); Koivurova (2007); Sinden (2007:263–270); Harris (2006:318 and 345).

projects of climate change adaptation. Section C moves to a discussion of the linkages between climate change and human rights, elucidating the potential of human rights as a tool to mobilise action in response to climate change. Section D examines the application of human rights law to adaptation. It contends that adaptation fits more easily with the rigid state-actor and causation requirements of human rights law than does mitigation, and that a human rights approach is especially well-suited for considering adaptation. Finally, Section E examines the implications of incorporating human rights law into the law and policy of adaptation.

B. Adapting to Climate Change: The Current Landscape

For decades, political efforts to address climate change focused exclusively on efforts to ‘mitigate’ the phenomenon – to slow, stop, or reverse climate change by reducing the GHG emissions that cause it. Mitigation efforts have typically taken place at the international and state levels and have been aimed at lessening the necessary conditions for climate change. However, as we explain, the consensus is now that human populations will have to do more than *mitigate* climate change; they also must *adapt* to the effects of climate change – primarily global warming and the many expected adverse effects of that change. ‘Adaptation’ thus entails designing and instituting policies and programmes to respond to the inevitable effects of climate change.²² Whereas mitigation centres on shaping human behaviour to minimise the *level* and *cause* of climate change (namely GHG emissions), adaptation efforts rely upon the ability of species, ecosystems, and socio-ecological systems to respond to ongoing alterations in climate conditions and to reduce the *effects* of climate change.²³

22 IPCC (2007c:6).

23 Craig (2010:21); see also ICHRP (2008:21). “‘Adaptation’ refers to actions taken to adjust lives and livelihoods to the new conditions brought about by warming temperatures and associated climate changes.”; OHCHR (2009:6) “Adaptation aims to strengthen the capacity of societies and ecosystems to cope with and adapt to climate change risks and impacts.”.

I. The Challenge of Climate Change

Physicist Niels Bohr famously proclaimed, “Prediction is very difficult, especially if it’s about the future.”²⁴ Bohr’s cautionary statement is important to heed in discussions about climate change. The scientific consensus²⁵ is that over the coming decades climate change will cause a steady increase in human exposure to serious climate events such as droughts, floods and storms, with extreme weather events becoming more frequent and more intense.²⁶

The magnitude of climate change and its impacts will depend in large part on the increasing concentrations of GHGs in the atmosphere. Atmospheric concentrations of CO₂ are increasing by approximately 1.9 parts per million (ppm) every year, whereas in the 8,000 years prior to industrialisation, atmospheric CO₂ increased by a total of 20 ppm.²⁷ If emissions continue to rise consistently with the current trend, there will be an increase not only in total emissions but also in the rate at which emissions are increasing, perhaps by 4–5 ppm per year by 2035 – almost double the current rate.²⁸

Low-income countries worldwide have one-third of the world’s residents and yet contribute only 7% of total global emissions; wealthy countries, by contrast, have contributed 70% of all CO₂ emitted since the dawn of the industrial era.²⁹ In all likelihood, emission levels will continue to rise for the foreseeable future as emerging economies engage in rigorous development activities.

Scientific consensus overwhelmingly supports the link between emissions and rising global temperatures. Research reveals that temperatures in the past 50 years are probably the highest they have been in any similar length of time since at least the eighth century.³⁰ According to the IPCC’s estimates, baseline temperatures around the world are already around 1.33 degrees

24 Orrell (2009).

25 This article does not engage the debates surrounding the existence of human-induced climate change. However, a brief background in the implications of climate change is necessary to understand the interplay between climate change adaptation and human rights.

26 UNDP (2007:90).

27 See IPCC (2007b:131 and 460).

28 UNDP (2007:34).

29 (*ibid.*:41–42).

30 (*ibid.*:31).

Fahrenheit higher than in earlier years and will continue to increase, even with aggressive mitigation efforts.³¹

The expected change in the climate will have a variety of consequences for human health, security and stability. The consequences may be most pronounced for poorer developing countries because of their geographic characteristics (in many cases), their low incomes, and their greater reliance on climate-sensitive sectors such as agriculture. The degree to which climate change will increase natural disasters is somewhat less clear, though the general prognosis is poor. Some of the most acute challenges of climate change will fall on coastal and island nations, which are likely to have to respond to sea-level rise, erosion, damage to their fishing and tourism economies, and salt water encroachment on fresh water, all with a deleterious effect on livelihoods and living conditions.³²

Other consequences are predicted to include an increase in large storms threatening human security and an increase in ground instability in mountain and permafrost regions.³³ Finally, climate change is also likely to lead to increasing regional and intrastate conflicts and instabilities, with concomitant expense to government and private industry, as well as new, large-scale problems such as ‘climate refugees’ – i.e. refugees displaced from their homes by climate change.³⁴

The descriptions above are primarily environmental accounts of the effects of unmitigated GHG emissions. In large part, the actual toll of climate change on human beings will depend on how communities are able to adapt to the changes already underway. There is no clear line separating ‘safe’ climate change from ‘dangerous’ climate change. Scientific consensus has coalesced around the idea that the risk of massive human development setbacks increases substantially beyond 3.6 degrees Fahrenheit of temperature change over historic levels, a degree of change which current emissions trajectories will well exceed.³⁵ Adapting to such changes will be a significant and important endeavour.

31 IPCC (2007a:5–7).

32 Knox (2009c:479f.).

33 IPCC (2007a:2).

34 See e.g. Docherty & Giannini (2009:349) advocating for a new international treaty on climate refugees.

35 UNDP (2007:6–7).

II. Adaptation versus Mitigation in Climate Change Response

Although the international community has increasingly recognised that mitigating climate change is a distinct endeavour from adapting to climate change, human rights practitioners, scholars and policymakers have yet to capture fully the legal relevance of the distinctions between the two activities. To date, legal scholars and practitioners analysing climate change have generally discussed mitigation, whether they have considered actions the United States should take to address climate change,³⁶ or international responses to climate change such as the Kyoto Protocol.³⁷ Scholars have not fully explored the disproportionate effects of adaptation on marginalised persons and groups and the related human rights implications. This article elucidates unique features of each, before examining the relationship between climate change adaptation and human rights law.

1. Distinguishing Adaptation from Mitigation

Although both mitigation and adaptation are critical components of a comprehensive climate change response, adapting to climate change is, in certain respects, more complex than mitigating it. Despite the incredible difficulty and complexity of reducing GHG emissions, the foundational regulatory mechanisms available to accomplish the goal are somewhat limited in number, essentially consisting of cap-and-trade programmes, carbon taxes, mandated changes in manufacturing processes, or some combination of these.³⁸ Climate change adaptation law, by contrast, will involve complexity at another order of magnitude.³⁹ As such, adaptation approaches must be flexible and, as the name itself suggests, adaptive.⁴⁰ Moreover, those who apply human rights approaches to adaptation face the complex task of connecting adaptation strategies with a narrow and limited pool of human rights.

36 See e.g. Freeman & Guzman (2009); Johnston (2008).

37 The Kyoto Protocol was not silent on adaptation. See Kyoto Protocol to the United Nations Framework Convention on Climate Change Article XII 8, 10 December 1997, UN Doc. FCCC/CP/1997/L.7/Add.1 (1998), reprinted in 37 I.L.M. 22 (1998).

38 See Craig (2010:28–31).

39 (*ibid.*:29).

40 (*ibid.*) noting that “adaptation law will have to cope with multiple layers of governmental interest”.

To begin, there are a number of features that distinguish adaptation practices from mitigation practices. First, adaptation and mitigation practices are generally undertaken on different geographic scales, with mitigation practices more global or continental in nature than adaptation practices, which often involve localised actors. Non-governmental entities such as bilateral and multilateral donors also play a critical role in adaptation funding. The localised nature of adaptation can be seen in the workings of the Adaptation Fund of the United Nations Framework Convention on Climate Change. Its funding and governance structure integrally involve developing countries.⁴¹

Second, different levels of government play different roles in the two facets of climate change, with mitigation engaging international and national governance structures and adaptation engaging these structures together with regional, state, tribal, aboriginal and local structures. The international approach to mitigation has primarily followed the management approach used for other complex environmental problems.⁴² This style is reflected in the growth, focus and character of the climate change secretariat in Bonn, Germany, which comprises a collection of technical experts, climate scientists, and policy analysts, who together form a large-scale bureau for setting and managing the foundation of the market for carbon.⁴³ The secretariat's primary role is to address mitigation, but adaptation is likely to be addressed in a less centralised manner.

In the long-term, there might be a need for international-scale adaptation projects, but, for the foreseeable future, adaptation will consist of community-based projects aimed at specific local interventions. Finally, mitigation and adaptation have different relationships to the concept of development. Although technologies and policies are in the pipeline to reverse the positive correlation between social and economic development and GHG emissions, the trend has so far been a constant in the history of industrialising nations.⁴⁴ Thus, mitigation typically runs at cross-purposes to development—no country has developed without significant reliance on processes that emit GHGs.

Adaptation practices, on the other hand, have many similarities to development work that is already underway. Although adaptation practices will often require outlays of large sums of money for nonproductive assets, the

41 Müller (2010:34–35).

42 Hunter (2009:339).

43 (*ibid.*:339–340).

44 Metz & Kok (2008:99).

costs of adaptive practices are likely to outweigh the costs of harm from failure to adapt. This counsels international and financial coordination of development and adaptation programmes and funding, as well as collective planning for local-level project implementation. In other words, “pro-poor adaptation strategies cannot be developed in isolation from wider policies aimed at reducing poverty and overcoming inequality”.⁴⁵

2. *Limitations of Separating Adaptation from Mitigation*

Three additional points about the distinction between adaptation and mitigation are worth making. First, the distinctions between adaptation practices and mitigation practices described above are, to some degree, overly generalised. For example, individuals may engage in personal mitigation efforts, and adaptation finance often occurs on an international scale. Second, the framing of climate change efforts as either ‘adaptation’ practices or ‘mitigation’ practices is meant to be functional, not formal. This article does not seek to label a particular project as one targeted at either ‘mitigation’ or at ‘adaptation.’ Rather, the claim is that adaptation practices, as compared to mitigation practices, have the potential to infringe on particular rights in particular ways, implicating unique and corresponding human rights duties. Third, despite the distinctive traits of adaptation and mitigation, there are a number of areas in which it is productive to apply a human rights lens to both adaptation and mitigation. As just one example, human rights approaches do not permit pure inaction or maintenance of the status quo.⁴⁶ Nevertheless, the thesis of this article retains force despite these overlaps, because there are several reasons why a human rights framework is more compelling when applied to adaptation than when applied to mitigation.

III. *Adaptation to Climate Change: International Efforts Underway*

With these distinctions between mitigation and adaptation in mind, this section briefly describes international efforts to finance adaptation, as well as local projects needed – and currently underway – to adapt to climate change.

45 UNDP (2007:176).

46 See e.g. Article 2 of the 1966 International Covenant on Economic, Social, and Cultural Rights (ICESCR).

Such an analysis is particularly important in light of the realisation that the costs of adapting to large-scale climate change will be significant. In Africa, for example, towards the end of the 21st century, the cost of adaptation across the continent could amount to 5 to 10% of GDP.⁴⁷

The IPCC describes projects to address the impacts of climate change – for example the building of sea walls – as “adaptation practices”, a term used throughout this article.⁴⁸ Adaptation practices can anticipate an expected, but as yet unrealised, level of climate change (proactive adaptation practices), or they can respond to an already-realised level of climate change that is affecting human communities or biological or geographic systems (reactive adaptation practices). Examples of proactive projects are crop and livelihood diversification, famine early-warning systems, and water storage creation projects.⁴⁹ Reactive adaptation practices include emergency response, post-disaster recovery, and relocation efforts.⁵⁰

The range of adaptation practices is thus extremely broad, and an individual’s or community’s ability to engage in adaptation practices varies widely. The capability to engage in an adaptive response is often discussed in terms of ‘adaptive capacity,’ which the IPCC defines as “the ability or potential of a system to respond successfully to climate variability and change, and includes adjustments in both behaviour and in resources and technologies”.⁵¹ Structurally, adaptation has played an increasingly prominent role in international negotiations and agreements on climate change. Several of the provisions of the United Nations Framework Convention on Climate Change (UNFCCC) – the international treaty resulting from the 1992 United Nations Conference on Environment and Development – address adaptation. Adaptation has become a prominent issue at each Conference of the Parties (COP), the annual meeting among the UNFCCC members that has taken place since the UNFCCC entered into force in 1994. In the 15 years since COP3, parties have made significant progress in advancing adaptation efforts among industrialised nations (known as Annex I countries) and non-Annex I developing countries. At COP17 in Durban, the parties launched the Adaptation Committee and the Green Climate Fund, which oversees some of the \$100 billion that developed countries have promised

47 IPCC (2007a:11).

48 IPCC (2007c:720).

49 (*ibid.*:721).

50 (*ibid.*).

51 (*ibid.*:727).

to make available by 2020, to cut GHG emissions and adapt to climate change.⁵² The main funders behind the current adaptation funds are international donors whose donations are channelled through bilateral agencies or multilateral institutions.⁵³

While local and piecemeal adaptation practices have been in progress for a number of years, adaptation projects supported by the funds mentioned above have been implemented only quite recently. For example, in June 2010 the Adaptation Fund board approved the first proposals for “concrete adaptation projects”, totalling \$21.8 million. The Adaptation Fund projects complement other adaptation projects sponsored by various financing mechanisms and organisations.

C. Climate Change and Human Rights

With an ever-increasing body of evidence on the mounting and discriminatory toll of climate change, private and public actors have worked in recent years to bring insights from human rights law to bear on the problem of climate change. Such a human rights framework holds particular normative appeal, given that persons already vulnerable to human rights infringements based on factors such as poverty, geography, gender, ethnicity, disability and age are also likely to suffer the most deleterious climate change consequences.

The description of how adaptation implicates human rights builds from the wealth of scholarship that has connected environmental protection to human rights.⁵⁴ The core international human rights treaties⁵⁵ do not provide

52 See UN Framework Convention on Climate Change, Durban, South Africa, 18 November 2011, Report of the Transitional Committee for the Design of the Green Climate Fund, Note by the Co-Chairs of the Transitional Committee, UN Doc. FCC/CP/2011/6, available at http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_gcf.pdf, last accessed 4 October 2012.

53 World Bank (2010:262).

54 McInerney-Lankford (2009:431f.); see Article 24 of the 1989 UN Convention on the Rights of the Child (CRC), signed but not yet ratified by the United States.

55 There are nine core international human rights treaties: (i) International Convention on the Elimination of All Forms of Racial Discrimination (1965); (ii) ICESCR, *supra* note 46; (iii) International Covenant on Civil and Political Rights (1966); (iv) Convention on the Elimination of All Forms of Discrimination Against Women (1981); (v) Convention against Torture and Other Cruel, Inhuman or Degrading Treatment

for an express right to a safe and healthy environment.⁵⁶ Nonetheless, there is international consensus that a clean and healthy environment can impact persons' rights. Moreover, the UN human rights treaty bodies all recognise an intrinsic connection between protecting the environment and fulfilling a wide spectrum of human rights, such as the rights to life, health, water, food and housing.⁵⁷ Aside from their normative appeal in this context, human rights have prompted action in the environmental protection arena and, more recently, in the climate change arena.

I. Human Rights Implicated by the Effects of Climate Change

As set forth above, this article outlines the exacting and unequivocal human toll as a result of climate change: disease, food shortages, water scarcity, and displacement of persons from their homes and communities, as well as the potential loss of life, dignity, personhood and self-determination.⁵⁸ International human rights law speaks to such harms, bestowing on global citizens the legal rights in this respect, and on nation-states the legal duties to fulfil these rights. The rights to life, health, water, food, housing and self-determination, for example, are merely a few of the implicated rights.⁵⁹

The connection between climate change and human rights has been increasingly acknowledged in diplomatic, nongovernmental and academic ef-

or Punishment (1984); (vi) CRC, *supra* note 54; (vii) International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families (1990); (viii) Convention on the Rights of Persons with Disabilities (2006); and (ix) International Convention for the Protection of All Persons from Enforced Disappearance (2006); see De Schutter (2010:18–19).

56 OHCHR (2009:18).

57 United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 3–14 June 1992, Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26/Rev. 1 (Vol. I), Annex I (12 August 1992) Principle 1. Note that certain regional human rights instruments, such as the African Charter on Human and Peoples' Rights and the San Salvador Protocol to the American Convention on Human Rights, do recognise the right to live in a healthy or satisfactory environment.

58 See *supra* Section I.A.

59 For a more extensive discussion of these various rights infringements, see the extended version of this article, Hall & Weiss (2012).

forts analysing the effects of a changing climate.⁶⁰ For example, in March 2008, the UN Human Rights Council adopted Resolution 7/23, which was the first UN resolution to recognise that climate change poses an immediate threat to people and communities around the world and has significant implications for the enjoyment of human rights.⁶¹ The resolution called on the OHCHR to prepare a “detailed analytical study on the relationship between climate change and human rights”.⁶² The OHCHR Report made bold pronouncements about the multiple human rights implications of climate change.⁶³

Yet, despite its many triumphs and breakthroughs, the OHCHR Report, like most analyses of climate change to date, provided only a cursory discussion of the ways in which adaptation to climate change turn impacts on human rights. It also failed to explore deeply how climate change adaptation raises significant issues of equity.

II. Adaptation Apartheid: Climate Change in the Developing World

Adaptation – much like other persistent issues in environmental justice⁶⁴ – will often be an intensely local and even personal phenomenon. Within even the poorest countries, there will be elites who possess the resources to adapt; of course, there will also be individuals in even the richest societies who have insufficient capacity to adapt to climate change.⁶⁵ Yet, generally speaking, adaptive capacity tends to correlate with general capacity on regional, national, local, group and individual levels. In this respect, the consequences of climate change for human health, security and stability are particularly grave for developing countries and their residents.⁶⁶

Residents of already vulnerable regions and communities confront a range of stresses that affect their sensitivity to climate change events, as well as

60 Male’ Declaration on the Human Dimension of Global Climate Change, adopted 14 November 2007, http://www.ciel.org/Publications/Male_Declaration_Nov_07.pdf, last accessed 4 October 2012; Knox (2009c:477).

61 UN Human Rights Council Resolution 7/23, UN Doc. A/HRC/7/78, 28 March 2008.

62 (ibid.).

63 (ibid.); see also ICHRP (2008:1).

64 See Hawken (2007:256).

65 IPCC (2007c:719).

66 See Davies et al. (2009).

their ability to adapt.⁶⁷ These stresses include poverty, inadequate access to basic resources, food and water insecurity, high incidences of diseases such as HIV/AIDS, and conflict.⁶⁸ Within a particular region, there is significant risk of “adaptation apartheid” for groups with diminished adaptive capacities. Empirical work has demonstrated that in addition to disparities in climate change vulnerability, access to resources that correlate with adaptive capacity can be distributed unevenly along the lines of age, class, ethnicity, gender and religion.⁶⁹ The analysis below focuses on sub-Saharan Africa and its women, providing a cross-cutting lens into how climate change profoundly threatens human rights in certain regions and of certain groups and individuals, creating an ever-present risk of adaptation apartheid. Other regions, groups, and peoples already suffering from discrimination in the fulfilment of their human rights and who stand to suffer even more pronounced consequences resulting from climate change would have been equally appropriate for detailed treatment.⁷⁰

As one particularly poignant example of disparate adaptive capacity at the regional level, sub-Saharan Africa already confronts significant consequences for human beings from climate change. Sub-Saharan Africa produces less than 4% of global GHG emissions; yet, the region already experiences effects of changing weather and rainfall patterns, food and water scarcity, and internal displacement of persons, among other impacts (and can expect more deleterious consequences in years to come).⁷¹ Droughts have had especially disastrous consequences for residents of the region; and, by one estimate, additional climate alteration may put another 75 to 250 million persons’ lives at risk.⁷² Moreover, areas in sub-Saharan Africa already prone to floods may experience more frequent flooding due to changing rainfall patterns.⁷³ The increased variability in climate will, in turn, lower regional food production. Climate change “could mean disaster on a continent where 70 per cent of workers are employed on farms and farming is

67 See IPCC (2007c:19).

68 (*ibid.*).

69 See OHCHR (2007).

70 The Pacific islands and Caribbean islands provide two more powerful examples of regions likely to be hardest hit by climate change, amplifying their already relatively low levels of development. See Institute of Development Studies (2006:5.1–5.2.).

71 See Fleshman (2007).

72 (*ibid.*).

73 (*ibid.*).

often the engine for national economies – generating export earnings and inexpensive food.”⁷⁴

Significantly, residents of the sub-Saharan region have diminished adaptive capacity to respond to such shocks. They often have crops that are less diverse and resilient, a heavy reliance on rain-fed irrigation, and limited money and expertise to modify their agricultural techniques to cope with damaging environmental changes.⁷⁵ The consequences for women will be particularly dramatic. Although the nature of women’s vulnerability varies considerably, existing patterns of inequality and vulnerability will be exacerbated by the effects of climate change.⁷⁶ Many poor women already suffer from restrictions on their rights, access to resources, mobility, and voice in making decisions that affect their lives.⁷⁷ As just one example, women in Africa are the main producers of climate-sensitive staple crops.⁷⁸ Women are also often the last to receive food and other household resources. Hence, food shortages not only infringe women’s right to food, but climate change-induced food shortages will moreover increase women’s daily workload as women struggle to ensure food security. As women’s daily domestic workloads increase, they will have diminished opportunities for educational, economic, social and political engagement. In this sense, climate change magnifies the range of various human rights infringements to which women are already vulnerable. We briefly highlight these two lenses – a geographic lens and a gender lens – to show the potentially disproportionate impacts of climate change on certain groups of individuals, who are also likely to be least adaptive to change. Effective adaptive policies must take into account regional and group disparities. Adaptive policies that ignore these realities – by, for example, distributing adaptation funding exclusively to male leaders in a community – are likely only to reinforce some of the disparities in adaptive capacity.⁷⁹

74 (ibid.).

75 See Burroughs (2001:132); Paavola (2006:201f.).

76 See UNDP (2008:iii).

77 (ibid.).

78 (ibid.).

79 See generally IPCC (2007c:731), explaining that “[s]ome adaptations that address changing economic and social conditions may increase vulnerability to climate change, just as adaptations to climate change may increase vulnerabilities to other changes”.

III. Applying Human Rights to Climate Change: Theory and Practical Challenges

In light of the disproportionate impact of climate change on vulnerable groups such as women, human rights can serve as a pragmatic and powerful tool to vindicate rights. After all, human rights analysis focuses particularly on the most disadvantaged persons and their needs. As a legal and practical matter, human rights can hold state actors accountable. Human rights are legal rights codified in a range of legal instruments at the international, regional or national level. In the case of the United Nations international human rights treaties, these instruments establish legal duties of states that are enforceable by individuals, groups of individuals, and their representatives before international tribunals.⁸⁰

There are several prominent reasons why it is normatively and legally desirable to apply a human rights framework to climate change. First, climate change is an international problem with consequences affecting human beings that are likely to unfold on an international scale, and to require international solutions, making international law an appropriate means of promoting accountability. Second, climate change will result in infringements of human rights, so it makes normative sense to consider climate change via a human rights framework. Third, as a practical matter, human rights law provides a framework in which tribunals have a history of balancing human needs with limited government resources. Fourth, the human rights framework already includes tools for monitoring and enforcement. Fifth, human rights law may encourage coherence in adaptation policy, or international standards for adaptation practices at multiple levels.

Yet there are well-documented challenges to making human rights have practical significance in the lives of the persons they are meant to protect. There is widespread scepticism about the efficacy of human rights treaties and instruments.⁸¹ Critics point to substantive and procedural weaknesses in human rights treaties that undermine their effectiveness, such as limitation clauses that allow governments to curtail or deny granting rights or freedoms on the basis of national security, public order, morality, and health.⁸² State parties can further limit obligations under human rights instruments through

80 See Knox (2009a:166).

81 See Woods (2010:70).

82 International Law Association Committee on International Human Rights Law and Practice (1996).

formal reservations – “a claim to exclude or to modify the legal effect of certain provisions of the treaty in their application to that state”.⁸³

Next, most human rights treaties lack a rigorous enforcement regime. The success of the treaty body monitoring system depends upon a range of factors, including whether states submit adequate reports on time; whether the treaty body committee has sufficient time and expertise to review the report and question state representatives; and whether NGOs have access to information on the State’s fulfilment of human rights to submit to the committee members for consideration. In addition, the success of the treaty body monitoring system may also be affected by the quality of the treaty body committee’s concluding observations, the ability of the treaty body committee to follow up on inadequate reports, and the extent of media attention.⁸⁴ The process falters at many stages. An estimated 45 to 80% of state parties to six UN treaties have overdue reports.⁸⁵ Many treaty body committees have a massive backlog in processing overdue reports. By one estimate – if all overdue reports were submitted simultaneously to their respective treaty body committees – it would take the treaty bodies approximately eight years to process the backlog.⁸⁶ In addition to these concerns, other critics have worried that human rights law may be overly prescriptive, may establish a ‘lowest common denominator approach’ that trends towards the least progressive solutions to pressing problems, and may limit the space for creative, locally appropriate solutions.⁸⁷

Further well-documented deficiencies exist when applying human rights law to climate change. First, there are evidentiary hurdles to establishing that particular acts or failure to act specifically caused a climate change injury. It is difficult to trace governments’ failure to mitigate to specific climate change injuries that those decisions have caused. Even establishing the existence and level of injury poses challenges, given that climate change harms are not always overt or recognisable.⁸⁸ As Marc Limon has argued, “even if responsibility and harm could be established, existing human rights law is concerned primarily with how a government treats its own citizens and oth-

83 Bayefsky (undated).

84 International Law Association Committee on International Human Rights Law and Practice (1996).

85 (ibid.).

86 (ibid.).

87 See e.g. Simma (1983:494); Young (2008:147f.).

88 See Biber (2009:977f.).

ers living within its territory and under its jurisdiction.”⁸⁹ International human rights law was developed in the context of addressing harms that neither occur outside the responsible state’s borders nor cross interstate boundaries.⁹⁰

Looking to international law, John Knox sees significant challenges in developing a framework to resolve this tension, although he points to the duty of states to cooperate as the best legal basis for “extending” human rights law to the actions or inactions of states with respect to climate change.⁹¹ Yet Knox recognises that this is not necessarily a forceful basis on which to impose duties on a state.⁹² Under international human rights law, legal duties are oriented vertically. States have the primary responsibility to protect persons within their boundaries. Beyond those boundaries, states may be unable or unwilling to fulfil broader obligations in responding to climate change: more significantly, one state could not effectively mitigate climate change alone given the cross-territorial, global nature of climate change.⁹³ In response, some commentators, with Knox prominently among them, have presented a way to conceive of human rights not ‘vertically’ but rather ‘diagonally’ – the rights are held by citizens of one state vis-à-vis governments of other states.⁹⁴ This conception would hold developed states responsible to persons in developing states who are suffering harms due to a failure to mitigate climate change.⁹⁵ As Kyung-wha Kang, deputy UN commissioner for Human Rights, stated in 2007, “any strategy to deal with climate change, whether in terms of adaptation or mitigation, must incorporate the consequences for humans, as individuals and communities, and the human rights framework is the most effective way to do so.”⁹⁶ Thus, as discussed in the next section, human rights law can effectively address climate change harms by beginning with the adaptation obligation.

89 Limon (2009:458).

90 (*ibid.*).

91 (*ibid.*:168).

92 See Knox (2009a:213f.).

93 See e.g. Kolmannskog (2009).

94 See Knox, (2009b:101f.).

95 (*ibid.*:82f.).

96 Kang (2007).

D. Adaptation through the Lens of Human Rights Law

This section discusses how human rights can be applied to adaptation and the ways in which potential claimants could seek remedies for adaptation-related human rights violations. It proceeds on the assumption that it is normatively preferable to require developing states to adapt than to require that they mitigate harms that they did not cause; the latter would unfairly burden comparatively low-emitting developing states, and might be pointless, as successful mitigation cannot take place without concerted efforts from the highest-emitting states.

I. The Role of Adaptation in the Human Rights/Climate Change Disconnect

The heightened emphasis on mitigation in climate change discussions to date is not entirely problematic. Concentrating on the role of the largest GHG emitters may help motivate state actors to move against their political self-interest, or at least to incorporate massive, long-term externalities into a state's political calculus. Without such action, climate change will cause increasing harm. The primary responsibility, normatively, legally and financially, lies with the states that have caused the problem.

Yet developing countries will have to adapt to climate challenges. And all too often, under-resourced, ineffectual, or simply corrupt governments in the developing world have avoided delivering on human rights commitments to their citizens. Direct aid, capacity-building, and other efforts from developed countries play an important role in addressing these deficiencies, but individual state accountability for actions or inaction with respect to climate change is important as well.⁹⁷

As governments make and institute policies and allocate resources to adapt to climate change, the legal community should apply – and reconsider – domestic and international legal frameworks to evaluate the resource-allocation decisions and other adaptive responses of states. As Limon put it: can developed countries really tell people in small island nations, for example, “that their human rights have not been violated because it is difficult to apportion responsibility”?⁹⁸ He argues that “[p]erhaps we must, but that is

97 See e.g. Cameron (2009:13f.).

98 Limon (2009:468f.).

surely because the law is wrong, rather than because our instincts of fairness, equity, and justice are wrong”.⁹⁹

II. Human Rights Law Applied to Adaptation: Establishing Liability and Accountability

Although human rights law, at least as it is conventionally understood, does not neatly accommodate issues relating to climate change,¹⁰⁰ these deficiencies are at least partly cured when adaptation is separated from a broader discussion on climate change.

1. Liability of States for Adaptation-related Human Rights Violations

As described earlier, human rights law, conventionally understood, provides no true (or at least no robust) liability or remedial framework for addressing the largely transnational causes and concomitant harms of climate change.¹⁰¹ Yet, human rights law can and does provide a workable framework for approaching adaptation. As described above, adaptation decisions are likely to be made closer, in terms of geography and time, to those affected by the policies.¹⁰²

A hypothetical case helps to illustrate how a government could be held accountable under a human rights framework for an adaptation-related claim. Over time, states will be faced with rising sea levels and increased flooding.¹⁰³ Suppose a government receives adaptation funding that it then squanders, despite warnings that a dam will fail, if not repaired, with the likely consequence of mass flooding to an adjacent low-lying subsistence farming community, and possible loss of life. Under the ‘progressive realisation’ doctrine surrounding socioeconomic rights, if a government has available resources but does not prioritise an action, and there is a breach of human rights as a result, one can make a colourable claim for government

99 (ibid.:469).

100 See e.g. ICHRP (2008:3–6); Knox (2009a:165–168); Limon (2009:458); Posner (2007:1935–1938).

101 Limon (2009:458).

102 See supra note 41 and accompanying text.

103 UNDP (2007:90).

redress before an international or, in certain instances, a domestic tribunal.¹⁰⁴ States must act to the extent that their resources allow in order to fulfil socioeconomic rights progressively and continuously, and this legal doctrine can extend readily to state inaction towards adaptation.¹⁰⁵ As such, this *ex post* remedy, if robust in nature, might moderate government intransigence in the future.¹⁰⁶

Complete inaction despite available funding, like discriminatory action, is simple to understand through a human rights perspective: it is not allowed. But middling government action to spend limited adaptation funding in a manner that neglects to implement effective adaptation projects has the potential to raise more nuanced challenges. Suppose, when confronted with the looming dam breach described above, the government decides to require the relocation of two small communities rather than the move of a large mining company that employs several hundred people across the country and contributes substantially to the country's tax base. The government implements a cursory programme for assuaging environmental threats to the soon-to-be-displaced community members – a small stipend for each family to cover the basic costs of relocating and finding new land elsewhere. Would a human rights approach permit such an exercise? It is unclear. As former Justice Albie Sachs from the Constitutional Court of South Africa has explained, balancing and apportionment are inherent in the exercise of progressively realising rights in resource-constrained settings.¹⁰⁷ One may easily identify certain procedural deficiencies in this scenario – for example, lack of participation – suggesting that the government's approach falls short of what human rights law requires.

Further, one could imagine how a seemingly fair cash payment could fail in other ways. For example, cultural norms could require women to give cash to men in the community, and the women could effectively be left even more vulnerable, without housing or with other unmet needs. Human rights

104 OHCHR (2009:75).

105 Article 2 (1) ICESCR.

106 Of course, a different complication would arise if the same state had not received adaptation funding and the same dam had failed, inundating the same low-lying farming community. In such an altered hypothetical, the “to the maximum of its available resources” savings clause of the ICESCR may absolve the state of some human rights obligations, but it is more challenging to determine what the state's obligations would be as to nonderogable rights, such as the right to life. See UN Human Rights Committee (1984).

107 See World Bank Institute (2011:6–7).

approaches pay special attention to the needs of a state's most vulnerable citizens. At times there may be no clear 'best' human rights approach, and human rights may point to a 'second best' alternative (or a range of alternatives) that optimises outcomes, given a variety of pragmatic constraints. Similarly, adaptation-related claims could also raise issues concerning how to resolve conflicts when a state's existing human rights obligations to its citizens clash with issues related to climate change adaptation. In developing nations, one would expect that the overlap could be considerable.

2. Accountability of States for Adaptation-related Human Rights Violations

Liability is a legal question; accountability is a more normative consideration. Liability describes whether individuals or communities can prevail on human rights charges against states arising from climate change-related impacts. Causation is generally a mandatory element of establishing liability.¹⁰⁸ By contrast, accountability questions ask whether the individuals or communities should be able to bring human rights claims arising from climate change-related injuries.

Commentators disagree about the degree to which developing countries should be held accountable for human rights violations due to climate change.¹⁰⁹ Some of the difficulty in resolving this question can be removed by segregating discussions of mitigation from those of adaptation. With mitigation, there are significant equitable issues in holding developing countries accountable for reducing emissions. Yet, developing states should be held accountable for human rights violations stemming from adaptation decisions because, fair or not, climate change imposes duties on low-emitting states, particularly those that have committed to advancing socioeconomic rights.¹¹⁰ As a matter of priority, states must seek to protect groups in society who are in a particularly vulnerable situation and must satisfy core obligations.¹¹¹ Particularly if developed states begin providing significant financial assistance to developing states, some accountability for that funding seems

108 See OHCHR (2009:n.24).

109 See *infra* notes 110–112 and accompanying text.

110 See e.g. South African Constitution (1996) Articles 26–29.

111 OHCHR (2009:25).

both practically necessary and normatively desirable.¹¹² A human rights framework provides one tool to enable community members to insist upon government accountability in the expenditure of these funds.

By distinguishing adaptation from mitigation more rigorously, Annex I countries may be held responsible for mitigation, while all countries, including non-industrialised countries, are held responsible for adaptation. In other words, it may be normatively desirable to hold only, or mostly, Annex I states responsible for mitigation, while asking comparatively more of developing countries with respect to adaptation.¹¹³ The accountability of large emitting states for human rights violations is not, however, the primary focus of this article. Other authors have addressed that question, and there plainly are compelling reasons to find large emitters responsible for much of the climate change response. Sidestepping such a discussion in this article is not to absolve large emitters for a problem that is almost entirely of their making: that would be irresponsible, unfair and misguided. Yet it is important to consider accountability for reducing emissions and adapting to the impact of climate change separately because of the vertical and diagonal legal relationships discussed above.

III. Adaptation and Human Rights Remedies

Even if it is possible to establish causation, there are still hurdles to vindicating a particular human right. The problem of remedying identified human rights violations is hardly new. One of the most powerful examples demonstrating the importance of remedies for human rights violations is the case of Irene Grootboom. In *Government of the Republic of South Africa v Grootboom*, the Constitutional Court of South Africa affirmed the government's constitutional responsibility to respect the right to housing and to enact and fund policies designed to realise that right.¹¹⁴ The decision was hailed around the world as the leading socioeconomic rights decision from any nation's high court.¹¹⁵ But to much less notice, in August 2008, eight years after Ms

112 See Transparency International (2011), highlighting the need for transparency and accountability in the delivery and spending of funds.

113 See Birdsall (2012:20–22).

114 2000 (1) SA 46 (CC) (South Africa).

115 See e.g. Kende (2003:137); Liebenberg (2001).

Grootboom vindicated her right in her nation's highest court, she died in her forties, "homeless and penniless".¹¹⁶

As difficult as it is to achieve a human rights remedy, it probably will be even harder in cases arising out of claims related to climate change. There is not a realistic way for parties to seek remedies for their claims even if they can establish causation and, more broadly, liability. In turn, where remedies are not available, the very existence of the right is called into question.

Differentiating the subset of adaptation claims from the broader group of climate change claims may lessen this concern. Even if causal links and liability are connected to narrower geographic, governmental and temporal ranges in the context of adaptation, perhaps national-level litigation is not mostly useless. This is especially likely in countries such as South Africa or India that include socioeconomic rights in their constitutions, making it possible to bring individual claims based on alleged rights violations.¹¹⁷

Tribunals presented with adaptation-related human rights claims might also have flexibility to fashion creative remedies. A tribunal could, perhaps, recognise that a state has limited resources to comply with an order that would completely remedy an adaptation-related human rights claim. It could then order a progressive injunction commanding the relevant government authority to review regularly and modify its National Adaptation Programme of Action in a certain way, in order to prioritise the problem underlying the claim before the tribunal.

Finally, recent developments in socioeconomic rights may facilitate adaptation-based human rights claims at the international level. The Optional Protocol to the International Covenant on Economic, Social and Cultural Rights recently entered into force and may be a promising avenue by which to bring climate change-related claims linking adaptation and human rights.¹¹⁸ Tribunals, in adjudicating individual human rights complaints, can develop a common law regarding environmental protection and adaptation.

116 Joubert (2008).

117 See e.g. *Khosa v Minister of Social Development* 2004 (6) BCLR 569 (CC) (South Africa); *People's Union for Civil Liberties v Union of India*, Writ Petition (Civil) No. 196 of 2001 (India), 28 November 2001, interim order establishing a constitutional right to food.

118 Optional Protocol to the International Covenant on Economic, Social and Cultural Rights, General Assembly Resolution 63/117, UN Doc. A/RES/63/117 (10 Dec 2008) 2.

E. Toward a Human Rights Approach to Adaptation

This section demonstrates how a human rights approach can be particularly relevant to adaptation policy and projects. It also explores some of the consequences of that argument and asks how adaptation policymakers can incorporate human rights concepts and thresholds into adaptation practices.

I. Adaptation Decision Making

As an initial matter, it is important that international, state and local governments begin to incorporate human rights considerations in decision-making on adaptation practices. As the National Adaptation Programme of Action for many of the least-developed states demonstrate, the first step in implementing an adaptation plan often is to create a framework through which a state or local government can make structured decisions on adaptation policy.¹¹⁹ If human rights are to be protected in the face of climate change, decision-making processes should take into account human rights norms and protections.

Human rights law focuses on individuals and communities, and, accordingly, a human rights approach to adaptation would emphasise collecting local-level information to support adaptation efforts. Climate change analysis generally remains aggregated at the continental or subregional level, a practice that is logical for mitigation since GHGs cross borders but does not lend itself to understanding the human implications of adaptation decisions.¹²⁰ Adaptation policymakers and planners should, therefore, collect more information on individuals and communities, drawing in part on the knowledge that human rights workers have regarding local conditions. Such information-sharing can also ensure good governance and transparency in decisions about the distribution and use of adaptation funding.

Beyond information-gathering, human rights can and should inform substantive adaptation decision-making, from international funding decisions to local project implementation. Human rights standards and thresholds can provide benchmarks that are based on widely agreed upon principles. In addition to gathering information for adaptation decision-making, human

119 See e.g. Republic of Guinea-Bissau (2008); Republic of Rwanda (2006); Republic of Vanuatu (2007:28–32).

120 ICHRP (2008:4).

rights should also play a role in the procedural aspects of adaptation decision-making. Procedurally, human rights standards call for information-sharing and participation of those affected by policies; and government transparency, public participation and rational decision-making are paramount.¹²¹ Such human rights-informed procedures are particularly important for adaptation decisions, which permanently commit funds to a particular adaptation programme or course of conduct at the exclusion of others, and can themselves affect substantive rights.¹²²

II. Human Rights as an Adaptation Prioritisation Tool

Inputs aside, as a larger and more practical example of how human rights can inform adaptation law and policy, human rights should guide international prioritisation of adaptation strategies.¹²³ In most countries, adaptation is not treated as an integral part of development strategy; nor do the adaptation plans of most states typically include any reference to a consideration of human rights.¹²⁴ Incorporating human rights safeguards into adaptation law and policy would in all likelihood improve human rights outcomes. It would also establish common ground in often contentious funding debates by framing adaptation practices in terms of universal norms.

A deficit in adaptation funding will result in difficult policy choices of a different nature than the tough policy choices encountered in mitigation efforts. If GHG emissions are set at the international level, state-level policymakers will have individual GHG emissions targets and policymakers will debate how best to distribute those costs between firms and individuals whose consumption or production leads to GHG emissions. Choosing to fund or not fund certain adaptation projects, in contrast, may have immediate or longer-term human rights implications. National or local adaptation policies, therefore, can benefit from a human rights focus more than the equivalent decisions in mitigation policy.

Applying human rights to adaptation policies can also help prioritise and frame responses in emergency or disaster settings. For example, David

121 See e.g. ICHRP (2008:8) Kravchenko (2008:541–547), discussing access to information and public participation.

122 See Craig (2010:68).

123 See Hunter (2009:360).

124 See e.g. Lao People's Democratic Republic (2009).

Hunter argues that the generally accepted right to housing suggests that individuals have a right to temporary shelter while their homes are being repaired following a disaster.¹²⁵ Therefore, “providing basic shelter to the victims of natural disasters”, Hunter claims, “could arguably be a higher priority than other adaptation expenses”.¹²⁶

Finally, human rights have an immediate role to play in adaptation policy at the international level. In short, a rights-based approach to adaptation that is expressed in the language of human rights is more “achievable and fair” than a similar discourse regarding mitigation.¹²⁷ It “potentially provides a platform for broad-based dialogue on burden-sharing of a kind that has frequently lacked in climate change debates.”¹²⁸

III. The Impact of Adaptation on Political Mobilisation

A human rights-based approach to adaptation would be useful also in expressing internationally agreed-upon values that can form the basis for increased common action towards adaptation.¹²⁹ To this end, commentators discussing the linkages between human rights and climate change have often discussed the ethical or moral power of climate change to mobilise political action, encouraging policymakers to adopt “robust, effective, and sustainable” policies.¹³⁰ While the ethical implications of climate change could motivate either mitigative or adaptive action, adaptation practices may be more effective in mobilising the political support necessary to address climate change, because adaptation practices tend to be on a more human and local scale. If a rights-based approach to climate policy generally has the advantage of giving a human face to the climate change challenge – because it “focuses on excluded and marginalised groups, encourages accountability and transparency in policy decisions, encourages participatory and democratic processes, and provides sustainable outcomes by building on the capacity of key stakeholders”¹³¹ – this is likely to be even more true for adap-

125 Hunter (2009:360).

126 (ibid.).

127 ICHRP (2008:7).

128 (ibid.).

129 See Kang (2007).

130 Limon (2009:458).

131 Atapattu (2008:45).

tation projects, which typically work at the community, household or individual level.

IV. Proactive Policymaking

Finally, human rights can also help facilitate more proactive adaptation policymaking. Because it is often easier to make policy decisions once a crisis has occurred than when it is only anticipated,¹³² policy choices have historically amounted to reactive adaptation.¹³³ Yet both proactive and reactive adaptation responses are necessary to address adaptation to climate change effectively.

Interestingly, proactive versus reactive adaptation is one area in which introducing human rights concerns seems to complicate the analysis. Reactive responses, when not combined with proactive adaptation practices, “tend to have higher long term costs because the low costs of preventive action, or anticipative adaptation, are likely to dominate the higher costs of deferred action, or reactive adaptation, appropriately discounted.”¹³⁴ Thus, without the perspective of human rights, proactive adaptation policies would clearly be more efficient. However, because it is unlikely that there will be sufficient resources to adapt fully to climate change, the consideration of human rights may move the calculus more toward reactive adaptation policies in the wake of disasters, at least when compared to proactive projects with uncertain value. Of course, when the probability of a particular climate-related human rights breach approaches, proactive policies targeting these anticipated harms will trump because of their value in protecting rights *ex ante*, as well as their overall lower costs.

Human rights can be “a forward-looking means of encouraging the evolution of, and providing a qualitative contribution to, robust, effective, and sustainable policy responses at both the national and international level, across mitigation and adaptation.”¹³⁵ And these human rights considerations are especially relevant to adaptation, as adaptation efforts “can be made more effective if policy-makers include human rights criteria (or thresholds) when they assess future harms, identify areas of likely vulnerability and evaluate

132 Lecocq & Shalizi (2007:41–47).

133 Feldman & Kahan (2007:67).

134 (*ibid.*:68).

135 Limon (2009:458).

comparatively the various policy measures available for treating identified challenges.”¹³⁶

F. Conclusion

The world must adapt to rising temperatures, rising seas, and rising climate vulnerabilities by charting a common and aggressive course that includes policymakers, NGOs, and residents of the global community. The moral and legal duty to do so effectively is paramount if the world is to avoid the growing risk of adaptation apartheid. Many commentators and international bodies have recognised that applying human rights norms to climate change-related injuries could prove normatively beneficial, particularly since it is likely that the most disadvantaged and least-prepared global citizens will suffer the greatest consequences of a warming climate that they played a negligible role in creating. Nonetheless, reconciling this justice-based position within an oftentimes rigid human rights framework has proved challenging. It is difficult to frame doctrinally sound legal claims that can confront those actors that caused, and should be held accountable for, climate change. Considering climate change adaptation more specifically, however, is both normatively desirable and more legally tenable. Adaptation-related human rights claims – together with analyses of diagonally conceived human rights – can help to afford global citizens a more robust international legal framework within which to address climate change. Moreover, insights drawn from human rights should begin to play a larger role in formulating adaptation policy and projects, since these projects will undoubtedly have human implications and a disproportionate impact on vulnerable persons. A human rights approach to adaptation requires flexibility, creativity and temerity, and the law should evolve together with the strategies for adapting to climate change. Finally, legal commentators should discuss how climate adaptation connects with other areas of law that we have not considered in detail, such as Alien Tort Claims Act cases, insurance liability, property rights, and important procedural doctrines in international law. Understood in this way, our discussion of adaptation and human rights is one of many steps in understanding the impact of climate change on domestic and international legal regimes and the rule of law more generally.

136 ICHRP (2008:80).

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Climate Change and Human Rights: What Follows for Corporate Human Rights Responsibility?

Stefanie Ricarda Roos

Abstract

Although climate change and human rights are increasingly important issues of corporate responsibility, the interrelationship between these two topics has hardly been discussed with regard to business activities. This is odd, considering how many activities of transnational corporations and other business entities, such as mining, fossil fuel extraction and deforestation, are directly linked to global environmental damage that in turn can generate human rights violations.

Many international human rights standards and instruments provide important – though implicit – guidance for states and private companies alike regarding the prevention and sanctioning of business activities that may result in climate-change-related human rights impacts. The most prominent of these instruments is the 2011 United Nations (UN) Guiding Principles on Business and Human Rights (GPs). This set of 31 principles is intended to diminish the risk of companies causing or contributing to human rights harm.

The GPs start with the state duty to protect against corporate-related human rights abuse. This obligation may be relevant to climate-change-related human rights protection for several reasons. Among these is that –

- it entails a state duty to regularly assess existing regulations, laws and jurisdictions with the objective of determining if a state has taken all appropriate steps to prevent, investigate, punish and redress human rights abuses by third parties, and
- it can be seen as the basis for a state duty to ensure policy coherence, i.e. to align climate change and human rights policies.

The extraterritorial dimension of the state duty to protect, i.e. the extraterritorial application of human rights obligations, could be helpful in closing existing gaps in regulation concerning the prevention of climate-change-related corporate human rights harm. Unfortunately, the GPs address this

issue inadequately as they do not require states to put in place effective regulatory measures to prevent and punish their companies from abusing the rights of individuals and communities in other countries. As a result, the further development of international human rights law is needed.

The second pillar of the GPs, the corporate responsibility for human rights, is as important for the protection against climate-change-related human rights harm associated with corporate activities as the state duty to protect. The following aspects of the GPs are particularly relevant:

- Their applicability to the whole spectrum of internationally recognised human rights
- The corporate responsibility to carry out human rights due diligence, and
- The use of the concept of impact instead of sphere of influence for defining the scope of corporate responsibility.

From a strictly legal point of view, the GPs are of little help in preventing climate-change-related human rights impacts by corporations as they are, per se, not legally binding or enforceable on either states or private business entities. Their effectiveness will, therefore, depend on how seriously states take their human rights obligation to protect, and on whether companies acknowledge that there is a 'business case' for complying with the corporate responsibility to protect human rights. The latter, i.e. whether such a business case exists, is more apparent when it comes to human rights violations directly attributable to business enterprises and recognisable to the consumer, such as violations in the field of labour rights; it is less apparent in the case of climate-change-related human rights impacts which often become noticeable only many years after the harmful business conduct. Consequently, in the context of climate change, the GPs are of primary relevance for either those companies that already believe there is a business case in conducting human rights due diligence, or the few well-intentioned companies that conduct human rights due diligence even in the absence of a strong business case for it. These two groups of companies will be exposed to lower risk profiles as climate change unfolds and businesses are held more responsible for human rights violations.

A. Introduction

Climate change and its impacts are increasingly being assessed from a human rights point of view.¹ This holds particularly true for its normative appraisal. The human-rights-based approach to climate change² is not surprising, given the existing and potential human costs thereof: the United Nations (UN) estimates that by 2020 almost 50 million more people will be at risk of hunger, and that rising sea levels will threaten the future of many island and coastal communities.³ According to the UN Office of the High Commissioner for Human Rights (OHCHR), –⁴

... it is clear that projected climate change-related effects threaten the effective enjoyment of a range of human rights, such as the right to safe and adequate water and food, [and] the right to health and adequate housing.

With regard to the advantages of a human-rights-based approach, the International Law Association states in its Second Draft Report on Legal Principles Relating to Climate Change that “[v]iewing climate change in human rights terms could help those vulnerable to climate change to garner public attention and influence negotiations.”⁵

Also, the OHCHR, in its 2009 report on the relationship between climate change and human rights, concludes – after having critically looked at the barriers to invoking human rights in the context of climate change⁶ – as follows:⁷

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- 1 The United Nations (UN) has been at the forefront with regard to developing a human-rights-centred approach to climate change. See, for example, the website of the UN Office of the High Commissioner for Human Rights regarding human rights and climate change, available at <http://www.ohchr.org/EN/Issues/HRAndClimateChange/Pages/HRClimateChangeIndex.aspx>, last accessed 5 October 2012. Also see the article by Christian Roschmann in this Volume.
 - 2 That is, an approach “which would place the individual at the centre of inquiry, and draw attention to the impact that climate change could have on the realization of a range of human rights”; International Law Association (2010:35, Footnote 263).
 - 3 See <http://www.asiapacificforum.net/news/the-human-cost-of-climate-change.html>, last accessed 4 October 2012.
 - 4 See <http://www.ohchr.org/EN/Issues/HRAndClimateChange/Pages/HRClimateChangeIndex.aspx>, last accessed 4 October 2012.
 - 5 International Law Association (2012:43).
 - 6 One of the biggest barriers is causality. In reference to this, the 2009 OHCHR Report states that “it is virtually impossible to disentangle the complex causal relationships linking historical greenhouse gas emissions of a particular country with a specific climate change-related effect, let alone with the range of direct and indirect implica-

Irrespective of whether or not climate change effects can be construed as human rights violations, human rights obligations provide important protection to the individuals whose rights are affected by climate change or by measures taken to respond to climate change.

In examining whether this conclusion holds true (i.e. whether human rights law can provide effective tools to address the challenge of climate change), special attention needs to be paid to private sector actors – particularly corporate entities – and the role they play with regard to climate change and its human rights impacts: many business activities are directly linked to global environmental damage that, in turn, can generate human rights violations, among them mining, fossil fuel extraction and deforestation, to name just a few.⁸ Climate change and human rights are increasingly important corporate responsibility issues,⁹ but what can be said about the interrelationship between the two?

This paper examines this relationship. It assesses whether existing international human rights standards and instruments are sufficient to manage (i.e. to prevent and sanction) private business activities that may result in climate-change-related human rights impacts, using as a case study the most recent global instrument regarding corporate responsibility for human rights, i.e. the Guiding Principles on Business and Human Rights: Implementing

tions for human rights. ... [G]lobal warming is often one of several contributing factors to climate change-related effects, such as hurricanes, environmental degradation and water stress. Accordingly, it is often impossible to establish the extent to which a concrete climate change-related event with implications for human rights is attributable to global warming”, Report of the Office of the UN High Commissioner for Human Rights on the Relationship Between Climate Change and Human Rights, UN Doc. A/HRC/10/61, 15 January 2009, para. 70, available at <http://www.ohchr.org/Documents/Press/AnalyticalStudy.pdf>, last accessed 4 October 2012 (hereinafter OHCHR Report (2009)). As to causality being a barrier to invoking human rights instruments in the context of climate change, see also International Law Association (2012:39): “International law analyses of the fit between human rights law and climate change have been mixed. Although the UN Human Rights Council and Office of the High Commissioner on [sic] Human Rights (OHCHR) have recognized the applicability of human rights law to climate change, the OHCHR and others have raised concerns about causal links and extraterritoriality”.

7 OHCHR Report (2009:para. 71).

8 See International Council on Human Rights Policy (2008:70).

9 As for the former, see e.g. the UN Global Compact, “Caring for Climate” initiative, available at http://www.unglobalcompact.org/issues/environment/climate_change/, last accessed 8 October 2012.

the United Nations “Protect, Respect and Remedy” Framework (GPs).¹⁰ Section B looks into the state duty to protect against corporate-related human rights abuses, with the emphasis on extraterritoriality (both direct and indirect). Section C discusses the relevance of corporate responsibility to respect human rights in terms of protecting against climate-change-related human rights impacts. The focus here is on human rights due diligence and impact assessment. The concluding Section D assesses the likely effect of the GPs and asks how climate and human rights, as well as private companies, can profit from them.

B. The 2011 UN Guiding Principles on Business and Human Rights

In June 2011, the UN Human Rights Council formally endorsed the GPs. This set of 31 principles seeks “to provide for the first time an authoritative global standard for preventing and addressing the risk of adverse human rights impacts linked to business activity.”¹¹

The GPs are the result of six years of research and intensive multi-stakeholder consultations around the world, led by the Special Representative of the UN Secretary-General on the human rights responsibility of transnational corporations and other business enterprises, Harvard Professor John Ruggie. According to Ruggie, –¹²

[t]he Guiding Principles highlight what steps States should take to foster business respect for human rights; provide a blueprint for companies to know and show that they respect human rights, and reduce the risk of causing or contributing to human rights harm; and constitute a set of benchmarks for stakeholders to assess business respect for human rights.

10 Report of the Special Representative of the Secretary-General on the Issue of Human Rights and Transnational Corporations and Other Business Enterprises, John Ruggie – Guiding Principles on Business and Human Rights: Implementing the UN “Protect, Respect and Remedy” Framework, 21 March 2011, UN Doc. A/HRC/17/31, available at <http://www.ohchr.org/documents/issues/business/A.HRC.17.31.pdf>, last accessed 10 October 2012. For a full analysis of the GPs, see Roos (2013).

11 Ruggie (2011).

12 (ibid.).

I. The State Duty to Protect against Corporate-related Human Rights Abuses

The GPs start from the classical state-centric conception of *human rights*, according to which states bear the primary responsibility for the protection and promotion of human rights. Correspondingly, the first chapter of the GPs describes the legal obligations which states have to meet in order to fulfil their duty to protect against corporate-related human rights abuses. These can be summarised as follows: states are required to take appropriate steps to prevent, investigate, punish and redress human rights abuses by third parties through effective policies, legislation, regulations and adjudication (GP, Principle 1 – hereafter GP 1). If a state fails to take such steps, it may breach its international human rights obligations. GP 1 does not state anything new from a legal point of view, as holds true for the entire set of the GPs: they do not create new international law obligations, but elaborate “the implications for existing standards and practices for States and businesses” (see GP 14).

Some commentators on the GPs view the emphasis on the state duty to protect, including the duty to adopt corresponding measures, as one of the Principles’ primary strengths.¹³ This positive assessment also holds true for the role which the state duty to protect can play when it comes to the prevention and remedying of climate-change-related human rights impacts by corporate non-state actors. At first glance, climate policy and regulation is not an area in which a state’s influence and private business activities clash in the same apparent way as they do in areas such as the promotion of foreign trade (in which states grant export, investment, and other credits to private companies).¹⁴ The state obligation to protect may, however, be relevant to climate-change-related human rights protection as it entails, among other things, a state duty to regularly reassess existing regulations, laws and jurisdictions with the objective of finding out whether they meet the ‘duty to protect’ requirements. Examples of “appropriate steps to prevent, investigate, punish and redress human rights abuses by third parties” in the aforementioned sense of GP 1 which can be relevant for the prevention of climate-change-related harm to human rights by corporates are –

13 See e.g. Amnesty International et al. (2011).

14 The promotion of foreign trade, too, can certainly have a climate-relevant component.

- companies' non-financial disclosure obligations in order to increase standards of human rights due diligence and accountability
- emissions caps¹⁵ or fuel-efficiency regulations, and
- the judicial enforcement of human rights.

These are all areas in which states have a special responsibility to protect, and are obliged to exercise their (political) margin of appreciation in conformity with human rights law.

1. The Duty to Ensure Policy Coherence

The duty to protect can also be seen as the basis for a state duty under international public law to align climate change and human rights policies – i.e. to make sure that relevant climate change laws and regulations are in line with a state's human rights obligations, and that any climate change policy-making needs to take human rights into account. The duty to ensure policy coherence is explicitly mentioned in GPs 8–10. Thus, according to GP 8, –

States should ensure that governmental departments, agencies and other State-based institutions that shape business practices are aware of and observe the State's human rights obligations when fulfilling their respective mandates, including by providing them with relevant information, training and support.

GP 9 reads as follows:

States should maintain adequate domestic policy space to meet their human rights obligations when pursuing business-related policy objectives with other States or business enterprises, for instance through investment treaties or contracts.

GPs 8 and 9 refer explicitly to trade- and investment-related laws and policies that shape business practices (see GP 8, Commentary), and international “economic agreements concluded by States, either with other States or with business enterprises” (see GP 9, Commentary), respectively. The rationale behind these Principles can, however, also be applied to international agreements related to climate change, and to climate change policymaking and implementation, for the following reasons: the Principles acknowledge that “at times, States have to make difficult balancing decisions to reconcile different societal needs”, and that the appropriate balance needs to be struck

15 For a definition of *emissions caps*, see e.g. <http://www.wisegeek.com/what-is-an-emissions-cap.htm>, last accessed 23 July 2012.

between human rights laws on the one hand, and laws and policies that shape business practices on the other (see GP 8, Commentary). Whereas the latter frequently serve economic interests only, the former primarily serve the interests of individuals and groups. As stated in the Commentary to GP 8: “[t]here is no inevitable tension between States’ human rights obligations and the laws and policies they put in place that shape business practices”, but there can be. The same holds true for climate-change-related laws and policies oriented to human rights needs on the one hand, and business-related laws on the other. In summation, the following can be concluded from the GPs regarding policy alignment for protection against climate-change-related corporate activities that may impact on human rights: states – in shaping business-relevant policies – need to make sure that such policies or the terms of international agreements –

- do not constrain them from fully implementing new human rights legislation, including human-rights-relevant climate change policies and agreements, and
- contribute to the fullest extent possible to the protection and realisation of human rights.

2. *The Extraterritorial Dimension of the State Duty to Protect*

To date, the legal situation of many, if not most, countries of the world is still insufficient when it comes to policies, legislation, regulations and adjudication relevant to the prevention of climate-change-related corporate harm to human rights. The existing regulation gap is closely related to the extraterritorial dimension of the state duty to protect: one of the main challenges regarding state regulation of business activities which might result in climate-change-related harm to human rights is the global or transnational nature of such activities. In this regard, two scenarios can be envisaged:

- Corporate activities take place in one country while the harm is felt in one or more other countries, and
- The harmful conduct is attributable to a company which is a subsidiary to a parent or management company based in a different jurisdiction from the subsidiary.

From a legal point of view, these scenarios are, inter alia, problematic insofar as two or more states with regulatory powers of varying degrees come into

play: the ‘home state’ (i.e. the state in which the parent company¹⁶ is registered), and the ‘host state’ (i.e. the state in which the corporation or its subsidiary operates).

With regard to the effective prevention of and protection against climate-change-related harm, the situation described can be difficult to solve when the state with the ‘stronger’ regulatory and/or jurisdictional case does not or cannot exercise its power satisfactorily, leaving regulation up to the ‘weaker’ state. The International Council on Human Rights Policy (ICHRP) published a Rough Guide on Climate Change and Human Rights, in which it describes this dilemma vividly, taking the prospects of national-level litigation with regard to harm caused by greenhouse gas (GHG) production by multinational corporations as an example, the basis of which is fundamentally transnational.¹⁷

Many of the biggest emitters do not operate in one State: they act globally. The biggest American and European emitters (oil and gas and logging companies) generate many of their emissions abroad, in countries that do not have emissions caps or robust regulation or judicial enforcement. US and European car producers sell cars globally: even if fuel-efficiency regulations are introduced in their home countries, they can still be avoided elsewhere. Many LDCs [least developed countries] rely for transport on discarded fuel-inefficient vehicles from the West. Airlines and shipping companies escape global emissions accounting altogether, although this is likely to change. Furthermore, if emission levels are evaluated across entire production and supply chains, it is quickly apparent that many of the emissions attributed to developing countries in fact serve to improve the lifestyles of the wealthy. In manufacturing too, companies can source or outsource the most polluting phases of production to other countries. For all these reasons, the most polluting private actors have many means to escape a state-centric emissions accounting regime. Indeed, a perverse effect of CBDR [common but differentiated responsibilities] is that firms may seek ways to ‘dump’ emissions in countries that do not have caps.

The dilemma described here raises the question of whether or not the principle of extraterritoriality can serve as a means to tackle these governance gaps. The answer is not clear-cut: the category of extraterritorial jurisdiction,

16 “A parent company is a company that owns enough voting stock in another firm to control management and operations by influencing or electing its board of directors; the second company being deemed as a subsidiary of the parent company. The definition of a parent company differs by jurisdiction, with the definition normally being defined by way of laws dealing with companies in that jurisdiction”, available at http://en.wikipedia.org/wiki/Parent_company, last accessed 17 July 2012.

17 ICHR (2008:69).

i.e. a state's ability to exercise legislative, judicial and/or executive power beyond its territorial limits,¹⁸ is highly controversial and politicised. This is particularly the case when it comes to policy domains in which states have not yet agreed to certain uses of extraterritoriality, such as human rights and climate change,¹⁹ and business policies and human rights,²⁰ respectively. With regard to the latter in particular, "[I]legitimate issues are at stake and they are unlikely to be resolved fully anytime soon".²¹

The International Law Association's Committee on Legal Principles Relating to Climate Change regards the question of whether human rights obligations can be applied extraterritorially as one of two barriers to efforts to invoke human rights instruments in the context of climate change. In its Second Draft Conference Report of 2012, the Committee describes the current legal situation as follows:²²

Although the failure by developed States to regulate or control GHG emissions could amount to an interference with individual rights domestically, obligations to protect human rights from environmental harm may not apply extraterritorially. The case law on extraterritoriality of human rights mainly involves occupation or control of territory, and is not helpful to the very different settings of climate change. That is one of the reasons why developing States have not so far sought to bring human rights cases against major GHG-emitting States.

18 See e.g. http://en.wikipedia.org/wiki/Extraterritorial_jurisdiction, last accessed 16 July 2012.

19 See International Law Association (2012:39): "International law analyses of the fit between human rights law and climate change have been mixed. Although the UN Human Rights Council (HRC) and Office of the High Commissioner on [sic] Human Rights (OHCHR) have recognized the applicability of human rights law to climate change, the OHCHR and others have raised concerns about causal links and *extraterritoriality*" [emphasis added].

20 See Report of the Special Representative of the Secretary-General on the Issue of Human Rights and Transnational Corporations and Other Business Enterprises, Ruggie, John, UN Doc. A/HRC/14/27, 9 April 2010, para. 46, available at <http://198.170.85.29/Ruggie-report-2010.pdf>, last accessed 16 July 2012 (hereinafter Report 14/27): "All States have the duty to protect against corporate-related human rights abuses within their territory and/or jurisdiction. In several policy domains, including anti-corruption, anti-trust, securities regulation, environmental protection and general civil and criminal jurisdiction, States have agreed to certain uses of extraterritorial jurisdiction. However, this is typically not the case in business and human rights".

21 (ibid.:para. 47).

22 International Law Association (2012:40).

The Committee does, however, concede that evolving international legal approaches may help to address this barrier,²³ which raises the next question: is the new international corporate human rights regime in general, and are the GPs in particular, of any help? Do they identify necessary legal approaches to this issue?

Unfortunately, the GPs contribute only so much to a solution of the extraterritoriality problem, as the UN Special Representative took quite a conservative approach to this issue. He missed the opportunity to interpret public international law progressively by declaring that the extraterritoriality dimension of the state duty to protect remains unsettled in international law:²⁴

At present States are not generally required under international human rights law to regulate the extraterritorial activities of businesses domiciled in their territory and/or jurisdiction.

At least Ruggie concedes that ‘home states’ are not generally prohibited from doing so – provided there is a recognised jurisdictional basis.²⁵

The GPs have been criticised for not having adequately addressed the extraterritoriality issue. Ruggie’s interpretation of the extraterritoriality dimension is correctly viewed as a “lukewarm endorsement of extraterritoriality”.²⁶ Amnesty International regards the GPs’ weak point as being that they “do not require States to put in place effective regulatory measures to prevent and punish their companies from abusing the rights of individuals and communities in other countries.”²⁷

Amnesty International asked the Working Group on Business and Human Rights, which the UN Human Rights Council formed following the endorsement of the GPs, to focus on extraterritoriality in their future work in order “to adequately advance the rights of those affected by business-related human rights abuses.”²⁸

23 (ibid.).

24 GP 2, Commentary.

25 See GP 2, Commentary.

26 Backer (2011:146).

27 Amnesty International (2011).

28 (ibid.).

It is to be hoped that the Working Group takes this appeal seriously, but it has not picked up the issue to date.²⁹

Despite the legitimate criticism that may be levelled against the GPs' treatment of extraterritoriality, one has to give credit to the Principles for the following reasons:

- They ask states to “set out clearly the expectation that all business enterprises domiciled in their territory and/or jurisdiction respect human rights throughout their operations” (GP 2), and
- They point out some of the policy reasons for home states to encourage companies domiciled in their territory and/or jurisdiction to respect human rights abroad, and list exemplary domestic measures with extraterritorial implications that states have adopted in the past.

Among those policy reasons are an increased predictability for business enterprises, and reputation protection for states seeking to avoid being associated with possible overseas corporate abuse. Domestic measures with extraterritorial implications, mentioned in the Commentary to GP 2, include –

- requirements for ‘parent’ companies to report on the global operations of the entire enterprise
- multilateral soft-law instruments, such as the Guidelines for Multinational Enterprises of the Organisation for Economic Co-operation and Development
- performance standards required by institutions that support overseas investment, and
- direct extraterritorial legislation and enforcement, including criminal regimes that allow for prosecutions based on the nationality of the perpetrator no matter where the offence occurs.

Each of these measures could be instrumental in preventing and/or prosecuting climate-change-related human rights violations linked to corporate activities. This article will now examine two of them more closely: indirect extraterritorial jurisdiction (IETJ), and direct extraterritorial jurisdiction.

29 The Working Group aims at disseminating and discussing the GPs. Its agenda, reports and ongoing work are available at <http://www.business-humanrights.org/Documents/UNWorkingGrouponbusinesshumanrights>, last accessed 16 July 2012.

a) Indirect Extraterritorial Jurisdiction

IETJ by the home state “consists in imposing on the parent company domiciled in the home State a due diligence obligation to control its subsidiaries or business partners”.³⁰ IETJ is primarily being exercised through reporting requirements, which are one of the domestic measures with extraterritorial implications explicitly mentioned in the GP’s chapter on extraterritoriality.³¹ Requiring parent companies to report on the global operations of the entire enterprise – in particular the company’s overall human rights policy and impacts, and especially those of its overseas subsidiaries – is an important means to foster a corporate culture respectful of human rights at home and abroad.³² Such a state policy measure relies on territory as the jurisdictional basis, even though it may have extraterritorial implications.³³ States should, therefore, be less reluctant to adopt such reporting policies; and extraterritoriality – at least if it is only ‘indirect’ – should be a surmountable barrier to efforts to invoke human rights instruments in the context of climate change.

The 2011 Maastricht Principles on Extraterritorial Obligations of States in the Area of Economic, Social and Cultural Rights³⁴ argue in the same direction. They explicitly recognise the ‘home state principle’ as a basis for state measures to protect human rights. The relevant part of Principle 25, Bases for Protection, reads as follows:

States must adopt and enforce measures to protect economic, social and cultural rights through legal and other means ... in each of the following circumstances: ... c) as regards business enterprises, where the corporation, or its parent or controlling company, has its centre of activity, is registered or domiciled, or has its main place of business or substantial business activities, in the State concerned.

From a strictly legal point of view, the relevance of the Maastricht Principles for establishing a legal argument in favour of extraterritorial human rights obligations is limited: the Maastricht Principles have only been adopted by

30 De Schutter (2010:249).

31 See Commentary to GP 2.

32 How a company can and should embed human rights into its core business practices is elaborated in this article in Section B, *II. The Corporate Responsibility to Respect Human Rights*.

33 See Report 14/27, para. 48.

34 The Maastricht Principles are available at <http://www.icj.org/dwn/database/Maastricht%20ETO%20Principles%20-%20FINAL.pdf>, last accessed 17 July 2012.

a group of experts in international law and human rights. The Principles express expert opinions, but are not legally binding on states. The Principles do, however, provide important guidelines for states on the scope of their human rights obligations beyond their own borders, and stress the importance of IETJ.

b) Direct Extraterritorial Jurisdiction

Compared with IETJ, direct extraterritorial jurisdiction – both legislation and enforcement – over private actors or activities abroad is an even more controversial concept than its counterpart, and has not yet received widespread acceptance. Also, the barriers which need to be overcome concerning direct extraterritorial jurisdiction are quite high. Similar challenges exist in the international environmental law regime. Although environmental protection is one of the policy domains in which states have already agreed to certain uses of extraterritorial jurisdiction (ETJ),³⁵ the issue of ETJ has not been finally settled in this area either.³⁶ Here, parallels are apparent between the international corporate human rights regime (which is still evolving) and the international environmental law regime. As far as evolving international legal approaches to extraterritoriality are concerned, these regimes should be linked to one another. This is crucial when it comes to developing solutions for the problem of climate-change-related harm to human rights.

35 See Report 14/27, paras. 46–50.

36 On the issue of EJT, the International Law Association elaborated in its first report, *Legal Principles Relating to Climate Change*, as follows: “Corporations operating in foreign countries could be subject to the environmental laws of their home state through the ‘nationality’ principle of jurisdiction. This is problematic, however, if such corporations are also subject to the host state jurisdiction [–] leading to jurisdictional disputes. Yet if damage originating from corporate activity in the host state resulted in environmental damage in the home state or the global commons – for instance, the climate system – then the home state would have a stronger case. In such a case the ‘objective’ applications of the territoriality principle – the ‘effects’ principle – could also be applied, giving the home state a stronger case for applying jurisdictional extraterritoriality, though this has not generally been accepted” International Law Association (2010:29).

II. The Corporate Responsibility to Respect Human Rights

So far, this article has focused on the GPs' implications for the state duty to protect against climate-change-related harm to human rights associated with corporate activities. The state duty to protect is, however, only one – albeit a central one – of the three pillars which the GPs promote.³⁷ The second pillar, the corporate responsibility for human rights, is of equal importance and of great relevance for the issues discussed in this article. The principles and the commentaries thereto³⁸ provide guidance and answer several crucial questions to this effect. One of them concerns the relationship between the state duty to protect and the corporate responsibility to respect, on the one hand, and between national and international human rights obligations on the other:³⁹

The responsibility to respect human rights is a global standard of expected conduct for all business enterprises wherever they operate. It exists independently of States' abilities and/or willingness to fulfil their own human rights obligations, and does not diminish those obligations. And it exists over and above compliance with national laws and regulations protecting human rights.

With regard to climate-change-related human rights impacts and/or violations, the subsequent aspects of the GPs' elaborations on “corporate responsibility to respect human rights” are particularly relevant –

- applicability to all human rights
- the human rights due diligence concept
- human rights impact assessment, and
- impact versus sphere of influence.

These will be discussed in more detail in the following paragraphs.

37 The GPs implement the tripartite framework on business and human rights – “Protect, Respect, and Remedy” – developed by the UN Special Representative and passed by the UN Human Rights Council in 2008. The Framework comprises three core principles which complement and support each other. The first pillar is the state duty to protect against human rights abuses by third parties, including businesses. The second entails the corporate responsibility to respect human rights, while the third focuses on the need for more effective access to remedies.

38 See Chapter II of the GPs.

39 GP 11, Commentary.

1. Applicability to all Human Rights

The GPs neither prioritise particular human rights to which a company should pay special attention nor define specific areas about which corporations should be most concerned. Rather, they are based on the premise that all human rights are or can be relevant for business activities:⁴⁰

Because business enterprises can have an impact on virtually the entire spectrum of internationally recognized human rights, their responsibility to respect applies to all such rights. In practice, some human rights may be at greater risk than others in particular industries or contexts, and therefore will be the focus of heightened attention. However, situations may change, so all human rights should be the subject of periodic review.

Hence, the GPs apply to the whole spectrum of internationally recognised human rights, which encompass at a minimum those that are expressed in the so-called International Bill of Human Rights (made up of the Universal Declaration of Human Rights and the two main instruments through which the Declaration has been codified – the International Covenant on Civil and Political Rights, and the International Covenant on Economic, Social and Cultural Rights), as well as the principles concerning fundamental rights as set out by the International Labour Organization’s 1998 Declaration on Fundamental Principles and Rights at Work.⁴¹ This broad scope of the GPs is one of the reasons why they are of particular relevance for the prevention, investigation, punishment and redress of climate-change-related human rights abuses by corporations: climate-change-related effects can threaten the effective enjoyment of a broad spectrum of human rights, not just a subset of them. Though certain human rights are more likely to be affected (such as the right to life, the right to food, the right to safe and adequate water, the right to health, and the right to adequate housing), other human rights may be at risk as well. The openness of the GPs with regard to subject matter applicability allows for the largest degree of flexibility possible when it comes to applying human rights law to climate change.

40 GP 12, Commentary.

41 See GP 12.

2. *The Human Rights Due Diligence Concept*

According to GP 15, in order to meet their responsibility to respect human rights, business enterprises should maintain statements of policy, human rights due diligence, and remediation processes. Human rights due diligence constitutes the core element of corporate human rights responsibility. It is to be welcomed that the GPs resort to the *due diligence* concept as the basis of corporate responsibility to actually address adverse human rights impacts with which enterprises are involved.⁴² This concept is familiar to business, and what is more, it plays a particularly important role when it comes to preventing climate-change-related harm to human rights, for the following reasons: the purpose of human rights due diligence is “to identify, prevent, mitigate and account for how ... [businesses] address their adverse human rights impacts.”⁴³

The *due diligence* concept has long been recognised in environmental protection law. Its concretisation through the GPs, with regard to human rights, is of great relevance for the prevention of climate-change-related human rights impacts, given their close link to environmental degradation measures. The introduction of the *due diligence* concept to corporate human rights responsibility thereby establishes an important tie between climate change and human rights, both of which have been recognised as important corporate responsibility issues by themselves,⁴⁴ but, thus far, have hardly ever been linked to each other.

3. *Human Rights Impact Assessment*

In order to discharge their responsibility to respect human rights, business enterprises should carry out an essential component of human rights due diligence: a human rights impact assessment. According to the GPs, this assessment is to be effected in four steps:

42 The International Trade Union Federation has also argued in this direction. See Letter of International Trade Union Federation to John G. Ruggie, 27 May 2011, available at http://www.ituc-csi.org/IMG/pdf/Letter_to_Mr_John_G_Ruggie_.pdf, last accessed 20 July 2012.

43 GP 17.

44 As for climate change, see e.g. the UN’s Global Compact “Caring for Climate” initiative, available at http://www.unglobalcompact.org/issues/environment/climate_change/, last accessed 8 October 2012.

1. Identification and assessment of actual and potential human rights impacts with the goal of understanding “the specific impacts on specific people, given a specific context of operations” (GP 18)
2. Effective integration across relevant international functions and processes, and taking appropriate action based on the findings of the impact assessment (GP 19)
3. Tracking responses in order to determine whether human rights policies have been implemented optimally, to ensure that there has been an effective response to the identified human rights impacts, and to drive continuous improvement (GP 20), and
4. External communication and reporting of how a business addresses its human rights impacts, “providing a measure of transparency and accountability to individuals or groups who may be impacted and to other relevant stakeholders, including investors” (GP 21, Commentary).

A human rights impact assessment typically includes –⁴⁵

... assessing the human rights context prior to a proposed business activity, where possible; identifying who may be affected; cataloguing the relevant human rights standards and issues; and projecting how the proposed activity and associated business relationships could have adverse human rights impacts on those identified.

The GPs leave up to each corporation how it incorporates processes for assessing human rights impacts, recognising that the latter can be included in other processes such as risk assessment or environmental and social impact assessments.⁴⁶ This is an important consideration for the prevention of climate-change-related human rights effects because it gives corporations the greatest possible flexibility, and recognises the interrelationship between environmental, social and human rights impact assessments. At the same time, however, the GPs stress that, in any case, the impact assessment should include “all internationally recognized human rights as a reference point”.⁴⁷ From all of this it clearly follows that managers – or anyone responsible for their company’s climate change impacts – also need to consider human rights. Schuchard and Weston, the former a manager of environmental research and innovation and the latter an associate of human rights research and innovation at Business for Social Responsibility, explain why

45 See GP 18, and Commentary thereto.

46 See Commentary to GP 18.

47 (ibid.).

managers' involvement is so important for the prevention of climate-change-related human rights impacts:⁴⁸

These individuals, often finance and energy managers, are generally charged with making direct investments that can impact the human rights of communities in areas where these investments take place, such as buying or selling of carbon market instruments, recommending sites for new facilities, procuring energy and water, carrying out remediation activities, and engaging suppliers. For instance, if a project involves establishing a new plant that will stress the local community's water resources, over time this may impact the community's right to food, safe water, and health – especially if the community's water resources are already suffering from climate change-related drought. Finally, managers should beware of adaptation's pitfalls – namely, growing instability in communities where people feel they are disenfranchised – while prioritizing the development of strong foundations for a world of climate instability.

The focus on affected communities is in line with the GPs repeated emphasis on paying special consideration to particularly vulnerable and/or marginalised groups at any stage of the implementation of a company's human rights responsibility, especially in all due diligence activities:⁴⁹

Business enterprises should make particular efforts to track the effectiveness of their responses to impacts on individuals from groups or populations that may be at heightened risk of vulnerability or marginalization.

Schuchard and Weston suggest how these challenges can be addressed:⁵⁰

[C]limate change managers can use quantitative analysis to represent the longer-term trends of climate change while doing qualitative research via community engagement to determine potential human rights issues.

They further advocate for treating the nexus of climate change and human rights as a strategy issue, and illustrate why a company might profit from this:⁵¹

Senior-level executives have an opportunity to help their company address climate change and human rights by promoting quantitative data analysis with qualitative, holistic thinking. At the same time, they should promote aligned, consistent actions throughout the company, particularly among their marketing, public relations, and government affairs teams. Companies that do this will be ahead of the game – and ultimately more efficient, with lower risk profiles as

48 Schuchard & Weston (2009).

49 Commentary to GP 20.

50 Schuchard & Weston (2009).

51 (*ibid.*).

climate change unfolds and companies are held to higher account for human rights.

4. *Impact v Sphere of Influence*

Closely related to the requirement of a human rights impact assessment is yet another of the strengths of the GPs: they use the concept of *impact* for defining the scope of corporate responsibility, instead of the vaguer concept of *sphere of influence*.⁵² Ruggie explains this as follows: “[T]he concept of impact is a more objective basis for attributing responsibility than influence.”⁵³

What is important in the case under consideration is that *impact* refers not only to actual but also to potential effects which corporate conduct or operations can have on human rights, whether the adverse impact is caused through, or contributed to by, a company’s own activities, or whether the impact is directly linked to a company’s operations, products or services by its business relationship, even if the enterprise has not directly contributed to those impacts.⁵⁴ In this context, *business relationships* are understood “to include relationships [of a business] with its business partners, entities in its value chain, and any other non-State or State entity directly linked to its business operations or services.”⁵⁵

According to the GPs, the corporate responsibility to respect human rights requires that business enterprises “avoid causing or contributing to adverse human rights impacts” in the former case, and that they seek to prevent or mitigate such impacts in the latter case (GP 13). In any event, they have to address adverse human rights impacts with which they are involved (GP 11).

52 As for the difference between the two, see e.g. Henriques (2009) and http://www.unglobalcompact.org/issues/human_rights/The_UN_SRSG_and_the_UN_Global_Compact.html, last accessed 25 July 2012 (with further references).

53 See <http://globalcompactcritics.blogspot.de/2010/05/global-compacts-principle-on-e-subject.html>, last accessed 25 July 2012.

54 See GP 13.

55 GP 13, Commentary.

C. Assessment: A Paper Tiger?

From a strictly legal point of view, the GPs may be considered unsatisfactory and of little help in preventing climate-change-related human rights impacts by corporations because they are, per se, not legally binding or enforceable on either states or private business entities. At present, the GPs can be characterised as ‘soft regulation’ or ‘soft law’, i.e. permissive, not compulsory regulation in the form of recommendations, opinions or statements, which may eventually lead to ‘hard regulation’ or ‘hard law’, i.e. compulsory law which articulates penalties for failure to comply. There is, however, little likelihood that they will be adopted or recognised as a legally binding instrument at the international level soon, given the long series of unsuccessful attempts, particularly by the UN, to promote legally binding norms on corporate human rights responsibilities.⁵⁶

Due to their non-binding nature, the GPs’ practical significance has been called into question. Some critics of the Principles ask, not without reason, what a company’s incentive would be to discharge its human rights responsibility, given that the GPs are premised on volunteerism, and that there are, so far, no legal consequences or sanctions if a company ignores them. One possible answer, given by a discussant in a professional social network on business and human rights, is the following:⁵⁷

A company's main aim is to make profit and I pretty much doubt that they would willingly want to conduct all the HR [human rights] impact assessments[,] etc.

56 The first such initiative dates back to the 1970s, when the UN drafted the United Nations Code of Conduct for Transnational Corporations. The Code was never adopted due to contentious negotiations. It was not until the late 1990s that the UN started another attempt to clarify and institutionalise corporate responsibilities for human rights: in July 2000, the UN Global Compact was launched, which is a call to companies worldwide to align internal operations with the Compact’s ten universal principles in the areas of human rights, labour, environment and anti-corruption. The Compact, like the GPs, is voluntary in nature, and has, therefore, been criticised in the past (as to the criticism, see e.g. Knox 2011). Finally, the attempt by the UN Sub-Commission on the Promotion and Protection of Human Rights in the late 1990s and early 2000s to draft legally binding norms on the responsibilities of transnational corporations and other businesses with regard to human rights also failed. Both governments and business enterprises strongly opposed the draft norms because of the legal responsibility which they assigned to corporations.

57 Voice of a discussant in a social network on business and human rights (LinkedIn); document with the author.

and multiply their costs for a soft social responsibility with no legal enforcement mechanism to ensure compliance.

This scepticism is all the more appropriate with regard to efforts to invoke human rights instruments in the context of climate change, given, *inter alia*, the barriers thereto, such as the challenge of establishing causality: the causal nexus between corporate activities which may contribute to climate change and related human rights violations is often difficult to establish.⁵⁸

From all of this, one could argue that the GPs' effectiveness will, first and foremost, depend on how seriously states take their human rights obligation to protect – an obligation which is recognised in international public law – and only secondly on whether companies acknowledge that there is a 'business case' for complying with their corporate responsibility to respect human rights. The latter, in turn, will depend to a large degree on the cost–benefit analysis of a corporate enterprise: the more the benefits of avoiding operational, legal and reputational risks outweigh the costs of conducting human rights due diligence, such as a human rights impact assessment, the more compelling is the business case for complying with the corporate social responsibility to respect human rights. At present, the social pressure on corporations (particularly from consumers) is already quite strong when it comes to human rights violations directly attributable to business enterprises and recognisable to the consumer, such as violations in the field of labour rights. In these cases, the business case for companies to comply with their corporate human rights responsibility is already plausible. By contrast, climate-change-related human rights impacts often become noticeable only many years after the harmful business conduct. Consequently, in the context of climate change, the GPs are of primary relevance for either those companies that already believe there is a business case for conducting human rights due diligence, or the few well-intended companies that conduct human rights due diligence even in the absence of a strong business case for it. For them, the GPs offer some helpful guidance on how to conduct responsible business, and to avoid activities which may contribute to climate-change-related harm to human rights. In the end, the GPs will be successful as an instrument to prevent, *inter alia*, climate-change-related human rights violations when companies accept that consideration of human rights is not a burden, but something from which they can actually profit.

58 See Footnote 6 above.

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Climate Change and Gender Justice: International Policy and Legal Responses

Patricia Kameri-Mbote

Abstract

Climate change raises issues of justice for different subjects of law – states and individuals. It is therefore not surprising that international policy and legal responses to climate change took equity concerns on board by considering differentiated responsibilities for climate change and taking respective capabilities of states into account in assigning the role to protect the climate system for the benefit of present and future generations of humankind. While the link between gender and climate change has not always been obvious, there is increasing evidence to demonstrate that women and men experience climate change differently; that climate change increases women’s vulnerability; and gender inequalities worsen women’s coping capacities. This article looks at the relationship between gender and climate change and how international policies and laws on gender and climate change address the interface. It also highlights the increasing advocacy for the inclusion of gender justice in international climate change debates. It concludes that including gender in the laws, policies and discussions on climate change brings a critical constituency to these platforms and also enhances the effectiveness of the interventions aimed at dealing with climate change because of the roles that women play in different programmes and contexts.

A. Introduction

Climate change has become a dominant issue the world over. It is happening in a context that is already complex – with global, national, regional and local dynamics that affect states and individuals in profound ways. These include development challenges, price hikes, population increases and migration, globalisation and economic liberalisation, inter- and intrastate conflict, and health challenges. This has necessitated an array of interventions.

The Stern Review on the Economics of Climate Change¹ and the Fourth Assessment Report of the Intergovernmental Panel on Climate Change² (IPCC) have helped to raise awareness and increase understanding of the climate and environmental changes we can expect. However, the far-reaching effects of climate change on human societies are less understood, and both policy and research on integrating gender perspectives into climate change work is only beginning to emerge. This lack of research and evidence on gender and climate change makes it difficult to bring out this complexity in order to inform policy.

The IPCC Report rightly points out that climate change is a threat multiplier.³ Although the effects of climate change interact with those of other problems, the poor and vulnerable may not perceive climate change as a major problem compared with other urgent problems such as poverty. This conflation has overwhelmed women's rights campaigners and advocates, since the majority of the poor lack not only the skills needed to engage in complex scientific debates, but also the opportunity to engage in debates on climate change in particular, at the international, national and regional levels. Yet the impacts of climate change are apparent at the local and household levels.⁴ Global environmental change jeopardises environmentally based livelihood strategies. Climate change is predicted to accentuate the gaps between rich and poor, as people living in poverty are more vulnerable. Perspectives, responses and impacts surrounding disaster events vary for men and women. They experience environmental change differently because they have different sets of responsibilities and vulnerabilities, as well as unequal capabilities and opportunities for adjustment.

The lack of attention to gender in climate change research and policy is due to the complexity and uncertainty that climate change brings with it. An additional challenge is the insistence on women's universal vulnerability, especially in the developing world, which has contributed to the lack of inclusion of gender in climate change debates. It is assumed the problem – vulnerability of women – is known. This assumption denies women the opportunity to voice their concerns in this era of unprecedented calamities, which in turn reinforces the differences between men and women. Furthermore, these generalisations showcase little on how vulnerability is produced

1 Stern (2007).

2 IPCC (2007).

3 (ibid.).

4 Djoudi & Brockhaus (2001:2).

for other groups, such as certain groups of men, especially when one looks at powerlessness and how this can contribute to a community's vulnerability to famine, for example, or a hazard that has resulted from climate change. The situation is also compounded where women take on male roles, such as herding cattle, within a context where they already have gender-defined roles. These dynamics can deny women the opportunity to voice their concerns, and they thus reinforce the differences between men and women. Generalisations may also mask other climate-change-related causes of vulnerability, such as droughts, hazards and famine, including how these affect different groups of men and women.

Gender equality and women's empowerment are both a means and an end to attaining the eight United Nations Millennium Development Goals (MDGs) and to promoting development in general. It is for this reason that they are included in MDG 3. To achieve the targets under MDG 3, focusing on promoting gender equality and the empowerment of women, a multi-pronged approach needs to be adopted which recognises and acknowledges that gender is a cross-cutting issue and needs to be mainstreamed in all the other MDGs, including the one on environmental sustainability,⁵ if real development progress is to be made.⁶ The MDGs note that gender equality is both a goal and a condition for combatting poverty, hunger and disease, and for achieving all the other MDGs. An analysis of development from a gender perspective makes it clear that, as with poverty, hunger and disease, the impacts of climate change will be closely linked to gender equality and women's empowerment because of socially constructed gender roles. Although location-specific patterns are key factors in assessing risks and threat levels relating to the impacts of climate change, social inequalities in particular have serious repercussions on many women's lives, limiting their access to land ownership, housing, education, and health care, as well as their participation in policy- and decision-making – i.e. limiting their human freedoms and options that would assist in mitigation and adaptation measures.

While the link between gender and climate change has not always been obvious, there is now sufficient evidence to demonstrate that societies with more gender equality are less likely to suffer the brunt of climate change. There is continually progressive evidence to show that women and men ex-

5 MDG 7.

6 Kameri-Mbote (2007).

perience climate change differently and that gender inequalities worsen women's coping capacities. Furthermore, it has been acknowledged that women are important agents of change and hold significant knowledge and skills related to mitigation and adaptation to climate change. Indeed, climate change will tend to exacerbate existing environment-related risks and vulnerabilities. It will also reinforce existing inequalities: women and children are especially vulnerable, not least as they tend to be the least able to cope.

Thus, the principal issues to consider in gender and climate change include –

- the causal interrelationship between climate change and gender: Climate change tends to exacerbate existing gender inequalities (gender inequalities result in women having to face larger negative impacts)
- women are not just victims but active agents of change and possess unique knowledge and skills, and
- understanding the risks and different impacts of climate change on men and women is key to achieving sustainable development and the MDGs.

This chapter looks at international policy and legal responses to climate change and gender justice. It is divided into four sections. Section A constitutes this Introduction, while Section B comprises the conceptual framework. Section C discusses international policy and legal responses to climate change and gender justice, and Section D offers a conclusion.

B. Conceptualising Gender and Climate Change

Feminist scholars use *gender* as an analytical variable. *Gender* is a relational concept that denotes the manner in which women and men are differentiated and ordered in a given sociocultural context.⁷ Sexuality appears as the interactive dynamic of gender as an inequality predicated on sex. Gender emerges as the congealed form of the sexualisation of inequality between men and women. As long as this is socially the case – the feelings, acts or desires of particular individuals notwithstanding – gender inequality will divide society into two communities of interest. The male features centrally

7 Kameri-Mbote (2003:56).

in the hierarchy of control; for the female, subordination is sexualised – in the way that dominance is for the male.

The gender–climate change nexus is usually conceptualised at three levels. Firstly, the negative impacts of climate change aggravate gender inequalities. Secondly, those gender inequalities result in different experiences for women during natural disasters such as floods and droughts. Thirdly, women tend to be perceived as victims only; for this reason they are sidelined when decisions are made that relate to adaptation measures. Thus, the knowledge and relevant ideas possessed by women from their day-to-day experiences are not taken into account.

Scholarly work on climate change recognises that its effects will be harshest in tropical countries in the south, and will affect the poor and the vulnerable most severely. According to the traditional approach, a poor person is someone whose income falls below the poverty threshold. This argument is widely discussed in economic literature. Amartya Sen included another dimension in this literature, and argued that monetary poverty represents only a partial view of the problem of poverty as it is experienced by the poor.⁸ According to Sen, a *poor person* is someone who has very few opportunities and whose capacity to seize such opportunities is limited.⁹

From a human development perspective, a poor person lacks basic capabilities and sufficient income, suffers poor health, and is insufficiently educated.¹⁰ As a result, such a person is excluded from society because s/he cannot participate fully as a citizen. The intersection of gender with poverty is highlighted in scholarly work on climate change.¹¹

An analysis of the different vulnerabilities for men and women to climate change looks at what people value. For example, this includes their cultural identity, livelihoods, sense of place, visions for the future, and human security. Climate change will affect what people value in terms of survival, security, identity and self-actualisation.¹² These values are nuanced by the contexts in which people experiencing climate-change-related vulnerability live, and may be non-economic.¹³ Such values may be invisible and unquantifiable, such as values that men and women have due to their gender-

8 Sen (1999).

9 (ibid.).

10 UNDP (1997).

11 See e.g. Demetriades & Esplen (2008).

12 Adger et al. (2009).

13 (ibid.).

differentiated roles, and there may be conflicts between these values at local and household levels. Such values can be the basis for adaptation strategies, such as crop diversification or changing livestock breeds. As noted by Nussbaum,¹⁴ increases in choice per se do not necessarily lead to an increase in freedom; this may partly be because the options added may not be the ones we value anyway, and partly because we may lose the option to live a peaceful and unbothered life. This is especially the case in gendered contexts, where options are influenced by power dynamics and the influence of different actors. Gender, as a social construction of maleness and femaleness, influences the norms and values as well as the roles and relations considered appropriate for men/boys and women/girls. It determines what is permitted, valued and expected from a man or a woman in a given context, and these distinct roles and relations give rise to gender differences.

Gender inequality can arise from these constructions, where the rights, responsibilities and opportunities of individuals are determined by the fact of being biologically male or female. For this reason the quest for gender equality has permeated international and national human rights discourses. The aim is to ensure that men and women have equal rights and opportunities to participate in political, economic, social and cultural development, and that they both benefit from the results.¹⁵

Gender equity supplements equality, and relates to fairness in the treatment of men and women. It is predicated on the fact that inequality between men and women may arise – despite provision for normative equality – because of structural conditions raising the need for differential treatment of men and women to get rid of such inequality.¹⁶

C. International Climate Change and Gender Intervention

Climate change and related policies are likely to have wide-ranging effects on gender relations. The nature of climate change is such that global measures that are taken to curb it need to be backed by national, regional and local plans. Indeed, while agreements to curb greenhouse gas (GHG) emissions are between states, the emissions and actions to deal with them need to be taken by individuals and corporations. From the outset, the legal re-

14 Nussbaum (2000).

15 Kameri-Mbote (2007).

16 Cullet (1998).

sponses designed for climate change anticipated equity as a guiding principle. The states parties to such agreements adverted to equity and the common but differentiated responsibilities and respective capabilities in assigning roles to protect the climate system for the benefit of present and future generations of humankind.¹⁷ Developed-country states parties who bore more responsibility for emissions than their developing country counterparts took the lead in combating climate change and its adverse effects.

The challenge of cascading this *equity* notion to the national and local levels where the gender dimension can be captured has dogged the international regime over time.

The translation of the gender variable in climate change policies can be analysed at five levels: *international*, *regional* (and *subregional*, where applicable), *national*, *local* and *household*. At the international level, the role of technology in climate change adaptation and mitigation and the technical nature of the debates have contributed to the marginalisation of women. Indeed, while climate change policies are developed at the international, national and regional levels and have taken technical solutions on board, local and household solutions are likely to be nuanced by the gender division of labour, with female preferences assuming greater importance at these lower levels. For instance, technical solutions emphasise the need for bio-fuels, carbon capture and storage which, according to Hemmati and Rohr,¹⁸ are not sufficient to meet the requirements of developing a low-carbon economy. Besides, biofuels may compete for land that is required for household subsistence. Furthermore, the proposed remedy that households use less energy will impact on women in their performance of domestic chores. Such commitments made to reduce carbon emitted by individual households, especially in Africa, will have an adverse impact on gender equality.

Since 2002, the Commission on the Status of Women has promoted awareness of the links between gender, natural disasters, and climate change.¹⁹ At its 46th Session in 2002,²⁰ and at its 52nd Session in

17 Article 3, United Nations Framework Convention on Climate Change (UNFCCC).

18 Hemmati & Röhr (2009:14).

19 In accordance with Resolution 2006/9 of the United Nations Economic and Social Council (ECOSOC), the Commission on the Status of Women identifies emerging global themes that require global and regional actions in each of its annual sessions. Specifically, Resolution (jj) on Financing for Gender Equality and Women's Empowerment (E/CN.6/2008/L.8) requests governments to "integrate a gender per-

2008,²¹ the Commission raised the need for differentiating gender impacts of climate change as an issue requiring special attention. It called for action to mainstream gender perspective into ongoing research and policymaking on the impact of climate change. However, in 2008, during its 42nd Session, the Committee on the Elimination of Discrimination against Women²² expressed its concern about the continued absence of a gender perspective in the United Nations Framework Convention on Climate Change (UNFCCC), as well as in related global and national policies and initiatives on climate change. Gender equality, the Committee argued, should be an overarching guiding principle in UNFCCC and related agreements dealing not only with the impact of climate change on humans, but also with adaptation measures.

I. International Level

1. Environmental Agreements

The multilateral environmental agreements concluded in the last two decades seek to establish a legal framework for environmental resources management as well as create a favourable environment for sustainable and equitable development. It is in this context that climate change has been dealt with. Agenda 21, for example, outlines the role of women in environmental management.²³

spective in the design, implementation, monitoring, evaluation and reporting of national environmental policies, strengthen mechanisms and provide adequate resources to ensure women's full and equal participation in decision-making at all levels on environmental issues, in particular on strategies related to the impact of climate change on the lives of women and girls".

20 E/1998/INF/3/Add.2.

21 Resolution (jj) on Financing for Gender Equality and Women's Empowerment (E/CN.6/2008/L.8).

22 CEDAW/C/2008/III/1.

23 Report of the United Nations Conference on Environment and Development, United Nations, Rio de Janeiro, 3–14 June 1992, UN Doc. A/CONF.151/26/Rev. 1, Vol. 1, Annex II. Agenda 21 identifies the following actions as critical to sustainable development: full, equal and beneficial integration of women in all development activities, including national ecosystem management and control of environmental degradation; increase in the proportion of women decision-makers, planners, technical advisers, managers and extension workers in the environment and development fields; elimination of constitutional, legal, administrative, cultural, behavioural, so-

The Convention on Biological Diversity (CBD) also recognises the role that women play in the management of biological resources and calls for women's performance in these critical roles to be facilitated.²⁴ Similarly, Principle 20 of the Rio Declaration²⁵ states the following: "Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development."

Furthermore, the 2002 United Nations World Summit on Sustainable Development's Plan of Implementation identified women as key to the attainment of sustainable development.²⁶ The Plan explicitly states that women need to be provided with access to agricultural resources, and that land tenure arrangements should recognise and protect indigenous and common property resource management systems. This is in recognition of the critical role that agriculture plays in addressing the needs of a growing global population, agriculture's inextricable link to poverty eradication – especially in developing countries – and the realisation that enhancing the role of women at all levels and in all aspects of rural development, agriculture, nutrition and food security is imperative.²⁷

Paragraph 38(i) points to the need to –

[a]dopt policies and implement laws that guarantee well defined and enforceable land and water use rights, and promote legal security of tenure, recognizing the existence of different national laws and/or systems of land access and tenure, and provide technical and financial assistance to developing countries as well as countries with economies in transition that are undertaking land tenure reform in order to enhance sustainable livelihoods;

Paragraph 38(f) of the Plan of Implementation identifies the need to enhance women's participation in all aspects and at all levels relating to sustainable agriculture and food security. With regard to women's knowledge on environmental conservation and natural resource management, paragraphs (g) and (h) of the Plan are relevant. They point to the need to –

cial and economic obstacles to women's participation in sustainable development; passing relevant knowledge to women through curricula in formal and non-formal education; valuation of roles of women; and ensuring women's access to property rights and agricultural inputs.

24 IPCC (2007:Articles 8j, 10c).

25 Djoudi & Brockhaus (2001).

26 Available at http://www.johannesburgsummit.org/html/documents/summit_docs/2309_planfinal.htm, last accessed 10 February 2013.

27 Plan of Implementation, para. 38.

- (g) [i]ntegrate existing information systems on land-use practices by strengthening national research and extension services and farmer organizations to trigger farmer-to-farmer exchange on good practices, such as those related to environmentally sound, low-cost technologies, with the assistance of relevant international organizations;
- (h) [e]nact, as appropriate, measures that protect indigenous resource management systems and support the contribution of all appropriate stakeholders, men and women alike, in rural planning and development;

These provisions, as well as developments in other related United Nations (UN) agencies, can inform the quest to mainstream gender in climate change discourses. In this regard, it is noteworthy that, since 2007, the CBD Secretariat has made specific efforts to mainstream gender. For example, in January 2008, it designated a Gender Focal Point within the Secretariat, and developed a Gender Plan of Action in collaboration with the Gender Office of the International Union for Conservation of Nature (IUCN).²⁸ Similarly, the United Nations Convention to Combat Desertification (UNCCD), adopted in 1994 and the only internationally recognised legally binding instrument dealing with the problem of land degradation,²⁹ goes beyond mainstreaming gender. It not only recognises the role women play in rural subsistence, but also promotes the equal participation of women and men.³⁰ In the UNFCCC documents, however, the only reference to gender is in the guide on how to prepare National Adaptation Plans of Action. Nonetheless, gender equality was one of the principles included when these Plans were designed, and it

28 This Plan was approved by the Bureau of the Convention and was presented during the Ninth Conference of the Parties (COP9) in Bonn, Germany, in May 2008. The Plan of Action has four strategic objectives: 1) To mainstream a gender perspective into the implementation of the Convention and the associated work of the Secretariat; 2) To promote gender equality in achieving the three CBD objectives and the 2010 Biodiversity Target; 3) To demonstrate the benefits of gender mainstreaming in biodiversity conservation, sustainable use and benefit-sharing from the use of genetic resources; and 4) To increase the effectiveness of the work of the CBD Secretariat.

29 The UNCCD's objective is to demonstrate that the risks of desertification are substantial and clear. Present calculations show that the means of subsistence of more than one billion people could be at risk because of desertification and, as a consequence, 135 million people could be in danger of being driven from their lands. Especially vulnerable are poor people living in rural zones, particularly those in less-developed countries. For that reason, there is an urgent need to tackle the implications of this problem.

30 Article 5, UNCCD.

advises that experts – both women and men – be included on the teams working on gender questions.³¹

States parties to these international conventions and those on human rights and gender equality have put in place robust national systems for ensuring gender equality through their constitutions, national laws and related institutions. There is, therefore, ample scope for integrating gender considerations into climate change interventions.

2. *Gender Equality Interventions*

The campaign for women's rights as human rights emerged in the 1960s, when women realised that their needs were not being adequately catered for in terms of human rights or that their rights were often violated; hence, there was a need to have their own rights. Indeed, the idea of *women's rights/human rights of women* has developed as it has become increasingly clear that the enjoyment of human rights purportedly guaranteed for all has not been equal for men and women. Both the Nairobi Forward-looking Strategies on the Advancement of Women (NFLS)³² and the Beijing Platform for Action (BPFA)³³ put women at the centre of the quest for sustainable environmental management, while underscoring the importance of resources for women's empowerment.

a) Nairobi Forward-looking Strategies

The NFLS deal with food, water and agriculture, underscoring the need to recognise and reward women for their performance of specific tasks, equip them with the resources necessary to perform these tasks, and ensure that they actively participate in planning, decision-making and implementation of programmes.³⁴ Paragraph 182 specifically requires that rural women's

31 (ibid.).

32 UN (1985).

33 Beijing Declaration and Platform for Action, adopted at the 16th Plenary Meeting of the United Nations Fourth World Conference on Women, Beijing, China, September 1995, available at <http://www.un.org/womenwatch/daw/beijing/pdf/BDPfA%20E.pdf>, last accessed 10 February 2013.

34 UN (1985:para.'s 174–188).

rights to land be secured to ensure that they have access to land, capital, technology, know-how and other productive resources that they need. This action is critical for women's participation in climate change mitigation and adaptation.

Paragraph 200 requires the enhancement of the full and effective participation of women in the decision-making and implementation process related to science and technology, including the setting of priorities for research and development, as well as the choice and application of science and technology for development. This would avoid instances where technology adversely impacts on women's performance of their tasks or leads to their marginalisation. This is very relevant in the realm of climate change, where technology is a critical factor, and its adoption may result in the marginalisation of women's ways of doing things.

On energy, women's participation in energy needs assessments, technologies and energy conservation management and maintenance will ensure that women's energy needs are taken into consideration in planning.³⁵ Additionally, the initiation of farm woodlot development involving men and women, proposed at paragraph 222 of the NFSL, would balance the needs of women for fuel wood on the one hand, and sustainable development on the other.

Paragraphs 224 to 227 deal explicitly with the interface between the environment and women's empowerment. Paragraph 224 recognises the following:

Deprivation of traditional means of livelihood is most often a result of environmental degradation resulting from such natural and man-made disasters as droughts, floods, hurricanes, erosion, desertification, deforestation and inappropriate land use ... Most seriously affected are women ... These women need options for alternative means of livelihood. Women must have the same opportunity as men to participate in ... irrigation and tree-planting

Other issues addressed include improvements in sanitary conditions and drinking water, the home and work environment,³⁶ and the need for environmental impact assessments of policies, programmes and projects on women's health and activities.³⁷

35 (ibid.:para. 220).

36 (ibid.:para. 226).

37 (ibid.:para. 227).

It is clear that the NFLS interventions have implications for climate change mitigation and adaptation even though they predate major international policy pronouncements on climate change.

b) Beijing Platform for Action

The BPFA clearly articulates the linkage between women's empowerment and sustainable environmental management. It reiterates the principle that human beings are at the centre of concerns for sustainable development.³⁸ More specifically, the BPFA points out that –

- women's empowerment is being sought against the background of resource depletion, natural resource degradation, and pollution of the environment by dangerous substances; these conditions are displacing communities, especially women, from productive activities³⁹
- women have a role to play in sustainable development as consumers, producers, caretakers of families, and educators for current and future generations, and there is commitment by governments to integrate environmental sustainability with gender equality and justice⁴⁰
- environmental degradation has specific impacts on women⁴¹
- poverty eradication and peace are integral to sustainable development⁴²
- women's work related to natural resources is often either not recognised or remunerated⁴³
- women remain largely absent at all levels of policy formulation and decision-making in natural resource and environmental management, conservation, protection and rehabilitation, and their experience and skill in the advocacy for and monitoring of proper natural resource management are marginalised in policymaking and decision-making bodies, educational institutions and environment-related agencies⁴⁴

38 *Sustainable development* is defined as development that meets the needs of current generations without compromising those of future generations; see WCED (1987:8).

39 UN (1985:para. 246).

40 (ibid.:para. 248).

41 (ibid.).

42 (ibid.:para. 247).

43 (ibid.).

44 (ibid.:para. 249).

- women are rarely trained as natural resource managers; and even where they are trained, they are under-represented in formal institutions with policymaking capacities at international, national and regional levels⁴⁵
- women's non-governmental organisations (NGOs) have weak links with national environment management institutions,⁴⁶ and
- women play leadership roles in environmental conservation and management, are well placed to influence sustainable consumption decisions, are involved in grass-roots campaigns to protect the environment, and – especially indigenous women – have particular knowledge of ecological linkages and fragile ecosystem management.⁴⁷

The BPFA recognises that there is a need for a holistic, intersectoral approach to environmental management. It also maintains that it is imperative for men and women to be involved in sustainable development policies.⁴⁸ It calls for the need to mainstream gender in all policies and programmes and to analyse the gender-differentiated impacts of such policies and programmes before decisions are taken.⁴⁹

Three strategic objectives are identified for action by governments, regional and international organisations and NGOs:

1. The need to involve women actively in environmental decision-making at all levels⁵⁰

45 (ibid.).

46 (ibid.).

47 (ibid.:para. 250).

48 (ibid.:para. 251).

49 (ibid.:para. 252).

50 This is to be done through (a) granting them opportunities as managers, designers, planners, implementers and evaluators of environmental projects; (b) availing them of the requisite information and education; (c) protecting their knowledge, innovations and practices, especially for indigenous women and local communities, and promoting the wider application of such knowledge with the involvement and approval of the knowledge-holders; (d) protecting the intellectual property rights of women relating to traditional knowledge; (e) encouraging and ensuring fair and equitable sharing of benefits arising from the utilisation of women's traditional and indigenous knowledge, innovations and practices; (f) reducing environmental hazards within and outside the home; (g) applying clean technologies; (h) integrating a gender perspective into the design and implementation of environmentally sound and sustainable resource management mechanisms; (i) promoting the participation of local communities, particularly women, in the identification of urban and rural environmental needs; (j) empowering women to take effective environmental actions

2. The need to integrate gender concerns and perspectives into policies and programmes for sustainable development, and⁵¹
3. The need to strengthen or establish mechanisms at international, national and regional levels to assess the impact of development and environment policies.⁵²

These proposed interventions proceed from the premise that women have been excluded from available opportunities and that such exclusion impacts negatively not just on women, but also on society and on resources. To deal with this problem, gender mainstreaming is needed at different levels. Firstly, there is a need for gender mainstreaming in the normative legal and policy frameworks governing these resources. The aim here is to include women's concerns in laws and policies. Secondly, women need to be involved in the institutions charged with shepherding these norms. An effective mainstreaming strategy, according to Seager and Hartman,⁵³ seeks to bring women into positions where they can take part on an equitable basis with men in

at home, within communities and at the workplace; (k) integrating gender into the work of international environmental organisations; (l) planning projects funded by the Global Environment Facility; and (m) facilitating advocacy for environmental issues of concern to women and access to environmentally sound technologies.

- 51 This is to be done through (a) integrating a gender perspective into all national and international environmental initiatives and facilitating capacity-building for women in resource management; (b) evaluating the environmental impacts of programmes and policies on women's access to and use of natural resources; (c) researching the impacts of environmental hazards on women; (d) integrating women's traditional knowledge and practices of sustainable resource use and management into environmental management programmes; (e) eliminating obstacles to women's full and equal participation in sustainable development; (f) involving female professionals and scientists in environmental management; and (g) ensuring clean water is accessible and plans are in place to restore polluted water systems and rebuild damaged watersheds.
- 52 This is to be done through (a) providing technical assistance to women involved in agriculture, fisheries and small enterprises; (b) developing gender-sensitive databases, information and monitoring systems and participatory action-oriented research on women's knowledge and experience of environmental management and conservation, the impact of environmental degradation on women, the structural links between gender relations, environment and development, and gender mainstreaming in development and monitoring of programmes; (c) ensuring full compliance with international obligations under multilateral environmental agreements; and (d) coordinating both within and among institutions implementing the BPFA and Agenda 21.
- 53 Seager & Hartmann (2005).

determining an institution's values, directions and allocation of resources. Such a strategy also seeks to ensure that women have the same access as men to resources within the institution. Effective gender mainstreaming facilitates the participation of women (as well as men) to influence the entire agenda, priorities and culture of the organisation. The proposed actions are useful in engendering climate change interventions.

c) Convention on the Elimination of all Forms of Discrimination against Women

CEDAW,⁵⁴ adopted in 1979, is the most exhaustive international legal instrument on the rights of women. It provides the following at Article 3:

States Parties shall take in all fields, in particular in the political, social, economic and cultural fields, all appropriate measures, including legislation, to ensure full development and advancement of women, for the purpose of guaranteeing them the exercise and enjoyment of human rights and fundamental freedoms on a basis of equality with men.

It contains explicit provisions on the rights of women in the areas of political and public life (Article 7), government representation (Article 8), nationality (Article 9), education (Article 10), health (Article 12), employment (Article 11), economic and social benefits (Article 13), marriage and family (Article 16), and equality before the law (Article 15). It also takes into account the situation of rural women (Article 14), and targets culture and tradition as influential forces in shaping gender roles and family relations.

In Article 1, CEDAW defines *discrimination* as follows:

... any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field.

Article 5(a) places a duty on states parties to take all appropriate measures –

... to modify the social and cultural patterns of conduct of men and women, with a view to achieving the elimination of prejudices and customary and all other practices which are based on the idea of the inferiority or the superiority of the sexes or on stereotyped roles of men and women

54 Available at <http://www.un.org/womenwatch/daw/cedaw/text/econvention.htm>, last accessed 6 May 2013.

States parties to CEDAW are obliged to translate its provisions to national law for implementation. The provisions on women's rights are predicated on the notions of the equality between women and men, as well as equity. *Equality* between women and men relates to the dignity and worth of women and men; equality in their rights; opportunities to participate in political, economic, social and cultural development; and opportunities to benefit from the results of such development. *Equity*, on the other hand, relates to fairness in the treatment of women and men. It adverts to the possibility of inequality between women and men, which necessitates the application of differential treatment to get rid of inequality.⁵⁵

Formal equality gives all individuals the same choices and, therefore, allows them to maximise their well-being.⁵⁶ However, equality premised on equal treatment is difficult to achieve. De jure equality can lead to de facto discrimination, where the consequences of the law are not anticipated. For instance, the legal mandate of equal treatment is interpreted as the treatment of likes in a similar manner, and unlikes in an unlike manner. In the realm of gender, such a distinction fails to take into account the distinctions that are the result of social constructions rather than difference per se.⁵⁷ In such cases, the application of laws without discrimination may, in essence, result in discrimination. Substantive equality seeks to address the shortcomings of formal equality and seeks to ensure that equity is achieved. The quest for substantive equality will lead to some form of discrimination or differential treatment. This is justified on account of levelling the playing field, it being recognised that equal rights will not deal with past injustices occasioned by formal equality that does not take into account structural distinctions.⁵⁸ Indeed, even if national laws on participation in political life provide for equal treatment of women and men, women will continue to be relatively disadvantaged due to historical impediments to their entry into the political realm.

As Aristotle points

out, —⁵⁹

[i]f they [women and men] are not equal, they will not have what is equal, but this is the origin of quarrels and complaints – when either equals have and are awarded unequal shares, or unequals equal shares. Further, this is plain from

55 (ibid.).

56 Becker (1994:68–81).

57 MacKinnon (1987:32).

58 Kameri-Mbote (2003:56).

59 Ross (1991:3).

the fact that awards should be ‘according to merit’; for all men agree that what is just in distribution must be according to merit in some sense.

Differential treatment is allowed under CEDAW’s Article 4, which decrees that adoption by states parties of –

... temporary special measures aimed at accelerating de facto equality between men and women shall not be considered discrimination as defined in the present convention, but shall in no way entail as a consequence the maintenance of unequal or separate standards; these measures shall be discontinued when the objectives of equality of opportunity and treatment have been achieved.

The principle of common but differentiated responsibility is an example of differential treatment/affirmative action, taking into account the diverse positioning of states in terms of contribution to climate change, as well as capabilities. Throughout the discussions on climate change, the issue of financial and technological assistance to less-developed countries has been canvassed. While this has focused attention on states, it can be inferred that, by extension, equity in measures within nation states is also expected.

3. Gender in Climate Change Negotiations

For a long time, global negotiations on climate change mainly focused on reducing GHGs. Because the gender dimension was missing, these negotiations provided neither the legal framework nor the rights-based approach needed to implement responses to climate change that are equitable for both men and women. Since 2007, however, a series of climate change negotiations have given the issue of gender due consideration. For instance, in 2007, at the 13th Meeting of the Conference of the Parties (COP13) on Climate Change held in Bali, attention was given to the promotion of gender equality in the UNFCCC, and efforts were made to promote incorporation of the gender theme. Especially noteworthy among these efforts was the meeting of the Network of Women Ministers and Leaders for Environment on 11 December 2007, and their call for the UNFCCC states parties and Secretariat to –

- recognise that women are powerful agents of change and that their full participation in climate change adaptation and mitigation policies and initiatives is indispensable
- ensure participation of women and female gender experts in all decisions relating to climate change

- take steps to ensure that the UNFCCC acts in accordance with human rights frameworks and with national and international agreements on gender equality and equity, including CEDAW
- develop a gender strategy, invest in research on the gender implications of climate change and establish a system of gender-sensitive criteria and indicators for governments that include national communications sent to the UNFCCC Secretariat
- analyse and identify protection impacts and measures, disaggregated by gender, to deal with floods, droughts, heat waves, diseases and other environmental changes and disasters, and
- design financial mechanisms to which women have access and which make them less vulnerable, recognise the fact that millions of poor women who are affected by climate change live and work outside formal markets, and provide women and men living in poverty with greater access to commercial mitigation initiatives, such as the Clean Development Mechanism.

The momentum was sustained at the 14th Meeting of the Conference of the Parties (COP14) on Climate Change in Poznan in 2008, where gender and climate change advocates had a high profile. For example, the Global Gender and Climate Alliance (GGCA)⁶⁰ led various events, including a high-level panel advocating for the inclusion of gender in the climate change dialogue; the meeting of the Network of Women Ministers and Leaders for the Environment, which addressed the need for a gender perspective within the UNFCCC process and produced a joint letter of recommendations to the UNFCCC; and a side event on gender and climate change finance, led by the Women's Environment and Development Organization (WEDO), which highlighted the need for gender-sensitive funding for climate change. Furthermore, the GGCA, led by the IUCN, compiled a training manual on gender and climate change and trained 17 regional trainers from Africa, the Arab States, Asia, Latin America and the Caribbean, as well as oriented over 50 national delegates to the UNFCCC. This raised awareness about the gen-

60 GenderCC – Women for Climate Justice is a global network of women and gender activists and experts working on gender and climate justice. It actively advocates for gender justice in climate change, including facilitating the daily women's caucus meetings and participation in other advocacy events; see <http://www.gendercc.net/>, last accessed 6 May 2013.

dered impacts of climate change and resulted in greater delegate support to address the dire need to include a gender strategy in the UNFCCC.⁶¹

a) Global Gender and Climate Alliance

Within the UNFCCC COP13 framework, and in an unprecedented effort, the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), the IUCN and WEDO launched the GGCA, with the principal objective of ensuring that policies, initiatives and decision-making processes on climate change included the gender approach at global, national and regional levels.⁶² The fundamental principle is to guarantee the inclusion of women's voices in decision-making and in policymaking. The GGCA seeks to –⁶³

- integrate the gender approach in world policies and decision-making to ensure full compliance with UN mandates on gender equality
- ensure that mitigation and adaptation financing mechanisms take equal account of the needs of poor men and women, and
- build capacities at global, regional and local levels to design policies, strategies and programmes on climate change that recognise gender equity.

To achieve these objectives, the GGCA employs a number of strategies, namely to –⁶⁴

- establish a global policy on climate change and gender equity
- collaborate with the UNFCCC Secretariat to prepare a plan to incorporate a gender perspective into the UNFCCC
- develop gender guidelines for financing mechanisms associated with climate change, and
- attempt to advise UNFCCC delegates about gender and climate change.

61 UNDP (2008).

62 Available at <http://www.wedo.org/themes/sustainable-development-themes/climate-change/global-gender-and-climate-alliance>, last accessed 5 January 2013.

63 Available at <http://www.wedo.org/library/global-gender-climate-alliance-ggca>, last accessed 5 January 2013.

64 (ibid.).

4. *Other Relevant Forums*

a) United Nations Permanent Forum on Indigenous Issues

At its 6th Session, the United Nations Permanent Forum on Indigenous Issues requested that a document be prepared to investigate and report on “the impacts of mitigation measures on indigenous peoples”. In compliance with that request, the impact of mitigation on indigenous peoples was taken up as a special theme at the Forum’s 7th Session (April–May 2008) entitled “Climate Change, Bio-cultural Diversity and Livelihoods: The Role of Indigenous Peoples and New Challenges”. Recommendation 78 in the subsequent report recognised women’s important role, stating the following:⁶⁵

The principles of shared but differentiated responsibilities, equity, social justice and sustainable development must remain as key principles that sustain climate change negotiations, policies and programmes. The approach to development and the ecosystem, based on human rights, should guide the design and implementation, at national, regional and global levels, of policies and projects on climate. The crucial role of women and indigenous girls in developing mitigation and adaptation measures must also be ensured.

b) World Conference on Disaster Reduction⁶⁶

This Conference counts as one of the most recent international advances in efforts to integrate gender equity into all decision-making and planning processes related to disaster risk management. The framework set up advocates for integration of a gender perspective in all disaster risk management policies, plans and decision-making processes.⁶⁷ It recommended three relevant actions:⁶⁸

65 United Nations Economic and Social Council, Permanent Forum on Indigenous Issues, 2008, *Impact of Climate Change Mitigation Measures on Indigenous Peoples and on Their Territories and Lands*, E/C.19/2008/10, available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N08/277/65/PDF/N0827765.pdf?OpenElement>, last accessed 11 February 2013.

66 See Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters, *A/CONF.206/6*, available at <http://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Final-report-conference.pdf>, last accessed 11 February 2013.

67 (*ibid.*).

68 (*ibid.*).

1. *Gender consideration of action priorities:* A gender perspective should be integrated into all disaster risk management policies, plans and decision-making processes, including those related to risk assessment, early warning, information management, and education and training
2. *Essential priority activity to take early warning action:* Early warning systems that are people-centred should be developed, particularly systems whose warnings are timely and understandable to those at risk, which take into account the demographic, gender, cultural and livelihood characteristics of the target audiences, including guidance on how to act upon warnings, and that early warning systems support effective operations by disaster managers and other decision-makers, and
3. *Essential priority activity for action for teaching and training:* Equal access to appropriate training and educational opportunities for women and vulnerable constituencies should be ensured equal and gender and cultural sensitivity training as integral components of education and training for disaster risk reduction are promoted.

c) High-level Roundtable on Gender and Climate Change

In September 2007, WEDO, the Heinrich Böll Foundation and the Council of Women World Leaders organised a High-level Roundtable on Gender and Climate Change in New York. This meeting was a prelude to the UN Secretary General's High-level Event on Climate Change in New York that same month, and was attended by representatives of the UN, NGOs, and officials from 60 countries. The Gender and Climate Change Roundtable included extensive discussions on the connection between climate change and gender; presentations from various countries demonstrating that relationship; mention of the importance of including the gender approach in all policies about climate change, especially in adaptation policies; and suggestions for specific steps to ensure that gender equity is included in decision-making processes.⁶⁹

Post-2007, COPs have acknowledged gender equality concerns, albeit indirectly. At side events organised at these meetings, there have been discussions on how to address inequalities in mitigation and adaptation actions

69 Available at <http://www.wedo.org/wp-content/uploads/roundtable-final-report-6-nov.pdf>, last accessed 11 February 2013.

as well as in financing. This creates the momentum for gender activists at the national level to demand actions in national climate change interventions. This is important considering the acknowledgment that gender inequalities intersect with climate risks and vulnerabilities, and that climate change is likely to magnify the existing patterns of gender disadvantage declared in the UNDP Report in 2007.⁷⁰ The 2012 Africa Human Development Report focusing on food security is also awash with descriptions of different existing and potential contributions of women to a food-secure Africa which is threatened by climate change.

D. Conclusion

Bringing gender concerns into the climate change arena is critical as a new international regime is being crafted. This will ensure that equity concerns are not ignored. The principles in both the NFLS and the BPFA are a good starting point, namely equality of opportunity; recognition and protection of rights; attention to gendered impacts of climate change; making women visible in climate change decision-making; involving women actively in climate change decision-making at all levels; and integrating gender concerns and perspectives into climate change policies and programmes. Other interventions include integrating a gender perspective in all national and international climate change initiatives; facilitating capacity-building for women; and evaluating the environmental climate change impacts of programmes and policies focusing on gender-differentiated impacts.

In this regard, mechanisms at the international, national and regional levels for assessing the impact of development and environment policies on women should be established if they do not exist, and strengthened where they are not effective. As a corollary to these interventions, technical assistance targeting women should be provided to enable them to engage. Gender-sensitive databases and information and monitoring systems should also be developed to facilitate action.

CEDAW and related gender interventions at the international, national and regional levels should be used as enablers for both formal and substantive gender equality in the climate change realm.

70 UNDP (2007).

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Climate Change and Children's Rights: An International Law Perspective

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Abstract

This article sheds light on the legal structures available to protect children's rights possibly affected by the adverse effects of climate change. The vulnerability of children to climate change is discussed and examples of how children are affected by climate change are sketched. The article refers to the international legal framework on children's rights and climate change with a focus on relevant provisions under the United Nations Convention on the Rights of the Child and the provisions pertinent to children's rights under the United Nations Convention on Climate Change, before reflecting from a legal perspective on some major challenges with regard to children in a changing climate, namely humanitarian crises, migration and child labour.

A. Introduction

Climate change is the biggest global threat of the 21st century. Besides women, the elderly, indigenous and disabled people, children are the poorest of the poor and the most vulnerable. Climate change effects on water, food security, health, and human settlements will affect those most who have contributed least to its cause and who have the least access to the world's resources. Children can be particularly at risk, especially in Africa, with its low adaptive capacity and projected climate change impacts.¹ Almost 11 million children die each year, of which 70% are attributable to the following six causes: diarrhoea, malaria, neonatal infection, pneumonia, preterm delivery and lack of oxygen at birth.² The effects of climate change will put

1 IPCC (2007:52).

2 See <http://www.unicef.org/mdg/childmortality.html>, last accessed 10 June 2013.

the lives and well-being of children at increased risk: It is expected that the effects of climate change will increase the incidence of diarrhoea;³ furthermore, “climate change will increase the opportunities for malaria transmission in traditionally malarious areas, in areas the disease has been controlled, as well as in new areas which have been traditionally non-malarious”;⁴ and climate change leads to the spread of infectious diseases and respiratory ailments.⁵ Added to this is the issue of undernutrition, worsened by climate-change-related food insecurity. The challenges related to the effects of climate change on children’s rights will require collaboration between many academic disciplines, as well as inputs from governments and civil society.

The impact of climate change on the realisation of child rights shows multiple effects of climate change on basic rights such as water, food and health for children in countries vulnerable to temperature and precipitation change. For example, a child may be less able to enjoy an adequate standard of living, education and health, owing to loss of livelihoods and food security resulting from increased water stress and habitat changes. Where natural disasters are becoming more frequent and intense, a child is at high risk of disrupted education, injury, forced migration and death. Children are vulnerable to climate change, as existing social inequalities are being further exacerbated by climate change, and will become ever more severe – unless action is taken to reduce the causes (greenhouse gas emissions) and help communities adapt to the consequences, by applying economic and social policy, instilling cultural values, and instituting legislative frameworks. Policymakers at the international, national and local levels need to apply a cost-benefit analysis that values future quality of life. Adherence to the Convention on the Rights of the Child could require that national government policymakers, especially those in developed countries, ensure the fair representation of children and young people and that children’s specific needs are given due consideration in adaptation and mitigation policy.⁶

3 See for example Alexander et al. (2013).

4 Fernando et al. (2010); see also Paaijmansa et al. (2010).

5 WHO (2012).

6 UNICEF (2009b).

B. How Climate Change may affect Children

Children are particularly vulnerable to the effects of climate change. Such a blanket description, used also for other especially vulnerable groups such as women or the elderly, is commonly found in climate-change-related research – mostly, however, without further indication as to what children are vulnerable to.⁷ With regard to natural disasters, there is no doubt that some individuals may suffer more losses than others. In general, the poorest and those who are socially or economically marginalised will be the most at risk in terms of being exposed and vulnerable.⁸ Children are found “to be more vulnerable to disasters in many countries, with larger disasters having an especially unequal impact”.⁹ On the one hand, children are more vulnerable to disasters; on the other hand, it must be emphasised that children also have “the capacity to contribute to disaster preparedness, response, and recovery activities”.¹⁰

Children suffer the consequences of extreme climate and weather events disproportionately because of their less-developed physical and mental state, and therefore have differential capacities to cope with deprivation and stress in times of disaster, as the following facts may demonstrate.¹¹ Depending on their developmental stage, children are biologically more sensitive (e.g. children are at increased mortality risk from diarrheal diseases); in the event of floods, children are at greater risk of transmissible diseases and are more prone to drowning because they are less able to swim; and children with mobility and cognitive constraints may be at increased risk of injury and death. The impact of extreme events can furthermore limit the ability of parents to afford to educate their offspring, and may require children (especially girl children, whose access to education is typically accorded lower priority than that of boy children) to work to meet basic needs.

In a 2007 study by Save the Children (UK) titled *Legacy of Disasters – The Impact of Climate Change on Children*,¹² the following facts are highlighted:

7 IPCC (2012:70) with further references.

8 (ibid.:266); Peek (2008).

9 IPCC (2012).

10 Peek (2008).

11 (ibid.).

12 Save the Children (2007).

- In the next decade, up to 175 million children are likely to be affected every year by the kinds of natural disasters caused by climate change.¹³
- The percentage of the world's population exposed to malaria is expected to increase from 45 per cent to 60 per cent in the next 100 years due to climate change. It is well-known that malaria is one of the biggest killers of children under the age of five.

Climate-change-related events threaten children's health, food security, livelihoods, protection and education.¹⁴ As climate change also threatens sustainable development, it has the potential to push already poor families into deeper levels of poverty, thereby increasing the vulnerability of children to abuse, exploitation and displacement.¹⁵

It must be emphasised that there has been very limited primary data collection and research on the impacts of climate change on children.¹⁶ Much of the existing literature focuses on the impact of natural disasters on children and their exposure to risk, not sufficiently recognising the medium and long-term effects of climate change on children.¹⁷

Climate change can affect children directly in a number of ways.¹⁸ Firstly, climate change endangers the health of children.¹⁹ The health-related effects of climate change are predicted as being heavily concentrated in poorer populations at low altitudes. This is where the most important climate-sensitive health outcomes such as undernutrition, diarrhoea and malaria are already present and where vulnerability to climate effects is the greatest.²⁰ According to estimates, primarily as a result of the effects of climate change, the incidences of diarrhoea are predicted to increase by between 2% and 5% by 2020 in countries with a per capita income below US\$6,000.²¹ Furthermore, outbreaks of water-borne diseases such as cholera will become more prevalent.²²

Climate change, combined with changes in land use, population growth and deforestation, are increasing the incidence of vector-borne diseases such

13 (ibid:2).

14 (ibid.:2f.); UNICEF (2011:36).

15 Save the Children (2007:2); Save the Children (2009:3).

16 UNICEF (2011:26); Bartlett (2008:503).

17 UNICEF (2011:36).

18 For further details on climate change and children's health see for example Sheffield & Landrigan (2010).

19 Costella as quoted in Save the Children (2009:3).

20 UNICEF (2011:39).

21 Save the Children (2009:3).

22 (ibid.:9); Bartlett (2008:505f.).

as malaria and dengue fever.²³ Rising temperatures increase the risk of transmission.²⁴

Secondly, climate change affects nutrition and food security in a number of ways, for example through water scarcity, reduced food production and sanitation of agricultural land.²⁵ Hunger and malnutrition follow and the statistics are staggering:²⁶ malnutrition contributes to the death of 3.2 million children every year. More than 178 million children around the world suffer from malnutrition and a third of children under five are chronically malnourished or stunted. It is estimated that, in 2080, 550 million people could be hungry as a result of climate change, of whom 480 million will be living in Africa.²⁷ Children are at risk of being hit the hardest.

Thirdly, children are directly affected through increasingly frequent and intense natural disasters.²⁸ Child mortality is high in events such as flooding, high winds and landslides. Children also experience psychosocial disruption and emotional turmoil during these disasters, which can have long-term implications for their health and well-being.²⁹ Displacement and the actual separation from parents or family members as a result of natural disasters have a profound effect on the emotional well-being of children.³⁰ Without a social safety net, children are highly vulnerable to trafficking, violence and exploitation.³¹

Climate change also has a number of indirect effects on children. In poor countries with high levels of child mortality where health systems are already under pressure, there is a great likelihood that these systems will become overstretched.³² Natural resource-based livelihoods are highly sensitive to climate change and the resulting change in weather patterns.³³ Climate-induced migration and sudden natural disasters result in population displacements.³⁴ This creates challenges for child protection. The impact of climate

23 Save the Children (2009:4); Bartlett (2008:506f.).

24 (ibid.).

25 (ibid.); UNICEF (2011:40f.).

26 Save the Children (2009:4–6).

27 (ibid.:6).

28 (ibid.); UNICEF (2008:9–11); Bartlett (2008:503–505).

29 Save the Children (2009:6).

30 (ibid.); UNICEF (2011:41).

31 UNICEF (2011:41); Bartlett (2008:509–511).

32 Bartlett (2008:503–508); Save the Children (2009:8).

33 Save the Children (2009:9); UNICEF (2011:41).

34 Save the Children (2009:10).

change on children's health, nutrition and general well-being places additional burdens on caregivers, typically women and girls.³⁵

In summary, the reasons for the vulnerability of children to climate change are fourfold:³⁶

1. Children's stage of physiological and cognitive development and innate curiosity leave them at a heightened risk of exposure to environmental hazards and the potential to be harmed by them.
2. Many of the main killers of young children – undernutrition (which contributes to more than one third of all under-five deaths), acute respiratory infections, diarrhoea, malaria and other vector-borne diseases – are known to be highly sensitive to climatic conditions.
3. The world's least developed countries are likely to bear the brunt of climate change. These countries have large child populations. In 2008, under-18s accounted for 47% of the population in the world's 49 least developed countries, compared with 21% in the industrialised countries.
4. Evidence for the correlation between civil strife and climate change is growing. A 2007 study estimated that 46 countries, with a total population of 2.7 billion people, may face a higher risk of violent conflict as climate change intersects with social, economic and political stresses. For children, this has consequences of psychosocial trauma, recruitment into armed forces, displacement and forced migration, which may in turn lead to separation from family and exposure to trafficking and exploitation.

It is clear from the four points above that in order to reduce the threats to child survival from the effects of climate change, focused strategies that address the particular needs of children are crucial. In view of the fact that children presently represent at least 50% of those affected by climate change, the time to act is now.

C. Paradigm Shift: From Victims to Agents of Change

Children are without doubt prone to the adverse effects of climate change. It is, however, not accurate to present children as resourceless victims only. Children may also be protagonists in responding to the adverse effects of

35 (ibid.:13); Bartlett (2008:508).

36 UNICEF (2009c:65).

climate change, if they are given the means to do so.³⁷ It has been established by Chapter 25 of Agenda 21 that —³⁸

it is imperative that youth from all parts of the world participate actively in all relevant levels of decision-making processes, because it affects their lives today and has implications for their future. In addition to their intellectual contribution and their ability to mobilize support, they bring unique perspectives that need to be taken into account.

Children may serve as powerful agents of change, especially if states support children's rights to have their views respected and to be involved in decision-making processes. As the current Secretary-General of the United Nations, Ban Ki-Moon, stated:³⁹

... young people are well placed to contribute to the fight even now. They are adept at spreading new habits and technologies. They are adaptable and can quickly make low-carbon lifestyles and career choices a part of their daily lives. Youth should therefore be given a chance to take an active part in the decision-making of local, national and global levels. And they can actively support initiatives that will lead to the passage of far-reaching legislation.

National adaptation planning should be made in consideration of the best interests of the child. The prioritisation of children and their rights, however, does not feature strongly in national adaptation plans; very few of the National Adaptation Programmes of Action (NAPAs) target children explicitly in their priority adaptation projects.⁴⁰ Nonetheless, involving children in adaptation measures is advisable for various reasons, including the following:⁴¹

- Children do have knowledge on adaptation measures as they have – as individuals, and as part of their communities – been part of autonomous adaptation processes in the past in cases where they have experienced cycles of droughts or floods, and have coped with and adapted to extreme climatic conditions with no or little government support.
- Children are capable of contributing to identify and realise adaptation processes.

37 UNICEF (2009).

38 United Nations, Agenda 21, Chapter 25, available at <http://www.un-documents.net/a21-25.htm>, last accessed 20 June 2013.

39 Ki-Moon (2008).

40 See Children in a Changing Climate (2010:14).

41 (*ibid.*:24).

- Children have the capacity to absorb new information about their environment, and about climate change and to analyse its impacts
- Children have the capacity and enthusiasm to act on future visions and the needs of future generations.

It is thus essential to embed children's rights in national adaptation plans, to develop strategies to involve children as partners participating in disaster risk reduction from extreme events and in the development of respect for the natural environment. Furthermore, the role of children in adaptation in their communities can be increased. Such child-sensitive adaptation planning should include the following:⁴²

- Climate vulnerability and capacity analysis disaggregated by age, gender, urban and rural. This would include analysis of children's knowledge and capacity relating to risk reduction and adaptation. Tools such as participatory vulnerability and capacity assessments can be oriented towards children and climate change.
- Participatory spaces created by, with, and for children locally and nationally. Children are part of civil society and different platforms for children's voice to be heard in any policymaking that affects them will strengthen adaptation planning.
- Child-centred resilience projects and programmes with dedicated support and resources (dealing particularly with underlying causes of vulnerability). This could involve delivering targeted assistance that has incorporated likely climate scenarios.
- Child rights-based indicators for monitoring and evaluation – both for broad 'enabling environment' frameworks and more targeted programmes. A degree of participatory monitoring and evaluation is essential, and inclusion of process indicators to assess children's empowerment and participatory governance.

D. The International Legal Framework Pertinent to Climate Change and Children's Rights

I. General Human Rights Law

The protection of children's rights under international treaty law can be traced back to the first Declaration of the Rights of the Child adopted by the League of Nations in 1924, which was a brief document containing only five principles by which members were invited to be guided in the work of child

42 (ibid.:32).

welfare.⁴³ An extended version of this text was adopted by the General Assembly in 1948, which was followed by a revised version adopted by the General Assembly in 1959 as the United Nations (UN) Declaration on the Rights of the Child.⁴⁴ In 1978, however, a proposal for a new convention on children's rights was made by Poland,⁴⁵ which had consistently raised issues with regard to children's rights being binding.⁴⁶ Poland's draft, with minor amendments, served as the basis for the 1989 Convention on the Rights of the Child (CRC). The reasons for an international change of heart towards the protection of children's rights were manifold,⁴⁷ but all signatories fundamentally recognised that the 1959 Declaration on the Rights of the Child no longer reflected the needs of many of the world's children.⁴⁸

Although legal instruments were developed that targeted the protection of children in particular, it has to be emphasised that basic human rights instruments already recognise these rights. The so-called International Bill of Human Rights,⁴⁹ for example, contains a broad bundle of human rights also applicable to children, and many of its principles are reflected and substantiated in children-specific legislation. Children enjoy protection by way of general human rights provisions, and the relevance of these provisions should not be underestimated.

The Universal Declaration of Human Rights, as the most prominent and fundamental UN human rights document, provides in its Article 25 that childhood is entitled to special care and assistance. Furthermore, the International Covenant on Civil and Political Rights (ICCPR), a legally binding document, which came into force in 1978 contains provisions specifically referring to children.⁵⁰ The Human Rights Committee has emphasised that

43 Fortin (2005:35).

44 For further details on the 1959 Declaration and its ten principles, see Fortin (2005:35).

45 Poland submitted a draft resolution to be recommended for adoption by the UN Economic and Social Council. The resolution contained a draft text for the Convention on the Rights of the Child. See Detrick (1999:14f.).

46 See Van (1998:13).

47 Van Bueren (1998:13f).

48 (ibid.).

49 Three documents – the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights, and the International Covenant on Economic, Social and Cultural Rights – are recognised as covering the core of universal human rights and are collectively labelled the *International Bill of Human Rights*.

50 Articles 14(1), 23(4) and 24.

“the rights provided for in Article 24 are not the only ones that the Convention recognises for children and that, as individuals, children benefit from all of the civil rights enunciated in the Covenant.”⁵¹

The International Covenant on Economic, Social and Cultural Rights contains several child-specific provisions,⁵² with a focus on the right to education and protection from economic and social exploitation.

Moreover, the Convention on the Elimination of All Forms of Discrimination against Women also contains child-protective provisions. For example, it encourages states parties to specify a minimum age for marriage,⁵³ and it emphasises that the interests of children are paramount.⁵⁴ Another important legal document also applicable to children is the Convention on the Rights of Persons with Disabilities, which establishes the principle of respect for the evolving capacities of children with disabilities. The same applies to the Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment. The Committee established under the latter Convention has already expressed its concern about the general vulnerability of abandoned children, who are at risk of torture and other cruel, inhuman or degrading treatment or punishment, especially children used as combatants.⁵⁵ It can therefore be said that children’s rights are covered by a multitude of general human rights provisions. However, owing to the physical and mental immaturity or dependent status of children,⁵⁶ the legal instruments to be discussed below have been adopted more specifically to enhance children’s rights.

51 OHCHR (1989).

52 Articles 10(3) and 13.

53 Article 16(2).

54 Articles 5(b) and 16(1)(g).

55 In this context, the committee referred specifically to children used as combatants by the armed groups operating on the territory of the Democratic Republic of Congo, and urged the state party to adopt and implement emergency legislative and administrative measures to protect children, especially abandoned children, from sexual violence and to facilitate their rehabilitation and reintegration. The committee further recommended that the state party take all possible steps to demobilise child soldiers and facilitate their rehabilitation and reintegration into society. See UNCAT (2005).

56 See Brett (2009:227).

II. *The Convention on the Rights of the Child*

The system of the UN encompasses four legally binding instruments tailored to protect children's rights, namely the Convention on the Rights of the Child (CRC); the Optional Protocol to the Convention on the Rights of the Child on the Sale of Children, Child Prostitution and Child Pornography (CRC-OPSC); the Optional Protocol to the Convention on the Rights of the Child on the Involvement of Children in Armed Conflict (CRC-OPAC); and the Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the UN Convention against Transnational Organised Crime. With regard to climate change, the CRC is of particular relevance.

The CRC provides a sound basis for a human rights approach that acknowledges children as key role players in policies and programmes aimed at achieving environmental protection. The Convention was adopted by Resolution 44/252 of 20 November 1989 at the 44th Session of the UN General Assembly, and entered into force on 2 September 1990. To date, the Convention has 193 parties. The CRC, which consists of 54 Articles, incorporates the full range of human rights – civil, cultural, economic, political and social – and creates the international foundation for the protection and promotion of human rights and fundamental freedoms of all persons under the age of 18 (Article 1).

The Convention represents widespread recognition that children should be fully prepared to live an individual life in society, and be brought up in the spirit of peace, dignity, tolerance, freedom, equality and solidarity. The CRC follows a holistic approach to children's rights, recognising that the rights anchored in the Convention are indivisible and interrelated, and that equal importance must be attached to each and every right contained therein. The Convention foresees the granting of international assistance or development aid for programmes geared to the needs of children where such cooperation is needed to implement the provisions of the CRC properly and thereby advance the social, economic and cultural rights of children.⁵⁷

Although the Articles of the CRC are interrelated and should be considered together, the Committee on the Rights of the Child has accorded four provisions contained in the Convention, namely Articles 2, 3, 6 and 12, the

57 Ruppel (2009).

status of general principles.⁵⁸ The CRC is, therefore, founded, inter alia, on the following principles, which constitute the foundation for all children's rights: *The right to equality*: No child may be discriminated against on the basis of race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status. *The best interest of the child*⁵⁹ has to prevail: Whenever decisions are being taken which may have an impact on children, the best interest of the child has to be taken into account at all stages. This applies to the family as well as to state action. *The right to life and development*: Every member state has to ensure, to the maximum extent possible, the survival and development of the child by, inter alia, providing access to health care and education, and protecting the child from economic and social exploitation.

These principles contained in the CRC's Articles 2, 3, 6 and 12 are particularly relevant to climate change. No less important in the same context are the rights referring to civil rights and freedoms, containing, inter alia, the right to access to appropriate information; and the right not to be subjected to torture or other cruel, inhuman or degrading treatment or punishment. It is important to emphasise the role that children can play as communicators of good practice and active agents of change.⁶⁰ Engaging with children does not mean that they must provide all the answers – but it strengthens the case for adaptation policy, since it includes bottom-up processes which ensure that approaches are context-specific and take into account the needs of vulnerable groups.⁶¹

The principle of child participation deserves special attention, as “integrated, collaborative approaches, with children as key partners, are required to face the complex challenges that climate change poses to child rights”.⁶² Thus, children's participation must be promoted on the international, national and community level. Child participation is well-established in international law in terms of Article 12 of the CRC. It is obvious that by linking children's local knowledge of changes, impacts and priorities with the work of experts in relevant sectors, development and adaptation ap-

58 See Fortin (2005:37).

59 The concept of *the best interest of the child* is considered to be the provision underpinning all other provisions, even though, theoretically, none of the four principles is considered to be more important than another. See Fortin (2005:37).

60 Save the Children (2008:1–4).

61 Children in a Changing Climate (2009:3).

62 UNICEF (2009c:65).

proaches, strategies and assistance are more likely to meet their needs.⁶³ Underlying children's participation is the fundamental principle of strengthening their knowledge base through education. Strengthening children's knowledge, capacity and voice will enable them to –⁶⁴

- be better equipped to build a future and a world that is environmentally sustainable and promotes health and well-being
- be supported and committed to promoting sustainable communities and climate change adaptation programmes that will make a difference now and in the future
- care about the impact of their lifestyle choices on other parts of the world and be able to take individual action; and
- become ambassadors for positive change in the home and global communities in which they live, learn, play and socialise.

The group of basic health and welfare rights summarises the Convention's Articles 6, 18(3), 23, 24, 26, and 27(1)–(3), namely the right to survival and development; the right to special protection of children with disabilities; the right to health and health services; the right to social security and child care services and facilities; and the right to an adequate standard of living. In this context, national climate change related efforts to combat HIV and AIDS and diseases such as malaria and tuberculosis, particularly among special groups of children at high risk, need to be mentioned. Special protection measures are laid down providing for, *inter alia*, children in situations of emergency; refugee children; children in conflicts; children in situations of exploitation; and children belonging to minority or indigenous groups.⁶⁵

The group of rights on special protection measures, as laid down in Articles 22, 30, 32–36, 37(b)–(d), 38, 39 and 40, provide, among other things, for children in situations of emergency; refugee children; children in armed conflicts, including physical and psychological recovery and social reintegration; children in conflict with the law, with regard to the administration of juvenile justice; children deprived of their liberty, including any form of detention, imprisonment or placement in custodial settings; and children in situations of exploitation, including child labour (Article 32):

63 Children in a Changing Climate (2009:5); Save the Children (2008:9).

64 Children in a Changing Climate (2009:10).

65 Ruppel (2009).

1. States Parties recognize the right of the child to be protected from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development.

2. States Parties shall take legislative, administrative, social and educational measures to ensure the implementation of the present article. To this end, and having regard to the relevant provisions of other international instruments, States Parties shall in particular:

- (a) Provide for a minimum age or minimum ages for admission to employment;
- (b) Provide for appropriate regulation of the hours and conditions of employment;
- (c) Provide for appropriate penalties or other sanctions to ensure the effective enforcement of the present article.

The institution responsible for monitoring compliance with and implementation of the provisions of the CRC is the Committee on the Rights of the Child. Provision for this UN treaty body is made in Articles 43 and 44 of the CRC. The committee is an independent body consisting of 18⁶⁶ international experts in the field of children's rights. The monitoring mechanism is a special reporting system as provided for in Article 44 of the CRC, according to which states parties undertake to submit reports on the measures they have adopted which give effect to the rights recognised in the Convention, and on the progress made on the enjoyment of those rights. States parties are obliged to submit an initial report within two years after acceding to the Convention, and periodic reports every five years after that. After submission, the reports of the states parties are reviewed by the committee, which is entitled to request further information from its authors if necessary. In its concluding observations, the committee addresses progress that has been made by the state party concerned in implementing the Convention, identifies areas of concern or outright incompatibilities of national law, and makes recommendations on how to improve the implementation of the Convention's provisions.⁶⁷ One major problem in the CRC reporting process – as in other UN human rights treaties – is the delay of governments in submitting their periodic reports. Currently, a total of 97 government reports are overdue in

66 Before the amendment to the CRC (UN General Assembly Resolution 50/155 of 21 December 1995), which entered into force on 18 November 2002, the committee consisted of only ten experts.

67 Scheinin (2009:605).

respect of the CRC, while there are 96 overdue on the two Optional Protocols.⁶⁸

States parties may request technical assistance and advisory services from the UN Centre for Human Rights in preparing their reports. When reports by states parties are overdue, the committee issues regular reminders. If a state party persists in not reporting to the committee, the committee may decide to consider the situation in the country in the absence of a report, on the basis of the information available. However, individual complaints or cases cannot be submitted to the committee and the CRC does not have its own mechanism. The fact that the CRC does not provide for specific enforcement mechanisms giving a right of individual petition, similar to the systems of the European Convention on Human Rights or the African Charter on the Rights and Welfare of the Child,⁶⁹ is considered to be one of the CRC's serious weaknesses.⁷⁰ The drafters of the CRC refrained from establishing enforcement procedures because they feared many countries, particularly developing countries, would be reluctant to ratify the Convention if such mechanisms were included.

In summation, it can be stated that, although the CRC is a legally binding instrument according to the principles of public international law, there is no supervisory body to compel states parties to comply with the provisions of the Convention. Moreover, individual complaints cannot be considered by the Convention's treaty body, the Committee on the Rights of the Child, and there is no judicial organ established under the Convention to which violations of children's rights can be brought.⁷¹ Still, the Convention is an important instrument as it has heightened awareness of children's rights violations and, in many cases, has resulted in improved national law and policy in terms of the protection of children's rights. Also relevant to the worst forms of child labour are the Optional Protocols to the CRC.

68 These figures include multiple overdue reports by the same state. Statistical data with regard to the seven major human rights treaties, including the CRC and its Optional Protocols, is available at <http://www.unhchr.ch/tbs/doc.nsf/newhvoverduebytreaty?OpenView&Start=1&Count=250&Collapse=3#3>, last accessed 11 May 2013. For general information on the submission of periodic reports under the CRC see HCHR (2005).

69 See Ruppel (2009); Sheahan (2009).

70 Fortin (2005:48); Hammarberg (1990); for general measures of implementation of the CRC see OHCHR (2003.).

71 There are, however, ongoing campaigns by several agencies supporting a communications procedure under the CRC.

In summary, the following provisions of the CRC pertaining to climate change and children should be emphasised:⁷²

- Article 2: The right not to be discriminated against. At present, climate change policies fail to take into account that children are not a homogeneous group and that different groups of children respond differently to climate change and adoption strategies⁷³
- Article 3: The best interests of the child as a paramount consideration. This means that the best interests must be the guiding concern in all international, regional and domestic policies and programmes
- Article 6: The child's right to life, survival and development. This is probably the most powerful provision that establishes the connection between children's rights, sustainable development and the achievement of the Millennium Development Goals
- Article 12: The child's right to participate in all matters affecting him or her. This Article secures children's influence on adapting to and mitigating climate change at every level⁷⁴
- Article 24: The right of the child to enjoy the highest attainable standard of health. This places an obligation on states parties to provide adequate nutritious foods and clean drinking water, taking into consideration the dangers and risks of environmental pollution. Furthermore, states parties must assure that all segments of society, in particular parents and children, are informed, have access to education and are supported in the use of basic knowledge of child health and nutrition, environmental sanitation and the prevention of accidents. This Article in other words commits governments to protect the right of every child to a safe and healthy environment in which to develop and grow. The importance of this commitment is obvious in the discussion of the impact of climate change on children; and
- Article 29: The education of the child should be directed to the development of respect for the natural environment. Creating emotional awareness from a young age provides children with critical thinking skills and empowers them to address rapidly changing environments.⁷⁵

72 UNICEF (2008:16).

73 UNICEF (2011:36).

74 Children in a Changing Climate (2009:1).

75 UNICEF (2008:23, 26).

The CRC read with “A World Fit for Children”, Declaration provides the framework to protect and preserve the right of every child to a safe and healthy environment in which to develop and grow.⁷⁶ The Declaration, which was unanimously adapted by the General Assembly Special Session on Children in 2002, embodies the commitment of states “to give every assistance to protect children and minimize the impact of natural disasters and environmental degradation on them.”

III. Children under the United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) does not contain specific provisions with regard to children. However, at least indirectly, children are given special attention. As one of the general principles, Article 3 of the UNFCCC states that “The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities.” It can be stated that child-specific concerns and children’s rights are encompassed in the foundational principle of inter- and intra-generational equity, as incorporated within the Convention.

Children should particularly benefit from the support (such as financial and technological support to be provided by developed countries under Article 4.3 of the UNFCCC) that is awarded by the UNFCCC to developing countries if one considers, that children in developing regions are particularly at risk.⁷⁷

One of the commitments of all parties to the UNFCCC is to “promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process ...”.⁷⁸ The aforementioned provision is further specified in Article 6 of the UNFCCC

76 (ibid.:ix).

77 According to the UN Inter-agency Group for Child Mortality Estimation (2012:2) for example, the under-five mortality rate in developing regions in 2011 was 57 deaths per 1,000 live births – more than 8 times the rate in developed regions.

78 Article 4.1(i) of the UNFCCC.

and the 2012 Doha work programme⁷⁹ on Article 6 of the UNFCCC. Several projects and events have been initiated in the implementation of Article 6 of the UNFCCC. In order to empower children and young people to take action on climate change, the UNFCCC secretariat together with United Nations entities and youth organisations have, for example, established the United Nations Joint Framework Initiative on Children, Youth and Climate Change. The initiative coordinates activities and shares information among participating entities, empowering children and young people to take action on climate change.⁸⁰ Despite several initiatives related to the involvement of children and youth⁸¹, through recognition of youth and children as a major stakeholder constituency to the UNFCCC, the New Delhi Work Programme has for example been criticised for not specifically recognising children as key stakeholders.⁸²

E. The Millennium Development Goals (MDGs)

An understanding of the interactions and overlaps between climate change and wider development pressures is key to the discussion of MDGs.⁸³ This complex relationship is captured in the following statement made by the MDG Africa Steering Group:⁸⁴

The challenge of meeting the eight MDGs in African countries is compounded by the grave long-term risk that climate change poses. African countries demonstrably require additional resources for adaptation since they are particularly vulnerable to the effects of climate change and the growing risk of natural disasters. At least some of these additional resources will be needed to “climate proof” all projects and policies intended to achieve MDGs and to strengthen the resilience of communities to the effects of natural disasters. Threats posed by climate change and natural disasters further increase the need for regional co-

79 Report of the Conference of the Parties on its eighteenth session, held in Doha from 26 November to 8 December 2012, FCCC/CP/2012/8/Add.2, available at <http://unfccc.int/resource/docs/2012/cop18/eng/08a02.pdf>, last accessed 10 June 2013.

80 See for example the initiative’s recent publication *Youth in Action on Climate Change: Inspirations from around the World*, aiming at highlighting concrete activities young people are leading around the world.

81 For more information on programmes and initiatives, see http://unfccc.int/cc_inet/cc_inet/youth_portal/items/6583.php, last accessed 10 June 2013.

82 See Earth Child Institute (2012).

83 UNICEF (2011:36).

84 MDG Africa Steering Group (2008:1).

operation and integration in areas of economic policy, infrastructure (e.g. power pools, transport and communications infrastructure), research, and the management of trans-boundary river basin.

Achieving the MDGs is critical for children, especially as each of the MDGs can be linked to climate change, requiring adaptation solutions related to children.⁸⁵ It is likely that climate change will make achieving the Millennium Development Goals even more difficult.⁸⁶ A reading of Article 6 of the CRC with the MDGs underlines the reality that climate change is inextricably linked to the broader sustainable development agenda for children, including the difficult challenge of poverty reduction.

F. Children in a Changing Climate: Some (Legal) Hotspots

I. Humanitarian Crises

The effects of climate change leading to natural disasters and complex emergencies may affect children's rights to survival, development, protection and participation, among others. Critical issues in this regard are child nutrition, health and education. Humanitarian crises increase the risk for children to be exploited for economic and sexual purposes or even to be employed as a weapon of war. The effects of climate change raise concerns about food security as they result in increased competition for limited resources, including water. The legal framework for child rights in emergencies is particularly provided by Articles 38 and 39 of the CRC and the Optional Protocol on the Involvement of Children in Armed Conflict. The UN Security Council has furthermore adopted several resolutions to protect children in emergencies, such as resolution 1612 adopted in 2005, introducing a monitoring and reporting mechanism on the use of child soldiers; and resolution 1820 adopted in 2008, aimed at ending the abuse of children and civilians in the context of war.

Providing child protection in emergencies is of utmost importance. Humanitarian action includes integrating child protection into disaster preparedness, providing medical and psychosocial care, establishing child-friendly spaces, mobilising communities for child protection, rebuilding ed-

85 UNICEF (2008:17).

86 Stern (2006); UN Inter-agency Group for Child Mortality Estimation (2012).

ucation systems in the wake of disaster or conflict, as well as setting in place legal counselling and socioeconomic reintegration programmes.

II. Migration

Migration, whether forced or voluntary, is one of the major challenges related to the effects of global warming. The number of people who migrate within countries or across national borders is increasing dramatically⁸⁷ and will continue to do so owing to “demographic factors, economic disparity, violent conflict, state failure, natural disasters, and resource and environmental pressures, especially climate change”.⁸⁸ Children and youth migrating with or without their parents account for a large share of internal and international migrants.

On one hand, migration is considered to be an important adaptation strategy in response to the degradation of people’s immediate environments,⁸⁹ helping them to overcome the impacts of environmental stresses. Migration can indeed be an escape from immediate threats such as natural disaster and conflict; it can provide children with a better life and increased opportunities and thus be a positive experience for them. On the other hand, migrating children are also faced with serious challenges, especially in countries where legal protection is absent, and when migrating without their parents or families. Child migrants are at a high risk of exploitation and trafficking.

Risks associated with climate-induced migration include traumatisation, sexual abuse and child trafficking, maltreatment and neglect, discontinuation of school, child labour, and relocation to informal settlements with insufficient infrastructure and high (environmental) risks, among others. As stated by the special representative of the secretary general on Violence Against Children, Marta Santos Pais, in 2011, “[T]he protection of the rights of children in migration is an ethical and legal imperative”.⁹⁰ Relevant legal documents protecting child migrants are the CRC and its Optional Protocols

87 It has been estimated that 214 million persons worldwide are international migrants, and 740 million persons are internal migrants. According to the World Bank, about a third of the migrant flow from all developing countries is youth aged 12 to 24 years of age. See ILO (2011).

88 ILO (2011).

89 See for example Gemenne (2010).

90 Santos Pais (2011).

prohibiting discrimination of any kind, and “requiring States to safeguard the rights of all children under their jurisdiction, including their protection from violence and exploitation, whether they are nationals, foreigners or stateless”.⁹¹ Further relevant provisions are contained in the United Nations Convention against Transnational Organized Crime and the Protocols Thereto. The United Nations Convention against Transnational Organized Crime, adopted by General Assembly resolution 55/25 of 15 November 2000, is the main international instrument in the fight against transnational organised crime.⁹² Two of the three Protocols supplementing the Convention are particularly relevant for child migrants, namely the Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children (the first global legally binding instrument with an agreed definition on trafficking in persons);⁹³ and the Protocol against the Smuggling of Migrants by Land, Sea and Air.⁹⁴ Countries must become parties to the Convention itself before they can become parties to any of the Protocols.

III. Child Labour

In June 2013, Pope Francis commemorated the World Day Against Child Labour and called child labour a “disgusting phenomenon that is constantly increasing, particularly in poor countries.” He went on in saying that “there are millions of children, mostly baby girls, who are victims of this hidden form of exploitation that often leads to abuse, ill-treatment and discrimination” and concluded his appeal by calling on the international community to bring about more effective measures to combat child labour.⁹⁵ Child labour

91 (ibid.).

92 Text available at <http://www.unodc.org/documents/treaties/UNTOC/Publications/TOC%20Convention/TOCebook-e.pdf>, last accessed 12 June 2013. As of 11 June 2013, the Convention has 176 parties.

93 Text available at <http://www.unodc.org/documents/treaties/UNTOC/Publications/TOC%20Convention/TOCebook-e.pdf>, last accessed 12 June 2013. The Protocol came into force on 25 December 2003. As of 11 June 2013, the Protocol has 155 parties.

94 Text available at <http://www.unodc.org/documents/treaties/UNTOC/Publications/TOC%20Convention/TOCebook-e.pdf>, last accessed 12 June 2013. The Protocol came into force on 28 January 2004. As of 11 June 2013, the Protocol has 136 parties.

95 See <http://www.zenit.org/en/articles/pope-calls-child-labor-a-disgusting-phenomenon>, last accessed 20 June 2013.

is a further challenge aggravated by the adverse effects of climate change and closely related to climate-induced migration⁹⁶

The persistence of child labour is one of the biggest failures of development efforts. And now there are concerns that the global economic downturn will put a further brake on progress towards the 2016 goal for the elimination of the worst forms of child labour and render the challenge of achieving the MDGs all the more difficult.

Many children are still engaged in labour, including the worst forms thereof, like trafficking, armed conflict, slavery, sexual exploitation and hazardous work. A 2010 report to the International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work reveals that globally there are 306 million children in employment, of which 215 million children are caught in child labour,⁹⁷ while 115 million are involved in hazardous work.⁹⁸ While the number of children involved in work is declining in the Asia-Pacific region, Latin America and the Caribbean, it is increasing in sub-Saharan Africa. These numbers are exacerbated by climate change and the vulnerability of children to climate change, and child labour therefore cannot be over-emphasised.⁹⁹ The effects of climate change could lead to many children being absorbed into child labour, including into its worst forms, for multiple reasons:¹⁰⁰

- The workload of children, particularly girls, increases disproportionately during drought and in the aftermath of natural disaster
- A decline in access to education is closely associated with the breakdown of social and economic structures. One common reason for non-attendance at school is the deterioration of child health
- Loss of livelihoods and food insecurity prevent access to education for many children; and
- Natural disasters may force children out of their homes, or even their countries. A large number of child migrants are involved in child labour.

96 ILO (2010:ix).

97 (ibid:5). These children are classified as child labourers because they are either under the minimum age for work or above that age and engaged in work that poses a threat to their health, safety or morals, or are subject to conditions of forced labour.

98 (ibid.).

99 See Mapaure (2009:201) with further references.

100 ILO (2010:75).

Child migrants experience a double vulnerability, as migrants and as children. "Migrant child labourers often receive less pay, work longer hours, less often attend school and face higher death rates at work in comparison to local child labourers."¹⁰¹ Migrating child labourers, inter alia, suffer from isolation, violence, sub-standard working conditions, non-payment of wages, and the threat of being reported to the authorities.¹⁰²

Various international legal instruments have been drafted in order to protect children from child labour.

1. *Child Labour under the CRC*

The following concrete legal tools within the CRC are immediately relevant for preventing the economic exploitation of children. Article 32 provides that children need to be protected from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development. Member states are required to set minimum ages for the admission to employment; provide for appropriate regulation of the hours and conditions of employment; and to ensure the effective enforcement of the provisions above via appropriate penalties or sanctions. Article 33 is related to the prevention of the use of children in the illicit production and trafficking of narcotic drugs and psychotropic substances. Article 34 provides for the protection of the child from all forms of sexual exploitation and sexual abuse, including the exploitative use of children in prostitution and in pornographic performances. Article 35 is relevant with regard to the abduction, sale of or traffic in children for any purpose, including commercial exploitation. Article 38 protects children under the age of 15 from being recruited into armed forces and from directly taking part in hostilities.

2. *Child Labour under the Legal Framework of the ILO*

In fact, children's rights are at the core of the ILO's mandate. The Declaration on Fundamental Principles and Rights at Work adopted in 1998 states that members of the ILO, even if they have not ratified the relevant conven-

101 ILO (2011:3).

102 (ibid.).

tions, have an obligation arising from their very membership to respect, promote and realise the principles of freedom of association and the effective recognition of the right to collective bargaining; the elimination of all forms of forced or compulsory labour; the effective abolition of child labour, and the elimination of discrimination in respect of employment and occupation. These principles are reflected in eight¹⁰³ conventions that are fundamental to human rights within and outside the ILO regime. The two most relevant of these conventions on the protection of children's rights are outlined below. As to reporting and monitoring of the ILO Conventions, Article 22 of the ILO Constitution provides that members are obliged to submit periodic reports to the ILO.

a) The ILO Minimum Age Convention, 1973 (No. 138)

The Minimum Age Convention is one of the eight fundamental human rights conventions under the ILO umbrella, and has been ratified by 166 countries.¹⁰⁴ The Convention, which was adopted in 1973, was upheld by the Committee on the Rights of the Child as an appropriate standard, providing principles, which apply to all sectors of economic activity. All signatories to the Convention are required to fix a minimum age for admission to employment, and have to undertake to pursue a national policy designed to ensure the effective abolition of child labour. Furthermore, members are obliged to raise the minimum age for admission to employment progressively, to a level that is suited to the fullest physical and mental development of young people.¹⁰⁵

103 The eight fundamental human rights conventions under the ILO relate to fields of freedom of association and collective bargaining (Conventions 87 and 98); the elimination of forced and compulsory labour (Conventions 29 and 105); the elimination of discrimination in respect of employment and occupation (Conventions 100 and 111); and the abolition of child labour (Conventions 138 and 182).

104 As of 13 June 2013, see http://www.ilo.org/dyn/normlex/en/f?p=1000:11300:0::NO:11300:P11300_INSTRUMENT_ID:312283, last accessed 13 June 2013.

105 Passage based on Ruppel (2009:71ff.).

b) ILO Convention Concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour, 1999 (No. 182)

The ILO Convention No. 182 bans the worst forms of child labour, including slavery, sale and debt bondage; forced labour; recruitment for armed forces, prostitution, drug trafficking or other illicit activities; and recruitment for other work that harms the health, safety or morals of children. The Convention was adopted on 17 June 1999, and has enjoyed a fast pace of ratification. Currently, 177 members have ratified the Convention.¹⁰⁶ The Convention was adopted in recognition of the fact that the effective elimination of child labour depends on economic factors and may, therefore, take time to be accomplished. Nonetheless, there are certain forms of child labour that cannot be tolerated. Therefore, the Convention calls for immediate action to secure the prohibition and elimination of the worst forms of child labour, irrespective of the level of development or economic situation of the country. These worst forms against which all persons under the age of 18 must be protected include all forms of slavery or similar practices, such as sale and trafficking, debt bondage, serfdom, and forced or compulsory labour; the use of children in armed conflicts; the use of children for prostitution or pornography; the use of children for illicit activities such as drug trafficking; and work likely to harm their health, safety or morals, as determined at the national level.

c) The Roadmap for Achieving the Elimination of the Worst Forms of Child Labour

In 2010, the Hague Global Child Labour Conference agreed to the Roadmap for Achieving the Elimination of the Worst Forms of Child Labour by 2016. This Roadmap aims to remove children from the worst forms of child labour and to offer them a future without child labour. The Roadmap includes a focus on child migrants. In Article 5 it states that “Governments should consider ways to address the potential vulnerability of children to, in particular, the worst forms of child labour, in the context of migratory flows”.

106 As of 13 June 2013, see http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11300:0::NO:11300:P11300_INSTRUMENT_ID:312327:NO, last accessed 13 June 2013.

G. Concluding Remarks

Statistical data on the situation of children in a changing climate reflect the sad reality that children belong to the groups most affected by the negative effects of climate change. Human insecurity, including food and health insecurity, humanitarian crises, migration and child labour are some of the issues that potentially affect children most in the context of climate change. However, children may also be protagonists in responding to the adverse effects of climate change, if they are given the means to do so. Although international law – with the holistic approach of the CRC leading the way – provides a solid legal framework to protect children, children’s rights remain at risk, not least because of the lack of effective enforcement mechanisms. Participation and access to justice are the key principles for child-sensitive policymaking, national adaptation planning and all forms of climate-smart (and child-friendly) development.

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**PART III:
CLIMATE CHANGE, TRADE,
INVESTMENT AND REGIONAL
INTEGRATION**

Markus W. Gehring & Jarrod Hepburn

Abstract

This article addresses the relationship between climate change, and trade and investment law. Although climate change may not have made its presence known directly in many international trade and investment disputes so far, it has already had effects on these two legal regimes in other ways. There is uncertainty over whether trade law and investment law are adequate to deal with the pressures and tensions that climate change engenders. However, this article presents some optimistic answers and ways forward, setting out possibilities for future enhancements of the two legal regimes to ensure that climate change is, and remains, a defeasible issue. Ultimately, the climate change era presents many challenges, but, on balance, there are even more opportunities to trade and investment law to provide a meaningful framework for global sustainable development.

A. Introduction

Combatting climate change and developing trade and investment are not supposed to have opposing aims. In the context of the global green economy, they are supposed to be mutually beneficial. As the global Rio+20 Declaration, *The Future We Want*, categorically states:

We affirm that there are different approaches, visions, models and tools available to each country, in accordance with its national circumstances and priori-

* The authors would like to thank Dr. Marie-Claire Cordonier Segger for inspiration and intellectual guidance as well as collaboration on earlier versions of this research. We share her ideas in this article. This article shares thoughts with Gehring et al. (2012). We thank Avidan Kent for invaluable assistance in preparing this article.

ties, to achieve sustainable development in its three dimensions which is our overarching goal. In this regard, we consider green economy in the context of sustainable development and poverty eradication as one of the important tools available for achieving sustainable development and that it could provide options for policy making but should not be a rigid set of rules. We emphasise that it should contribute to eradicating poverty as well as sustained economic growth, enhancing social inclusion, improving human welfare and creating opportunities for employment and decent work for all, while maintaining the healthy functioning of the Earth's ecosystems.

This article focuses on two very important areas of international economic law. The first is trade law, covering primarily the legal instruments and jurisprudence of the World Trade Organisation (WTO) and its dispute settlement organs, and drawing also on developments in regional and bilateral trade agreements. The second is investment law, covering the texts of the extensive and growing network of bilateral and (some) regional investment treaties, and the interpretation of these treaties by the arbitral panels convened to hear disputes most often under the rules of the International Centre for Settlement of Investment Disputes (ICSID) or the United Nations Commission on International Trade Law (UNCITRAL).

Although, as Section 2 of this article discusses, climate change may not have made its presence known directly in many international trade and investment disputes so far, it has already had effects on these two legal regimes in other ways. The major issue that climate change poses for international trade and investment law is addressed extensively in Sections 3 and 4, respectively. Are these two legal regimes adequate, in their existing forms, to deal with the pressures and tensions that climate change engenders? The ultimate results of this debate are still being determined, as negotiators, policymakers, academics and tribunals continue to work through the issues that climate change has raised. However, Section 5 of this article presents some optimistic answers and ways forward, setting out possibilities for future enhancements of the two legal regimes to ensure that climate change is and remains a defeasible issue. Ultimately, the climate change era presents many challenges, but, on balance, there are even more opportunities to trade and investment law to provide a meaningful framework for global sustainable development.

B. Climate Change and Trade and Investment Dispute Settlement

There have been a handful of disputes in the WTO and investment law systems that are directly related to climate change measures. However, as discussed in this section, these disputes have not yet appeared to pose any fundamental challenges to the regimes. Although their existence highlights some of the common features of climate change measures, such as the fact that they often take the form of governmental subsidies to green industries, the application of the relevant rules in these cases may be largely analogous to their application in non-climate cases.

The major relevant case arising so far in the trade law system is the *Canada-FIT* dispute, and the WTO Panel's December 2012 ruling is discussed in detail here.¹ The dispute arose in September 2010, when Japan requested consultations with Canada within the WTO framework, complaining about measures that impose domestic content requirements on Ontario's renewable energy industries.² In August 2011 the European Union (EU) also requested consultations with Canada concerning the same measures.³ The two disputes were adjudicated simultaneously before the same panel.⁴

The complaints brought by the EU and Japan relate to an Ontario scheme to provide guaranteed, long-term, favourable pricing for wind, solar, small hydro and biomass electricity producers, provided these producers purchase certain goods and services from local Ontario companies (Ontario feed-in tariff program, or Ontario FIT program). In a nutshell, the complainants raised two main arguments: First, it was argued that the scheme violates the national treatment rule, as stipulated in Article III(4) of the General Agreement on Tariffs and Trade (GATT) and in Articles 2.1 of the Agreement on

1 Note that the ruling of the WTO Appellate Body in the *Canada-FIT* case was released on 6 May 2013, after the substance of this article was finalised for publication.

2 *Canada – Certain Measures Affecting the Renewable Energy Sector* (Complaint by Japan), DS412, http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds412_e.htm, last accessed 14 March 2013.

3 *Canada – Measures Relating to the Feed-in Tariff Program* (Complaint by the EU), DS426, http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds426_e.htm, last accessed 14 March 2013.

4 *Canada – Certain Measures Affecting the Renewable Energy Sector* (Complaint by Japan); *Canada – Measures Relating to the Feed-in Tariff Program* (Complaint by the EU), 2012, WTO Doc. WT/DS412/R, WT/DS426/R, Panel Report, (*Canada FIT*).

Trade-Related Investment Measures (TRIMs Agreement). Second, it was contended that the Ontario FIT program is in violation of Article 3.1(b) of the Agreement on Subsidies and Countervailing Measures (SCM Agreement), according to which subsidies that are contingent on the use of local content are prohibited.

In its recent ruling, the WTO Panel held that the Ontario FIT program was indeed inconsistent with the national treatment obligation. The Panel commenced by rejecting Canada's argument that Ontario's FIT program fell within the scope of Article III(8) of the GATT, which excludes certain governmental procurements from the GATT and the provisions of TRIMs on national treatment. The Panel emphasised that in order to fall within this exception, the governmental purchases must not be "with a view to commercial resale or with a view to use in the production of goods for commercial sale".⁵ The Panel added in this respect that the electricity purchased by the government is resold to the public in competition with the private sector,⁶ and with significant profits for the shareholders of the distributing companies.⁷ The Panel concluded therefore that the resale of the electricity by the state is of a "commercial nature",⁸ and accordingly that Ontario's FIT program is not covered by the "governmental procurement" exception.

The Panel continued its analysis by asking whether the "local content" requirement in the FIT program violates the national treatment rule. For this purpose, the Panel referred to the "Illustrative List" in the Annex of the TRIMs Agreement, which sets out the categories of measures that are deemed to be in violation of the national treatment provisions. According to paragraph 1(a) of this list, the situations that are inconsistent with the prohibition on national treatment include:⁹

the purchase or use by an enterprise of products of domestic origin or from any domestic source, whether specified in terms of particular products, in terms of volume or value of products, or in terms of a proportion of volume or value of its local production.

In light of the conditions stipulated by the local content requirement of the Ontario FIT program, as well as the text of paragraph 1(a) of the Illustrative List, the Panel concluded that the FIT program's domestic content require-

5 Article III(8)(a) of the GATT; see *Canada FIT*, *supra* note 3, paras 7.139-7.154.

6 *Canada FIT*, *supra* note 3, para 7.147.

7 (*ibid.*:para 7.150).

8 (*ibid.*:para 7.151).

9 Para 1(a) of the Illustrative List, Annex to the TRIMs Agreement.

ment violated the national treatment provisions of both the GATT and the TRIMs.¹⁰

The second question examined by the Panel was whether the local content requirement of the Ontario FIT program is a prohibited subsidy, according to the SCM Agreement. In order to answer this question, the Panel had first to determine whether the Ontario FIT program should be considered as a “subsidy”, according to the definition provided in Article 1.1 of the SCM Agreement. Under this definition, a subsidy must include two components: a “financial contribution” and a “benefit”.

With respect to the first condition, the Panel decided that the Ontario FIT program should be seen as a “governmental purchase of goods”,¹¹ and therefore regarded as including a “financial contribution”.¹² The Panel turned to the question of conferral of a benefit.¹³ Where a measure is characterised as a “governmental purchase of goods”, the text of the SCM Agreement provides the following guidance as to the existence of a benefit:¹⁴

[T]he provision of goods or services or purchase of goods by a government shall not be considered as conferring a benefit unless the provision is made for less than adequate remuneration, or the purchase is made for more than adequate remuneration. The adequacy of remuneration shall be determined in relation to *prevailing market conditions for the good or service in question in the country of provision or purchase* (including price, quality, availability, marketability, transportation and other conditions of purchase or sale).

The question faced by the Panel, therefore, was whether the conditions granted by the Ontario FIT program are more advantageous than the “prevailing market conditions” for electricity in Ontario. The determination of these “prevailing market conditions” stood at the heart of the Panel report. The complainants presented several alternatives as to the correct benchmark for determining these conditions. These alternatives included the wholesale/retail prices of electricity in Ontario at present, the prices in four other neighbouring jurisdictions (in which, it was argued, the electricity markets were not distorted), and the prices at which electricity is exported from, and imported into, Ontario.¹⁵ The complainants argued that the prices offered

10 *Canada FIT*, *supra* note 3, para 7.166.

11 See Article 1.1(a)(1)(iii) of the SCM Agreement.

12 *Canada FIT*, *supra* note 3, para 7.222.

13 Article 1.1(b) of the SCM Agreement.

14 Article 14(d) of the SCM Agreement (emphasis added).

15 *Canada FIT*, *supra* note 3, paras 7.250 – 7.258, 7.299.

for electricity by the Ontario FIT program were higher than any of the suggested benchmark prices and therefore were to be considered as a “benefit”.

The Panel, however, rejected the complainants’ argument. First, the Panel explained that, according to WTO jurisprudence, the price benchmark for the determination of the “prevailing market conditions” should be set according to a market where there is effective and unconstrained competition.¹⁶ The Panel found that the prices presented by the complainants were either the result of distorted energy markets, or otherwise affected by conditions that did not exist in Ontario. The Panel therefore held that these prices did not reflect the appropriate price of electricity in a competitive market in Ontario.¹⁷

Interestingly, the Panel continued by stating that even if a competitive market price had been demonstrated by the complainants, such a price could not serve as the appropriate benchmark in the case.¹⁸ This was because, where a competitive price exists, public policy objectives such as the diversification of energy sources and the reduction of greenhouse gas emissions (mentioned in the report only as “environmental impacts”) could not be achieved. As an alternative approach, the Panel suggested the following benchmark for the determination of the “prevailing market conditions”:¹⁹

[O]ne way we believe it is possible to evaluate whether the challenged measures confer a benefit, that at the same time maintains a market-based discipline, is by evaluating the commercial nature of the FIT and microFIT Contracts against the actions of private purchasers of electricity in a wholesale market *where the conditions of supply and demand mirror those that currently exist in Ontario.*

According to the Panel, the factors that must be considered in this respect included Ontario’s aspiration to eliminate coal-fired plants, the Province’s need to replace its energy production facilities, and its commitment to encourage the production of energy from renewable sources.²⁰ The Panel further added that the correct comparison in this case would have been:²¹

to compare the rate of return obtained by the FIT generators under the terms and conditions of the FIT and microFIT Contracts with the average cost of capital in Canada for projects having a comparable risk profile in the same period.

16 (ibid.:para 7.275).

17 (ibid.:paras 7.301-7.305).

18 (ibid.:para 7.320).

19 (ibid.:para 7.322, emphasis added).

20 (ibid.:para 7.322).

21 (ibid.:para 7.323).

It is this last ruling (which was opposed by one Panel member in a separate opinion) that is of particular interest for the interaction between international trade law and climate change. In its decision, the Panel *de facto* recognised the special circumstances that are unique to investments in renewable energy. The Panel acknowledged that such projects cannot currently compete in the general energy market, that they include higher risk, that there are additional “un-priced” social benefits for such projects,²² and that in the already distorted energy markets it could be that governmental support for this sector is in fact necessary. Accordingly, the Panel decided to interpret the term “prevailing market conditions” in this case in a very expansive manner: by comparing the FIT rates only with projects that have a comparable risk profile, and by considering broader public considerations (such as environmental policies) as relevant for this legal test. The Panel’s ruling thus appears to indicate that climate measures, if well designed, do not violate subsidy or other trade rules.

A similar WTO dispute was launched in December 2010 by the United States (US) against China.²³ In this dispute, the US (joined by the EU and Japan) complained about domestic sourcing requirements in China’s wind power industry. Like the Ontario scheme, the Chinese scheme involved grants of subsidies to wind energy producers that purchase their equipment from within China. On the surface, such a programme certainly appeared to violate WTO subsidy rules. One commentator, though, has suggested that the climate change context of the dispute could have provided China with a “necessity” argument under the general exceptions in Article XX of the GATT (which exceptions are discussed further below).²⁴ The argument here is essentially that the magnitude of the climate change problem, particularly for an energy-hungry, growing China, is so great that China needs to ensure that it has a viable domestic wind energy industry. This then requires governmental incentives to support the local industry, even at the expense of foreign producers, thus making the measures “necessary to protect human, animal or plant life or health” under GATT Article XX(b). If the case had proceeded to formal dispute settlement, there was the potential for some significant climate-related jurisprudence to result, not only on the meaning of the Article XX exceptions, but also on the possibility of their application outside of the GATT itself to the US claim under the WTO’s subsidies

22 See footnote 633 in the Panel Report, *Canada FIT*, *supra* note 3, p. 135.

23 *China – Measures Concerning Wind Power Equipment* (DS419).

24 See Lester (2011) for further discussion of this view of Professor Robert Howse.

agreement.²⁵ However, in June 2011, China withdrew its subsidies programme, which means that the formal WTO dispute is likely to be discontinued.²⁶

While there have been several disputes relating to the electricity industry in the investment sphere, they have not shown a direct link to climate change measures, nor to environmental concerns more generally. One possible exception is the recently settled proceedings in *Vattenfall v Germany*.²⁷ There, the Swedish state-owned energy company Vattenfall challenged new regulations imposed on its coal-fired power plant project near Hamburg. Following local elections in 2008, the Green Party had come into power in a coalition in the Hamburg municipal government, and had imposed more onerous measures on the plant than had originally been guaranteed – partly on the grounds of the contribution made by the coal-fired plant to climate change. In response, Vattenfall claimed violations of the Energy Charter Treaty,²⁸ and sought €1.4 billion in damages. However, the proceedings were suspended in March 2010, as the parties headed towards a settlement. While *Vattenfall* demonstrates the kind of climate-related dispute that could well become more common, it has not as yet had any major impact on investment law doctrines.

Two other cases on the horizon reflect an alternative pattern of climate change disputes. Challenges are underway against Spain and the Czech Republic, brought by foreign investors in the renewable energy industries.²⁹ In these cases, the respondent states are not seeking to support renewable technologies through subsidies or incentives, nor to place increased scrutiny on climate-unfriendly projects. Rather, the states are seeking to roll back existing incentives for renewable energy, on the grounds that the popularity of the incentives has proved too much of a fiscal burden for the government. Thus, the investors claim that the governments have reneged on the promise of a long-term, guaranteed favourable price for the green energy produced by the investors' solar facilities, and that this constitutes a violation of ap-

25 Agreement on Subsidies and Countervailing Measures (adopted 15 April 1994, entered into force 1 January 1995) 1867 UNTS 14.

26 International Centre for Trade and Sustainable Development (2011).

27 International Centre for Settlement of Investment Disputes, ICSID Case No. ARB/09/6. For further background see http://www.iareporter.com/articles/20100319_6 and http://www.iareporter.com/articles/20090719_3, last accessed 14 March 2013.

28 Energy Charter Treaty (1995) 34 ILM 360.

29 Morales & Sills (2011); Jarešová (2011).

plicable investment treaties. These disputes certainly have the potential to lead to interesting jurisprudence on the relations between matters of serious global concern such as climate change, on the one hand, and the realities of governmental budgets in a time of financial crisis, on the other hand. At this stage, though, the disputes perhaps best serve to demonstrate the role that can be played by stable and clear rules on international trade and investment in encouraging private business activity to combat climate change.

Climate change has sparked a wide range of regulatory responses at the international and national levels of government. As a result of this, and as the *Vattenfall* dispute may demonstrate, it is possible that entrenched interests in older technology markets (such as coal- and oil-based energy industries) will seek to challenge the regulatory measures. This will have the effect of presenting a variety of scenarios and forms of regulation to international adjudicators in the trade and investment regimes, including subsidies, taxes, traditional command-and-control measures, market-based mechanisms, and others. These measures will impact on existing players in different ways, and depending on the precise characterisation of the measure and its actual impact, the outcomes of legal challenges are likely to differ. One possible effect of this is that the definitional boundaries of the regimes will be stretched, as adjudicators are pushed, for instance, to consider a particular measure as a prohibited subsidy under WTO rules, or to consider a particular impact as sufficient to amount to expropriation under investment rules. The scope of what we consider as trade and investment law, then, may well be broadened by the pressures of climate change.

C. Trade Law

I. Climate Regulations and the ‘Like Products’ Debate

In addressing climate change, states may seek to place different regulatory standards on products, based on their differing levels of implication in carbon emissions. However, where two products are physically similar, used for the same purposes and competitive in the same market, different regulations on each may risk breaching WTO rules on non-discrimination in certain circumstances. These rules apply, though, only to “like products”: if the products are sufficiently different, then a variation in treatment will not be dis-

criminary.³⁰ Trade dispute settlement bodies are thus likely to consider carefully the definition of “like products” when assessing the legality of measures designed to combat carbon emission consequences. On current WTO jurisprudence, it is possible that states would ultimately be permitted to take a product’s greenhouse gas emissions into account in determining its “likeness” with another product.³¹ The *EC-Asbestos* dispute³² remains indicative of the current stance on discrimination against like products, demonstrating that in certain instances, such as when a carcinogen like asbestos is being substituted in a marketplace with potentially less carcinogenic alternatives, the WTO Appellate Body will take minute physical differences into consideration, shifting the burden of proof onto the challengers to demonstrate that their goods are indeed “like” a less harmful substitute.³³

II. GATT Article XX Exceptions to Trade Rules

The WTO Agreements are not without exceptions for measures related to sustainable development. First, Article XX of the GATT allows WTO members to violate WTO disciplines in certain circumstances, such as for the protection of health, the environment or conservation of exhaustible natural resources. Article XX reads, in relevant part:³⁴

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: ...

(b) necessary to protect human, animal or plant life or health; ...

(g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption; ...

Similar exceptions were agreed upon in the General Agreement on Trade in Services and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs Agreement). As noted by the *Retrospective Analysis of*

30 GATT Articles I:1, III:2 and III:4.

31 Tarasofsky (2008:7); Miles (2008).

32 *EC – Measures Affecting Asbestos and Asbestos-Containing Products* (12 March 2001), WT/DS135/AB/R.

33 Cordonier Segger & Gehring (2003).

34 GATT Article XX.

the 1994 Canadian Environmental Review of the WTO, GATT Article XX is an important safeguard of a state's ability to regulate for sustainable development.³⁵ However, once a violation of trade law obligations has been established, the burden to defend environmental and social measures falls upon the WTO member state invoking the exception.³⁶ Article XX exceptions have been tested in WTO disputes related to several topics highlighted in key sustainable development instruments such as Agenda 21 and the Johannesburg Plan of Implementation.³⁷ For instance, states have made claims related to the use of genetically modified organisms (*European Communities – Approval and Marketing of Biotech Products*),³⁸ the enforcement of domestic intellectual property laws (*Denmark – Measures Affecting the Enforcement of Intellectual Property Rights*),³⁹ marine animal protection laws (*US – Shrimp/Turtle*),⁴⁰ domestic legislation (*US – Section 211 Appropriations Act*),⁴¹ the regulation of carcinogenic asbestos (*European Communities – Measures Affecting Asbestos and Products Containing Asbestos*),⁴² and waste management (*Brazil – Measures Affecting Imports of Retreaded Tyres*).⁴³

Such cases have been inconclusive. In many cases, the trade dispute settlement body appears to place highest priority on trade law obligations. Nevertheless, certain cases which appear specifically relevant to climate change measures, under the rubric of environmental measures, hold out some

35 DFAIT (1999).

36 *EC – Measures Affecting Asbestos and Asbestos-Containing Products* (18 September 2000) WT/DS135/R, Report of Panel, paras 8.177–8.178; Lowe (2007:219f.).

37 Agenda 21, available at <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=52>, last accessed 14 March 2013; Johannesburg Plan of Implementation, Report of the World Summit on Sustainable Development, UN Doc A/CONF.199/20.

38 *EC – Approval and Marketing of Biotech Products* (29 September 2006) WT/DS291/R.

39 *Denmark – Measures Affecting the Enforcement of Intellectual Property Rights* (21 May 1997) WT/DS83/1.

40 *United States – Import Prohibition of Certain Shrimp and Shrimp Products* (20 September 1999) WT/DS58/AB/R.

41 *United States – Section 211 Omnibus Appropriations Act of 1998* (1 February 2002) WT/DS17/AB/R.

42 *EC – Measures Affecting Asbestos and Asbestos-Containing Products* (12 March 2001) WT/DS135/AB/R.

43 *Brazil: Measures affecting Imports of Retreaded Tyres – Report of the Panel* (12 June 2007) WT/DS332/R.

promise that climate change can indeed be accommodated within the existing trade law regime. The WTO Panel in the *Shrimp/Turtle* dispute explicitly reserved the right for environmental measures to be excused from WTO obligations through Article XX(g), provided that similar products from other states were not given preferential treatment through special side agreements. It would be hard to describe the Kyoto Protocol, as an international agreement open to all WTO member states, as setting discriminatory or exclusive standards.⁴⁴ To prove that a measure is “necessary” to protect health or the environment, as noted by the Panel in the *Brazil – Retreaded Tyres* dispute, it may be sufficient to demonstrate, on the balance of qualitative evidence, that it is *likely* to contribute to achieving the legitimate health or environmental objectives.⁴⁵ As noted in Section 4.2, this line of argument could have assisted China in its WTO dispute over wind power subsidies.

A further systemic exception involves the recognition of non-reciprocal special and differential treatment for developing countries.⁴⁶ In addition, in Article XXIV:5 of the GATT, WTO members also exclude customs unions and bilateral or regional free-trade areas from compliance with WTO disciplines in certain circumstances.⁴⁷ These regional agreements are important, establishing both disciplines which might affect the adoption of domestic and international carbon rules, and measures to promote sustainable development and environmental cooperation.⁴⁸

III. Subsidies and Border Tax Adjustments

Many forms of climate change measures adopted by governments can arguably be construed as government subsidies. If an allowance, credit or unit that grants a right to produce carbon emissions were characterised as an unfair government subsidy for the purposes of a regional trade agreement or, more generally, WTO rules on subsidies and countervailing measures, allocations of emissions trading systems (ETS) might be challenged in trade

44 Committee on Trade and Environment (2007).

45 *Brazil – Measures Affecting Imports of Retreaded Tyres* (DS 332).

46 1979 “Enabling Clause” decision of the GATT Contracting Parties; see *European Communities – Conditions for the Granting of Tariff Preferences to Developing Countries* (7 April 2004) WT/DS246/AB/R.

47 Bartels & Ortino (2007:3).

48 For two case studies of sustainable development provisions in regional arrangements, Gehring & Cordonier Segger (2005: chapters 15 and 16).

law. Alternately, parallel to a domestic ETS, a regulator may provide incentives for firms to reduce carbon emissions or adopt new technologies. Such measures could be characterised as an inappropriate border measure, likely to be inconsistent with WTO rules.⁴⁹ A blanket exemption from tax payments, for instance, has already been judged to be a subsidy.⁵⁰

However, in many cases, trade rules are structured to accommodate such situations. Most trade rules on subsidies, including in the WTO, initially provided for ‘windows’ or reservations for environmental measures, especially for subsidies meant to encourage the adoption of new technologies. Of course, as trade liberalisation continues and rules are refined through dispute settlement, such windows might become more limited. In WTO negotiations, some interests have proposed to set limits on the ‘green box’ subsidies, the WTO-recognised category of subsidies which are permitted owing to their environmental objectives, so that subsidies authorised in one state may not be recognised as legitimate by others.⁵¹ In any case, many carbon reduction subsidies could still conform owing to their lack of significant trade impact. In the case of ETS permit allocations, such a trade impact might be assessed by a comparison with any previous, less effective rules. And in most instances, greenhouse gas emission caps place an additional burden on the company and generally set them at a disadvantage *vis-à-vis* non-regulated competitors. Viewed in this light, it would be difficult to challenge an ETS using trade rules on subsidies. Furthermore, trade and investment issues affect the political feasibility of new laws and policies to address climate change. Were a state to attempt to introduce a carbon tax for a carbon-intensive project, this could jeopardise the international competitiveness of its domestic companies.⁵²

49 Frankel (2009), with thanks to Christina Voigt for drawing this article to the authors’ attention.

50 See especially *US – Canada WTO Corn Trade Dispute* WTO Doc WT/DS357/11 (discontinued).

51 Canadian Federation of Agriculture, Trade Policy Statement, http://www.cfa-fca.ca/pages/index.php?main_id=61, last accessed 13 March 2013.

52 This could also raise questions of the ‘regressiveness’ of any carbon tax, meaning that already poorer actors from developing countries would be penalised in the short term; though one may question whether the long term impact on the poor in the event of no carbon taxing would not be worse. See Tindale & Hewitt (1999).

To address these concerns, states may seek to implement border tax adjustments (BTAs).⁵³ The use of BTAs has been proposed as a solution to the potential distortions created by an ETS emission credit requirement:⁵⁴

For legal purposes ... border tax adjustments ... amount to two different measures which follow a distinct regime: The first measure, refunds for exports, has to stand the test whether it constitutes an outlawed subsidy. The second measure, taxes charged on imports, has to fend off the suspicion that it represents an illegal discrimination.

As suggested by Pauwelyn, a state seeking to implement carbon trading provisions could utilise BTAs so as to ensure continued competitiveness.⁵⁵ To avoid challenges of discrimination, he argues that importers are being required to pay a carbon tax at the border to equalise competition between actors, where “the tax is then simply the extension to imported products of the tax or cost of holding emission allowances imposed on domestic producers”. The opposing argument highlights that, in the context of emissions trading, the allowances (which are levied on imported products to mirror their carbon costs of production in a non-regulated state) are often allocated free of charge to domestic actors, raising claims of national treatment violations.⁵⁶ Furthermore, it is unclear whether such BTAs would avoid challenges where the tax concerned an input such as energy, which is fully consumed and not present in the final product itself. The *US-Superfund* dispute offers some guidance,⁵⁷ where the WTO Panel permitted BTAs for chemicals used during production, although these chemicals were also still present in the final product.⁵⁸ Just as an ETS could be seen in subsidies terms as a tax, an ETS could be characterised as having the effect of a tax, permitting equalisations. A scheme characterised as a unilateral ‘carrot or stick’ BTA could be a promising avenue for emissions trading schemes within the framework of global trade rules.⁵⁹ It would be important to calculate the ETS

53 Report of the Working Party on Border Tax Adjustments, BISD 18S/97 (2 December 1970).

54 Ismer & Neuhoff (2004:9).

55 Pauwelyn (2007:41).

56 With thanks to Christina Voigt for her input on this argument.

57 *United States – Taxes on Petroleum and Certain Imported Substances*, Report of the Panel, Doc L/6175 – 34S/136, 1987.

58 Tarasofsky (2008:11).

59 Zhang (2009).

equivalent BTA conservatively, and to be prepared to address challenges in trade or investment tribunals.⁶⁰

IV. Other Trade Law Provisions

Many other WTO rules discipline the types of health, environmental, natural resource management, consumer safety and other standards that WTO members may apply to products if exceptions are not secured.⁶¹ Most favoured nation (MFN) and national treatment commitments are implemented through the WTO Agreement on Technical Barriers to Trade (TBT Agreement),⁶² which addresses technical regulations and standards, and the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement),⁶³ which addresses health and plant safety regulations and standards. The TBT Agreement and the SPS Agreement define when certain restrictions on trade are allowed, to limit protectionism (the use of regulations to unfairly privilege domestic firms *vis-à-vis* the firms of trading partners).⁶⁴ As such, for instance, the SPS Agreement essentially provides specific restrictions on the types of phytosanitary standards governments should adopt, conditioning the relevant GATT rules and exceptions.⁶⁵ The WTO TBT and SPS committees study and debate these issues, and can grant time-limited exceptions to developing countries in light of their particular financial, trade and development needs.⁶⁶ WTO members also commit to protect intellectual property rights through the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs Agreement), to regulate subsidies in the WTO Agreement on Subsidies and Countervailing Mea-

60 *Ethyl Corporation v Canada*, Award on Jurisdiction, 24 June 1998, (1999) 38 ILM 708.

61 There is a growing opinion that, in the GATT, the same rules as in the TBT should be in force, permitting PPMs to be taken into account under certain conditions.

62 Agreement on Technical Barriers to Trade (adopted 15 April 1994, entered into force 1 January 1995) 1868 UNTS 120.

63 Agreement on the Application of Sanitary and Phytosanitary Measures (adopted 15 April 1994, entered into force 1 January 1995) 1867 UNTS 493.

64 Echols (2001); Button (2004:43-90).

65 Button (2004:10-11).

66 See WTO's Documents Online database (<http://docsonline.wto.org>, last accessed 14 March 2013) using document symbol G/SPS/GEN for all documents of the SPS Committee, including those related to exceptions for developing countries.

asures⁶⁷ (Subsidies Agreement), to regulate government procurement through the WTO Agreement on Government Procurement,⁶⁸ and to regulate investment measures related to trade in goods in the Agreement on Trade-Related Investment Measures⁶⁹ (TRIMs). Such obligations might affect government attempts to regulate in relation to climate change.

The TRIPs Agreement obliges WTO members to set laws in place to protect intellectual property rights, potentially affecting technology transfer. The Subsidies Agreement disciplines the types of subsidies WTO members can provide, potentially affecting emission reduction incentives. The WTO Government Procurement Agreement and the TRIMs are minimalist accords, as governments were unwilling to take on significant restrictions in these areas.⁷⁰ For instance, the TRIMs applies only to measures that affect trade in goods, imposing a commitment to notify certain specific trade-related investment measures that discriminate against foreigners or foreign products.⁷¹ However, if more stringent disciplines are adopted on government procurement or investment, they might constrain schemes for public purchasing of lower-carbon products, or climate regulations affecting foreign investors.

The WTO commitment to provide market access on a non-discriminatory basis can also curtail the type of rules that states adopt, affecting a state's ability to restrict certain imports selectively.⁷² Article XI:1 of the GATT, the provision that prohibits quantitative restrictions, has been used to evaluate the GATT-consistency of natural resource and environment-related bans, for example in the *US – Tuna* case⁷³ and *US – Shrimp* case.⁷⁴

67 Agreement on Subsidies and Countervailing Measures (adopted 15 April 1994, entered into force 1 January 1995) 1867 UNTS 14.

68 Agreement on Government Procurement (adopted 15 April 1994, entered into force 1 January 1995) 1867 UNTS 194.

69 Agreement on Trade-Related Investment Measures (adopted 15 April 1994, entered into force 1 January 1995) 1868 UNTS 186.

70 Gehring et al. (2006:139).

71 (ibid.).

72 Trebilcock & Howse (2005:336).

73 *United States-Restrictions on the import of Tuna* (1991) GATT BISD 39S/155, (1991) 30 ILM 1594.

74 *United States: Import Prohibition of Certain Shrimp and Shrimp Products*, Report of the Panel (15 May 1998) WT/DS58/R; see also *United States: Import Prohibition of Certain Shrimp and Shrimp Products*, Report of the Appellate Body (6 November 1998) Doc. WT/DS58/AB/R.

States could have trouble giving significant trade advantages to products produced under the application of a national or even international ETS. For instance, the EU has a firm commitment to promote climate protection internationally,⁷⁵ and its scheme allows covered emitters to benefit from Clean Development Mechanism (CDM) and Joint Implementation (JI) credits, though only up to a specified limit.⁷⁶ If standards were perceived as being based on the processes and production methods (PPMs) used to create products, and appeared to discriminate between products from different countries, any preferential treatment in terms of tariffs for those products could be challenged in the WTO and other regional trade dispute settlement fora.⁷⁷

However, few trade rules prevent general use of labels or certification schemes. Such 'eco-labelling' allows the consumer to know that certain goods were produced in a more environmentally friendly (or, at least, less environmentally harmful) manner than the competing product.⁷⁸ As noted by Simon Baughen:⁷⁹

Caution as regards PPMs is perhaps understandable, in that they can be seen as one [WTO] member's attempt to impose its environmental standards on other members. However, the issue of PPMs may, in future, come up in the rather different context of transboundary spill-overs, where the objection to the way in which a product is manufactured is based on adverse environmental consequences felt in the member state imposing the measure. This could well occur in the context of the contribution to global warming made by the carbon emissions produced from a particular mode of production adopted by a member.

Taking this proposition one step further, the practice of climate-compliant self-labelling in emissions trading schemes could in theory fall within the prohibition on PPM-based measures, should a state use such voluntary declarations or self-labels to assign legal consequences. However, where the

75 This became stronger with the entry into force of the Lisbon Treaty, as it explicitly commits the Union, in the new Article 191 (ex 174) of the Treaty on the Functioning of the European Union, as follows: "1. Union policy on the environment shall contribute to pursuit of the following objectives: [...] – promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change."

76 Gardner (2008). As a group, ETS participants were allowed to buy up to 1.4 billion CDM credits during the 2008 – 2012 trading phase.

77 International Institute for Sustainable Development (2000).

78 An interesting problem would be whether a carbon market 'seller' – habitually selling credits rather than purchasing them – could voluntarily eco-label itself or its product.

79 See e.g. Baughen (2007:4).

impact on sustainable development and the environment is transboundary in nature, as is the case with climate change and carbon emissions, then the measure could no longer be seen as extra-territorial but rather becomes one which WTO panels, in the *US – Shrimp* dispute and others, have recognised as being within the competence of states.⁸⁰ Emissions trading could be characterised as addressing such transboundary issues.

D. Investment Law

I. The Response of Investment Law to Carbon Trading Schemes

Perhaps of greatest relevance to new laws related to emissions trading schemes and more sustainable, low-carbon economic development is that more than 3,000 international investment agreements (IIAs) have been negotiated in recent decades,⁸¹ supplemented internationally by rules and dispute settlement procedures developed through the United Nations Commission on International Trade Law (UNCITRAL) and the International Centre for Settlement of Investment Disputes (ICSID). Private sector investment could help to finance the adoption of low-carbon technologies.⁸² Some even argue that “private finance [is] now the biggest show in town”.⁸³ These IIAs seek to create favourable conditions and stable frameworks for the treatment of foreign investors and investments, in order to encourage private sector investment in developing countries. The obligations of IIAs usually guarantee a minimum standard of treatment, or “fair and equitable treatment”, toward the foreign investor. They also guarantee non-discrimination to investors in “like circumstances”. Some IIAs commit to “stabilisation clauses”, which can exclude IIA-covered investments from changes in the law of host states. Such clauses may be important to future attempts to develop domestic climate rules. The “legitimate expectations” of the investor regarding a regulatory framework may become grounds for a potential challenge by a foreign investor toward an (unfavourable) change in circumstances due to new climate change regulations, including emissions trading

80 *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, AB-1998-4, para. 186.

81 Newcombe & Paradell (2009:57-64); UNCTAD Secretariat (2007).

82 Murphy (2008).

83 Klein & Harford (2005:51).

schemes that impose significant new costs on private firms.⁸⁴ By December 2007, there were 280 known IIA arbitrations, in which foreign investors challenged governments in often confidential “investor-State” dispute settlement proceedings by invoking investment agreement clauses.⁸⁵ Potentially, these IIAs, measures and rule-making bodies are more likely than trade law to constrain carbon trading and related regulatory measures. However, it may be possible to design emissions trading systems carefully, to avoid becoming embroiled in disputes of this kind. It is also possible to design international investment agreements and trade agreements to ensure that legitimate new energy, transportation, forestry, waste management and other measures are, at least, not frustrated, but rather perhaps even promoted.

Indeed, international investment agreements (IIAs) could potentially promote sustainable development and climate change action by ensuring more stable investment environments and thus encouraging investors to provide private funds for CDM projects and for Joint Implementation (JI). However, in these accords, states have also agreed on disciplines that have been used recently to challenge regulatory measures related to sustainable development generally.⁸⁶ Although, as discussed in Section 4.2, climate change disputes have not yet featured heavily in the investment regime, the principles arising from the disputes challenging other measures related to sustainable development could be applied to future, specifically climate-related disputes. As noted above, in IIAs, parties often grant foreign investors the right to challenge host states in investor-state arbitral tribunals under UNCITRAL or ICSID rules, particularly on claims related to performance requirements, fair and equitable treatment, expropriation and transparency. These privileges may be used to challenge carbon trading measures, depending on how new domestic schemes are designed, and how the IIAs are interpreted.⁸⁷ As with trade law, these challenges have both direct effects, where a state is asked to compensate an investor or group of investors for the economic impact of new carbon regulations, or indirect regulatory effects, where environment and development regulators are discouraged from adopting or implementing carbon reduction measures owing to threats of investor-state litigation.⁸⁸ Several examples are provided to illustrate these implications.

84 Miles (2008:19).

85 Newcombe & Paradell (2009:59).

86 Miles (2008:26). See also Gehring et al. (2011).

87 Werksman et al. (2001).

88 Baetens (2011).

First, on an almost theoretical level, emissions trading schemes may not always be classified as pure market-based instruments, devoid of “command and control” origins. The very existence of a government-imposed cap on the amount of carbon that may be emitted by a given sector is evidently a form of “control”. That cap establishes a performance requirement, but allows for the market to set the price of carbon emissions and for firms to choose abatement technologies to meet the standard. However, even the introduction of new performance standards could pose questions under certain investment treaties. In US and Canadian treaties, these states have sought to prevent or constrain the use of performance requirements or standards that were once popular in developing countries, as a way of enhancing the value of an investment by mandating a certain way of producing a product, such as sourcing local services, labour or content (local content requirement), or earning foreign exchange through export requirements. It is possible that carbon caps may fall foul of these new prohibitions on performance requirements.

Second, the actual legal nature of an allowance has been flagged as an issue in the design of various US emissions trading systems. For instance, the SO₂ trading system under the Acid Rain Program of the 1990 Clean Air Act raised the issue of property rights. The possibility that an allowance would constitute a property right raised arguments in the US based on “taking of property” under the Fifth Amendment of the US Constitution. In the event, the issue was resolved by classifying the allowances as tradable goods which were, nevertheless, not property rights as such.⁸⁹ However, legal concerns remain that contractual or property rights might be subject to claims by those holding the credits, in the situation where regulations are introduced which alter the value of the allowance or credit in question.⁹⁰ The decision to imbue allowances with property-like status could potentially open governments to allegations of expropriation under investment treaties, should the value or quantity of these allowances be reduced in the future. The potential for such an approach to conflict with international investment law is evident, and could lead to investor-state disputes. Having said this, the “quasi-property rights” character of emission certificates is now widely recognised and seen as a necessary condition of many emission trading schemes.

89 Gehring & Streck (2005).

90 See especially Fichthorn & Wood (2002).

Third, it is important to consider how allowances or emission reduction credits (ERCs) are allocated amongst the participants in an emissions trading scheme. The allocation of allowances by the government to the actors, whether these are particular industry-specific actors, or “carbon-intensive parties” or any other pre-determined set of actors, can be problematic in trade and investment terms. Allocations indicate the degree to which carbon can be emitted within a system, and thereby “pre-determine the overall environmental benefits that can be expected from the system”.⁹¹ Allocation is an intensely political process, and compromises are often necessary. Both trade and investment concerns can be triggered by allocations of credits which are discriminatory, or not “fair and equitable”. Not only could this process raise concerns for the competitiveness of firms and operators within the domestic and international markets, but it also raises concerns as to discrimination toward non-national actors that compete in the targeted market. Among various options open to designers of emission trading schemes, free allocation, allocation based on ‘grandfathered rights’, allocation based on more modern baselines, and partial auctioning all pose similar problems. If any non-national actors within the territory do not receive precisely the same allowances as comparable national actors, these firms can argue that they have been prejudiced in the market, as they incur higher costs to reduce their carbon output or to find the resources to pay for their continued output. This could be held to violate trade obligations of non-discrimination and national treatment, but, more importantly, it could also be characterised as going beyond the fair and equitable treatment standard promised to foreign investors in most IIAs. The EU’s ETS provides one possible example, where, in light of the EU’s design choices, windfalls may have been received by certain parties through the free allocation process,⁹² and this could have triggered investment disputes. In another example, the planned New Zealand Climate Change Response (Emissions Trading) Amendment Act 2008 would have gradually incorporated sectors of the New Zealand economy until 2013, and would have permitted some allocations free of charge.⁹³ Still, as the proposed scheme was designed to be much broader in scope than, for example, the EU ETS or Regional Greenhouse Gas Initiative, distortions would have been less relevant. The further option of 100% auctioning resolves many such

91 Wemaere et al. (2005:41).

92 Ellerman & Joskow (2008).

93 Climate Change Response (Emissions Trading) Amendment Act 2008, section 73. See NZIER (2007).

concerns, though this can still entail competitive consequences, depending on the frequency, size and accessibility of auctions, should it be shown that *in effect*, regulations made participation more challenging for foreign firms. This problem is difficult but not impossible to address. For instance, many ETS regulations have incorporated provisions specifically ensuring no distinction between national or foreign-owned companies.

A fourth basic design element that triggers trade and investment issues involves the commitment to regulatory transparency, which may well support the designers of emissions trading schemes. It has been argued that emissions trading may be –⁹⁴

more transparent and accessible than traditional command and control schemes: anyone wishing to challenge the environmental effectiveness of the trading regime can question directly the level of the overall cap rather than having to unravel the, often complex, relationship between specific controls applied to an individual plant and an ambient environmental quality standard.

The transparency of domestic law and policymaking process is important to any potential investor.⁹⁵ However, as mentioned above, investors can benefit from investment treaty guarantees against changes in government policy (not just fiscal or tax policy, but also environment and development policy),⁹⁶ hoping to stabilise regulations for the lifetime of an investment.⁹⁷ A regulator may need to make it clear to potential investors that post-establishment decisions, such as governmental decisions influencing the investment after it has been made, will take state commitments under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol into account. Moreover, transparency works in many directions. Impact assessments and other such requirements can contribute to stability rather than detract from it, by generating valuable investment intelligence and creating a more level playing field for investors.⁹⁸ To that end, by securing transparent policy decisions, states might insulate their new climate

94 Robinson et al., 45. See also Stewart (2000).

95 The preamble to the Aarhus Convention expressly calls for “transparency in all branches of government” when implementing provisions related to the Aarhus Convention’s aims. Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (adopted 25 June 1998, entered into force 30 October 2001) 38 ILM 17.

96 Pauwelyn (2007); Ross-Robertson (2003).

97 Baughen (2007:chapter 7).

98 Gehring, Cordonier Segger & Newcombe (2011).

policies from formal investor-state challenges, while also contributing to their clarity and legitimacy.⁹⁹

II. Climate Regulations and the 'Like Circumstances' Debate

As seen in the *Methanex v US* dispute,¹⁰⁰ not all investor-state tribunals are willing to interpret their jurisdiction over regulators so broadly. While some IIAs can be used to question environmental protection and sustainable development regulations, others clearly cannot be extended so far.¹⁰¹ Still, where states enact measures, including emissions trading schemes, to favour low-carbon development over carbon-intensive projects, especially in developing countries where the extractive sectors are dominated by a few foreign investors, these interests could well frame investor-state challenges in terms of discrimination. Where such allegations are raised, it will be important to secure an appropriate interpretation of the concept of "like circumstances". Under the wording of a typical IIA, it is only where two parties are in like circumstances and receive different treatment that tribunals would find discrimination. For future climate change measures, the inclusion of public interests and carbon emissions in one proposed project, as opposed to another which does not take such issues into account, might serve to distinguish hitherto "like" parties from one another.

The recent *Parkerings v Lithuania* ICSID arbitration demonstrates this principle.¹⁰² The case concerned two competing firms from Norway and the Netherlands in their tenders to construct and operate traffic facilities in the Lithuanian capital Vilnius. The Norwegian company, Parkerings, proposed a project that impacted on a UNESCO World Heritage site at the centre of the old town of Vilnius. In response to this, the authorities imposed more onerous requirements on the project of Parkerings than on that of its Dutch competitor, which posed no similar archaeological and cultural heritage issues. Parkerings then claimed discriminatory treatment in favour of its Dutch competitor. The tribunal's discussion of this claim centred on the concept of

99 Tarasofsky (2008).

100 *Methanex v USA*, Award on Jurisdiction, 28 August 2002.

101 Lawrence (2006).

102 *Parkerings-Compagniet AS v Republic of Lithuania*, ICSID Arbitration Case No ARB/05/8, Award, 11 September 2007, paras 375 and 392, available at <http://ita.law.uvic.ca/documents/Pakerings.pdf>, last accessed 14 March 2013.

“likeness”. The arbitrators ultimately found that the state could take into account matters of a proposed project’s impacts on the environment when deciding how to treat different projects. In their view, “[t]he historical and archaeological preservation and environmental protection could be and in this case were a justification for the refusal of the project. ... the City of Vilnius did have legitimate grounds to distinguish between the two projects.”¹⁰³ The tribunal’s approach has been welcomed in leading legal scholarship on these issues:¹⁰⁴

This decision points to the ecological impact of an investor’s project as a determinative factor in the like circumstances test. If this approach is followed in future investor-state disputes, then the potential for non-discrimination requirements in international investment agreements to frustrate climate change mitigation regulation will be significantly reduced.

Learning from this experience, negotiators may need to recognise the importance of maintaining flexibility for climate change measures in investment treaties, while regulators must take care to design the rules for carbon trading, and clean technology investments, to avoid discrimination between industries in like circumstances. This approach can extend to implementation of emissions trading systems. For instance, in section 60 of the planned New Zealand Climate Change Response (Emissions Trading) Amendment Act 2008, a state authority could have exempted otherwise regulated participants under the Act from complying with the emissions trading provisions. For firms with which the Crown signed a negotiated greenhouse gas agreement before 31 December 2005, such an exception may be granted, providing both stability for existing agreements and flexibility for government authorities.¹⁰⁵ The flexibility provided by the planned New Zealand Act would have been beneficial when addressing discrimination, expropriation or other investment-related claims.

Section 4.5 of this article discusses further potential refinements to ensure that trade and investment laws, particularly in regional treaties which advance beyond the globally agreed disciplines, do not unduly constrain domestic regulatory flexibility to address climate change, and might even promote more sustainable development.

103 (ibid.:paras 392, 396).

104 Miles (2008:32).

105 New Zealand Climate Change Response (Emissions Trading) Amendment Act 2008. We thank Richard Benwell for his correspondence with us on this point.

III. *Indirect Expropriation*

Apart from the design elements of emissions trading schemes discussed in the two preceding sections, the effect of such schemes also poses risks of investment law claims of “indirect expropriation”.¹⁰⁶ States choose whether their scheme will be limited to a particular sector or be economy-wide in application, and which jurisdictions will be subjected to (or allowed entry into) the scheme. Emitters targeted by such systems can include both direct emitters of carbon, such as power plants or even car owners, and also those further upstream in the chain of carbon use, such as oil companies or petroleum refineries. For instance, the EU’s ETS covers power and industry sectors only,¹⁰⁷ and focuses simply on addressing CO₂ emissions.¹⁰⁸ Depending on the data collected and economic impact assessments, states decide whether their schemes will be comprehensive or simply sectoral, and whether partial coverage can achieve their objectives. Such choices may affect the competitiveness of national companies against each other and against foreign companies. If investments in foreign investor-dominated sectors were seen as being unjustly targeted by stringent and costly requirements “tantamount to expropriation”, while other domestic investor-dominated heavy emitting sectors were excluded from the scheme, challenges might be issued under IIAs. If a regulator places a cap on the use of carbon in some sectors and not others, there is the potential for such measures to be characterised as indirect expropriation of that company’s investment. Similarly, if the cost of carbon certificates becomes high enough to threaten the economic viability of certain investments (for instance fossil fuel exploration and development, or a coal-fired power plant), the carbon measure could also be deemed tantamount to expropriation. The core debate focuses on who bears the risks of private investments into “high carbon” sectors – host governments or investors? Essentially –¹⁰⁹

... if a government measure is undertaken for a clear public welfare purpose (such as health and safety, environment, public morals or order, etc.), and is non-discriminatory, but has the effect of harming a ... foreign investor, under

106 Huq & Reid (2005).

107 Extensions to the scheme are, however, continually under review. Most recently, the aviation industry is intended to be subjected to the system.

108 Ellerman & Joskow (2008).

109 Cosbey (2003:3).

what circumstances can that measure be held to be an indirect expropriation, for which the government must pay compensation?

As demonstrated in the *Ethyl v Canada* case,¹¹⁰ claims of indirect expropriation can be made when new government measures affect the value of a foreign investment in a specific or unique industry. Such issues could arise for governments implementing climate change measures, particularly because, in some countries, carbon-intensive industries are dominated by multinational extractive enterprises with the necessary know-how and capital for exploration and development, and also the necessary foreign nationality to bring claims under investment treaties. Moreover, the repeal by Canada of its ban on a gasoline additive known as MMT following the *Ethyl v Canada* case clearly demonstrated the indirect effect of a foreign investor challenge on government policy directions.¹¹¹ Indeed, if a developed state such as Canada could be perceived to have ‘chilled’ its regulatory decisions because of international investment law obligations, it seems possible that a developing country might face even higher pressure to avoid necessary regulatory changes. Whether or not the developing country could in fact afford to compensate for the expropriation is a particularly pressing issue in the case of climate change measures, including emission trading schemes.

IV. Stabilisation Clauses

A further concern must be briefly noted. Certain IIAs contain ‘stabilisation clauses’, under which states agree to freeze the laws of a country to the time the investment was made, or agree not to apply new laws to the investment, or agree to bear the costs of all regulatory changes affecting an investment. These commitments could be problematic from the standpoint of ETS regulations. The principal difficulty posed is that states are bound to continue treating the investment in a certain way which may become no longer viable in light of the UNFCCC objectives, and the developing scientific discoveries that have driven the evolution of the climate regimes.

110 *Ethyl Corporation v Canada*, Award on Jurisdiction, 24 June 1998, (1999) 38 ILM 708.

111 Newcombe (1999).

E. The Catalyst of Climate Change in Contemporary Trade and Investment Law

The previous section presents a somewhat mixed picture, with some aspects of the trade and investment regimes already offering sufficient flexibility to accommodate climate change measures, and other aspects potentially posing a threat. But despite real risks within certain areas of trade and investment law that the regimes are currently inadequate to deal with the challenges of climate change, there is undoubtedly cause for optimism. Key players in the regimes are recognising the need for better rules to allow climate change measures to take stringent effect. The arrival of the climate change problem, along with raising awareness of pressing and legitimate environmental and social objectives, has sharpened the desire for more refined international trade and investment agreements. Climate change has spawned a wide range of literature by academic commentators and NGOs alike, who have examined its threats and potentials within trade and investment law.¹¹² These pressures, over time, have led to incremental changes in thinking within the trade and investment community, such that debates over issues in each regime have opened up, and linkages have been identified and studied.¹¹³ Negotiators and adjudicators are now more willing to engage with other regimes and other goals than in the past, and states have recognised the need to reserve policy space in order to achieve key environmental goals.

As noted, the obligations of states under international trade and investment law might intersect with certain elements of climate change regulations, requiring careful work to design compatible measures to establish emissions trading schemes, and may potentially lead to constraints on policy and law-making flexibility.¹¹⁴ However, as noted in the 1987 Report of the World Commission on Environment and Development,¹¹⁵ the 1992 Rio

112 See e.g. Cordonier Segger (2005); Green (2005); Condon (2009); McKenzie (2008); Veel (2009); Green (2006); Doelle (2004); Goh (2004); Miles (2008); Werksman et al. (2001); Tarasofsky (2008).

113 For linkages between trade law and non-trade issues such as the environment, see e.g. Trachtman (1998); Bethlehem et al. (2009:Part IV); Gehring & Cordonier Segger (2005); Charnovitz (2007); Grosse Ruse-Khan, (2010); Green & Epps (2007). For discussion of investment linkages, see e.g. Gehring et al. (2011); Spears (2010).

114 See e.g. Miles (2008).

115 World Commission on Environment and Development (1987).

Declaration and Agenda 21,¹¹⁶ and the 2002 Johannesburg Declaration and Plan of Implementation,¹¹⁷ trade and investment could also provide important contributions to climate change action. Just as in the international climate regime, in many trade agreements and international investment agreements, parties explicitly highlight their shared commitment to sustainable development as part of the object or purpose of the treaty. For instance, the North American Free Trade Agreement includes a reference to the need to “promote sustainable development” within its preamble.¹¹⁸ Both the Canada–Chile Free Trade Agreement and Chile–US Free Trade Agreement also recognise the importance of strengthening capacity to protect the environment and promote sustainable development.¹¹⁹ The Canada–Peru Free Trade Agreement makes explicit reference, in the chapter entitled *Investment*, to corporate social responsibility and the need for parties to encourage enterprises to incorporate such standards into their internal policies.¹²⁰ The EU–Chile Association Agreement goes further, committing these countries to implementing their accord in line with the “principle of sustainable development”,¹²¹ and EU economic negotiations with Central America seek to “harness globalisation in support of sustainable development” and “ensure an appropriate balance between economic, social and environmental components in a sustainable development context”.¹²² Sustainable development is a key objective of the world community, not only in the abstract, but in the very arena that has most sought to encourage economic growth – investment and trade policy and law.¹²³ Measures to address climate change are

116 Rio Declaration on Environment and Development (1992) 31 ILM 874; Agenda 21, *supra* note 36.

117 Johannesburg Plan of Implementation, Report of the World Summit on Sustainable Development, UN Doc. A/CONF.199/20.

118 North American Free Trade Agreement, (1993) 32 ILM 289.

119 Canada–Chile Free Trade Agreement, 36 ILM 1079; US–Chile Free Trade Agreement, 42 ILM 1026.

120 Canada–Peru FTA, signed 29 May 2008, Chapter 8 “Investment”, Article 810. See also Delfino et al. (2008).

121 EU – Chile Association Agreement, 30 December 2002, available at http://ec.europa.eu/trade/issues/bilateral/countries/chile/eu/euchlgr_en.htm, last accessed 13 March 2013.

122 Draft EU – Central America Negotiating Directive (2007), paras 3.4 & 3.7; the States involved are Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. See http://www.bilaterals.org/article.php3?id_article=8336, last accessed 13 March 2013.

123 Gehring & Cordonier Segger (2005:Introduction).

surely an integral part of sustainable development, and so these statements of purpose are significant.

In regional trade and investment agreements, states have gone further in certain instances, seeking to promote sustainable development through the inclusion of innovative yet practical international instruments. Several preventive provisions, cooperative mechanisms and new trade liberalisation enhancement initiatives can be identified. There are also important procedural innovations which can support sustainable development. Many legal options are available to states seeking to deliver on a commitment to sustainable development in a regional trade and investment regime, either as a principle or an objective.

First, states may include introductory and hortatory provisions, which signal the parties' commitment to sustainable development and climate change, such as preambular commitments to "promote sustainable development" as a "joint resolution" of the parties to the accord, or other initial provisions which commit the state to engage in the accord in line with a "principle of sustainable development". One recent Free Trade Agreement (FTA), the Japan–Switzerland Agreement, specifically highlights the parties' determination "to adequately address the challenges of climate change" in its preamble. Article 9 of the same agreement includes a slightly more substantive obligation to "encourage trade and dissemination of environmental products and environment-related services" in pursuit of "climate-change-related goals". Similarly, the Korea–EU FTA includes an obligation in Article 13.6(2) to "strive to facilitate and promote trade and foreign direct investment in environmental goods and services, including environmental technologies, sustainable renewable energy, energy efficient products and services and eco-labelled goods".

Second, states may include provisions which create 'windows' or exemptions from trade rules, where trade obligations might otherwise constrain regulators and policymakers, mitigating their effects. For instance, in trade and investment agreements, many states adopt general exceptions for measures related to the conservation of exhaustible living and non-living natural resources, and the use of measures, including environmental measures, necessary to protect human, animal, or plant life or health.

States may further adopt specific exceptions in sections of the trade and investment treaty where it is clear that trade rules on, inter alia, sanitary and phytosanitary standards, technical barriers to trade, intellectual property rights, public procurement, services, or investment, might constrain the use of environmental and social measures. States may insert explicit reservations

by the parties of socially or environmentally sensitive sectors (such as parks, land use planning, energy policy, and other natural resources reserved from investment provisions, or health and education sectors from services disciplines), often linking these reservations to the findings of sustainability impact assessments or environmental assessments of the trade agreements. States can also include general interpretive statements to guide potential areas where trade rules could otherwise constrain the use of measures agreed in other international (or regional) agreements.

Third, states may negotiate mechanisms for value-added, but parallel (non-integrated) social and environmental cooperation strategies, such as parallel agreements for cooperation on environmental and social matters; the development of institutions for social and environmental cooperation including carbon trading; the agreement to adopt and implement common work programmes on specific environmental or social projects such as emissions monitoring and registration, particularly when accompanied by reliable capacity-building, technology transfer and financing commitments; and even factual report or complaints mechanisms to provide recourse when it appears that environmental or social rules are being violated in order to gain trade- or investment-related advantages.

Fourth, states may include constructive sustainable development-oriented trade and investment rule enhancement initiatives, where a positive 'triple-win' might be achieved within the trade agreement. These may include, for instance, sanitary and phytosanitary provisions which promote scientific cooperation and risk assessment to improve levels of health or environment protection; government procurement provisions which make public purchasing of low-carbon goods or services more affordable; technical barriers to trade provisions to implement non-discriminatory certification processes and promote mutual recognition; intellectual property rights provisions which support low-carbon technology transfer or respect for traditional knowledge; investment provisions which privilege socially responsible corporations and low-carbon investments; measures to promote reductions in illegal trade in forestry products; measures to secure additional liberalisation of environmental goods and services such as low-carbon transportation; or measures to secure reductions in unsustainable fossil fuel development subsidies.

Finally, certain procedural innovations may be undertaken by the parties during the trade negotiations to promote sustainable development, and secure the integration of environmental and social concerns into a trade and investment treaty. Such process changes may also assist parties and others

in identifying useful innovations that might be included in a trade or investment agreement. For instance, states may undertake *ex ante* (or ongoing) environment, development, human rights or sustainability impact assessments and reviews of trade liberalisation policies and draft treaties. The outcomes of these assessments may be used to identify the areas where preventive, cooperative or enhancement initiatives could be useful in a trade or investment treaty. States may also host consultations between economic, environment and development authorities. They may agree upon, or strengthen, diverse mechanisms to ensure transparency and public participation in trade negotiations, and they may also establish new mechanisms to inform tribunals about sustainable development issues, including *amicus curiae*, public participation and expert consultation measures.

It is not yet clear which strategies or instruments will have the most success in helping to integrate social and economic development and environmental protection. It is likely that no one single measure provides the solution to all climate change challenges. Rather, many different provisions may be needed throughout the treaty. Certain instruments, such as the normative or regulatory evaluation elements of *ex ante* sustainability impact assessments, are still underdeveloped. Others, such as the new system of certification to ensure that forestry products traded from Peru to the US are not obtained through illegal logging, are simply very new.¹²⁴ Such provisions alone will not necessarily ensure that sustainable development priorities including climate change are given more weight by the parties in complying with their obligations, or by dispute settlement bodies in interpreting agreements, as compared to the other relevant objectives of agreements. However, they appear likely to contribute to the achievement of a greater degree of integration in the trade agreements. This is an important first step towards preparing the trade and investment regimes for future climate change measures.

F. Conclusion

Undoubtedly, the economic activity associated with global trade and investment has been a significant cause of greenhouse gas emissions. At the same

124 United States – Peru Trade Promotion Agreement, signed on 12 April 2006, available at http://www.ustr.gov/Trade_Agreements/Bilateral/Peru_TPA/Final_Texts/Section_Index.html, last accessed 14 March 2013; International Centre for Trade and Sustainable Development (2007).

time, though, global trade and investment – suitably reoriented towards, for instance, new low-carbon technologies and environmental services – will be crucial as a principal tool to address climate change.

This means that the connections between climate change and the international law governing trade and investment, and the effects of each on the other, will continue to be highly important. Certainly, climate change may not yet be identifiable by itself as a specific factor driving the evolution of trade and investment rules. Indeed, climate-related disputes have not as yet overrun the dockets of trade and investment tribunals, and those that have arisen so far in each regime have not yet represented jurisprudential watersheds. While some recent trade and investment agreements do refer to climate change specifically, these are still few, and often as part of an overarching commitment to environmental protection. However, climate change has had, and will have, more subtle effects on trade and investment law in a range of ways.

First, climate change has arguably broadened the scope of trade and investment law. As governments pass new measures in ever more creative ways aimed at addressing climate change, entrenched interests will naturally seek to challenge these, presenting new scenarios to adjudicators and pushing the definitional boundaries of the subjects. In addition, if trade law is about rules that not only seek to limit governmental powers to restrict trade, but also to *promote* international trade, then international climate law itself can be viewed as part of trade law. In this light, mechanisms such as the CDM are themselves trade rules that promote certain beneficial kinds of trade, channelling global investment into more renewable forms.

Second, climate change has prompted serious analysis of whether the existing trade and investment law regimes are adequate to deal with the tensions that it imposes. Much work has already been done in identifying features of the existing trade and investment law regimes that purport to threaten the efforts of states to combat climate change. This work has demonstrated that there is indeed a risk that the existing regimes will have the effect of frustrating climate change measures and outlawing desirable governmental strategies to limit greenhouse gas emissions. Nevertheless, there is certainly cause for optimism. Key players in the trade and investment regimes have already begun to recognise the need for better rules in this respect. Along with increased awareness of other pressing and legitimate environmental and social objectives, the arrival of the climate change problem has sharpened the desire for more refined international trade and investment agreements.

Climate change is a major part of a debate on the wider effects of trade and investment that is now more enlightened than it was a decade or two ago. Particularly in the academic and policy *discourse* on trade and investment, climate change routinely features as a key topic of discussion. By its nature, raising the issue of climate change calls for consideration of many factors previously downplayed in trade and investment law, such as inter-generational equity, technology transfer and scientific controversies. This climate-infused discourse has unquestionably led to incremental changes in thinking amongst lawyers and jurists working in the two regimes.

As a result, recent FTAs and bilateral investment treaties demonstrate a greater concern for non-economic interests and greater flexibility to balance trade and investment commitments with other policy goals such as environmental protection, human rights or corporate social responsibility. Similarly, recent jurisprudence from the WTO dispute settlement organs and from investment tribunals has grappled far more openly with such issues than in the past. The jurisprudence suggests that, combined with the recent reorientations of trade and investment rules, there is likely to be sufficient flexibility in the existing regimes ultimately to accommodate the pressures of climate change. Provided that these techniques and innovations continue to be supported by key actors in the regimes, climate change will not overwhelm trade and investment law, but will instead serve as a key catalyst towards further self-reflection and clarification of the place of these regimes in the constellation of international law.

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Abstract

The European Union (EU) has styled itself a global leader in climate action. In having done so, it presents itself as responding to science and public concern and its historic responsibilities. In terms of its means of response, the EU's Emissions Trading System (ETS) has been the primary instrument. A rational response to liberal economic theory, the EU ETS is often trumpeted as a cost-effective success story internally, and as a model to be adopted externally. This optimistic narrative is challenged herein.

A. Introduction

Viewing climate change through the lens of 'international cooperation' may, to international lawyers, be a rather loaded concept, or at least one that betrays a particular approach to the discipline. One method of public international law focuses on disputes, their settlement and pertinent rules, sources and principles. According to Benedict Kingsbury, this entails the tilting of⁻¹

... the subject towards specific questions of whether one state has become bound by a particular rule which the other state may invoke, and away from what might otherwise have been an overwhelming preoccupation with the construction of a global normative order.

An approach that permits of a broader range of systemic objectives, building on legal realism,² has developed in the United States (US), with a greater focus on international institutions and their managerial and problem-solving

* An earlier version of this chapter appeared in *Theoretical Inquiries in Law Volume 14, Number 1* (2013). My thanks to Majid Rivzi for his efficient research assistance.

1 Kingsbury (2005:272).

2 See Duxbury (1997:191–200).

properties. Best known in its incarnation as the New Haven ‘policy science’ approach, this has not been broadly accepted outside the US, and the “dominant jurisprudential approach to the global practice of international law continues to be positivist”.³

By focusing on international cooperation in the climate-action realm, and deploying interdisciplinary materials and techniques, this article tends towards the latter approach. Instead of focusing on states *stricto sensu*, the scrutiny here is trained on a regional integration economic organisation, the European Union (EU); rather than analyse treaties and general principles, here, market-based mechanisms and their use in that polity are examined; and instead of exclusively deploying familiar techniques of legal analysis, a key role is reserved for liberal economics. Can transnational mimesis be identified in the narrative of emissions trading?⁴ The purpose of this article is not to sunder the positivist approach, but rather to seek the integration, with traditional positivism, of what are argued herein to be relevant interdisciplinary materials and their problem-solving capacities. Bluntly put, can market-based instruments facilitate international cooperation on climate mitigation, and what light does the EU’s Emissions Trading System (ETS) cast on that question?

The discussion considers the EU’s climate change law and policy; its approaches, successes and failures; and the emergent dynamics. In so doing, two competing narratives or ways of understanding the EU’s legal response to anthropogenic climate change are apparent. The first of these, which has something of the ‘official history’ about it, characterises the EU as the leading global actor in the fight against climate change. Building on its energetic role in the United Nations Framework Convention on Climate Change (UNFCCC) negotiations – their initial phases, the ‘Kyoto moment’, its implementation, and beyond – the EU has adopted a series of mitigation measures which commit it to reducing its greenhouse gas (GHG) emissions by 80% by 2050.⁵

3 Kingsbury (2005:272).

4 For one prominent, albeit rather limited, argument to this effect, see Wiener (2001:27).

5 European Commission (2009:10) states that “[t]he adoption of the climate and energy package makes the European Union the first region of the world to have both committed to such ambitious targets and put in place the measures needed to achieve them”; and Jordan et al. (2010:76) refer to the EU’s Climate and Energy Package as “a momentous development”.

These steps, consistent with the science of climate change and the principle of common but differentiated responsibilities, have the EU ETS at their core. Launched in 2005, the EU ETS is a conceptually straightforward cap-and-trade system that has borrowed from the toolkit of American experiments with “economic-incentive instruments”,⁶ and built a €140,000,000,000 regime which sits at the heart of the global carbon market and leads it. This, so the story goes, is a rational response to liberal market theory, and is free of the flaws of discredited ‘command and control’ approaches to pollution control. Buttressed by its wide-ranging Climate and Energy Package (CEP), and having created a polity-wide carbon price, the EU ETS will drive the low-carbon reconstruction of the European economy. In many respects a classic environmental externality,⁷ by seeking a solution in markets and, hence, private resources, the public or state realm is not implicated.

The alternative history is both less optimistic and more complex. Rather than a Damascene conversion to the merits of marketisation, as preached by the Kyoto Protocol,⁸ this narrative considers that the shift in instrument choice owes much to political compromise at the Third Conference of the Parties to the UNFCCC at Kyoto in 1997, and a broader phenomenon internal to the EU, captured by the ‘new governance’. As elaborated below, this turn to market-based regulatory solutions has wrought a decisive shift in the EU’s governance techniques.

Moreover, rather than the EU ETS being seen as a resounding success, it has been plagued by problems of over-allocation, lobbying, fraud and wind-fall payments. Instead of the market seamlessly providing private solutions

6 Stavins (1998:6) discusses the following applications of economic-incentive instruments in the US: the US Environmental Protection Agency’s Emissions Trading Program, the leaded gasoline phasedown, water quality permit trading, the phasing out of chlorofluorocarbons (CFCs), the sulphur dioxide allowance scheme for acid rain control, and the Regional Clean Air Incentives Market (RECLAIM) in the Los Angeles metropolitan area.

7 Stern (2007:27). In common with many other environmental problems, human-induced climate change is at its most basic level an externality. Those who produce GHG emissions are bringing about climate change, thereby imposing costs on the world and on future generations, but they do not directly – whether via markets or other ways – face the full consequences of the costs of their actions.

8 Kyoto Protocol to the UNFCCC, (11 December 1997) 2303 UNTS 162; available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf>, last accessed 1 February 2013 (hereinafter *Kyoto Protocol*).

to societal problems, we see the necessity for repeated state intervention. Claims as to the effectiveness and efficiency of market-based mechanisms look somewhat different in this light. And can a carbon price of €7 per ton (the 2012 average) really drive the low-carbon investment necessary for the complete retooling of the European economy that is necessary to meet its self-imposed target of 80% emissions reductions by 2050? The answer is self-evident; and, rather than rely on invisible green hands, European policymakers have recently resorted to a further round of climate change measures, to further political tightening of the emissions cap, and to unilateral measures aimed at cajoling those who have failed to follow the European lead.

In unpacking these issues, the article starts, in Part B, with the theoretical basis for the EU ETS and the necessary excursus into microeconomic theory and the seminal work of Ronald Coase. Although this body of work will be familiar to many, it remains the case that it is misunderstood and misrepresented by environmental law scholars. By taking Coase seriously, as it were, we will be in a better position to discuss the merits of market-based approaches to environmental problems and to assess those who should urge policymakers to draw on them. Part C establishes the environmental/constitutional structures of the EU that form the basis of the analysis. Hand in hand with the gradual development of environmental constitutionalism within this polity, the adoption of techniques of ‘governance’ become apparent – which themselves are in dialogue with the economic turn mapped out above. As far as the EU’s legal response to climate change is concerned, Part D points out the heart of the matter: the transition of the EU towards market-based solutions to environmental problems, their application to climate change, the creation of the EU ETS, and the subsequent, comprehensive package of measures adopted by the EU. Thus, the CEP has sought to address the climate change problem seriously within the EU and also to pester, entice and persuade the rest of the world to do the same. The CEP’s mixed success, both internally and externally, has led to what is later herein termed the EU’s *Second Climate Change Package*. The effusive rhetoric of marketisation has not been matched by real-life performance. This might have been anticipated not only by reference to the history of such schemes, but also if careful attention had been paid to Coase. The conclusion attempts to frame these arguments in the context of international cooperation on climate change – a task that continues to elude the grasp of policymakers.

B. Market Concepts, Economic Instruments and their Legal Reception

For better or for worse, and without regard to one's politics, the borrowing of market concepts has *transformed* legal reasoning and captured an authoritative position in the legal imagination.⁹ [Emphasis in original]

The importance of emissions trading in mitigating climate change is only one of many proofs of this claim. Most enduringly and enthusiastically deployed in antitrust¹⁰ and private law¹¹ contexts in American legal scholarship, the use of economic concepts and instruments in legal analysis has extended geographically,¹² intellectually,¹³ and into non-private law disciplines.¹⁴ Most importantly for the present purposes, the borrowing of market concepts is well-embedded in practical policy- and lawmaking. Indeed, the EU's energetic and comprehensive response to climate change is substantially characterised by its use of economic instruments, foremost amongst which is the EU ETS. Nonetheless, the European use of economic instruments for environmental regulation is not wholly novel, either in theory or practice.

For nearly two decades, scholars of EU law have been debating the merits and operationalisation of economic instruments vis-à-vis other forms of regulation.¹⁵ The present discussion examines the rationale of economic instruments as regulatory tools. No apology is made for rehearsing arguments that are familiar to specialists, as it is still the case that some detractors of market-based mechanisms continue to misrepresent the claims and arguments made for them. This is of particular significance to those who, like me, have reservations about market-based mechanisms, but the duty nonetheless remains to represent our opponents and their positions accurately.

9 Malloy (2004:3).

10 Director (1957:606) delivers a short note that would become a *locus classicus* in the field of law and economics.

11 For exemplars of the 'old law-and-economics', see Kronman (1979); Poser (1973).

12 Mattei (1997).

13 The dogma associated with the first wave and law-and-economics (its insistence on certain behavioural assumptions and focus on wealth maximisation) generated a 'post-Chicago' law-and-economics movement, which purports to avoid these flaws and seeks a broader engagement with other social sciences; see e.g. Komesar (1997). For an overview of these debates, see Ogus (1998).

14 Cooter (2002).

15 Swanson (1995:287).

Externalities are the starting point for understanding the role of economic reasoning in environmental policy. Formally stated as a “cost or benefit arising from any activity which does not accrue to the person or organisation carrying out the activity”,¹⁶ an *externality* may be the uncompensated noise, dust or odour, etc. suffered by residents adjacent to a dirty industrial operator (a *negative externality*) or the pleasure one receives from viewing one’s neighbour’s herbaceous border (a *positive externality*). In both cases, the *social* cost or benefit is greater than the *private* one. Consider the case of a coal-fired steel mill that emits great volumes of soot which then fall on a neighbouring laundry. Such negative externalities impose a cost on society (the laundry and its customers) that is not borne by the operator, who views this cost as external to – hence ‘externalities’ – its own profit calculations, resulting in too much steel being produced and too few clothes being laundered. As noted by Nicholas Stern, climate change-contributing activities can readily be seen in this light.¹⁷ But how does one redress this imbalance, this problem of social costs?

Such discussions are necessarily framed by the famous interventions of Ronald Coase, which in turn challenged the Pigouvian solution to problematic externalities.¹⁸ When faced with a market activity that generates negative externalities,¹⁹ Arthur Cecil Pigou’s response was to engage the state and require direct governmental intervention in the form of the imposition of a tax on each unit of pollution equal to the marginal social damages at the efficient level of pollution. In its absence, argued Pigou, the social cost of a market activity would not be covered by the private cost of the activity – an inefficient outcome that would likely lead to overproduction, as operators are incentivised to produce beyond the optimum level. By burdening the activity in question, the market would be brought back into balance.

Before turning to Coase’s *The Problem of Social Cost*, we should pause to consider the attractions of Pigou’s internalisation of externalities.²⁰ At the very least, it responds to a lawyerly instinct that wrongdoers should desist from and make reparations for their actions – a sort of ‘the polluter pays’ principle. Not unrelatedly, this approach has the virtue of simplicity. It seems

16 Black et al. (2009); see also Dahlman (1979:22); Trebilcock (1994:Ch. 3).

17 Stern (2007:27).

18 Pigou (1920).

19 Coase (1960:3): “[T]hose actions of business firms which have harmful effects on others ...”.

20 Pigou (1920).

obvious that the factory should compensate, even if only indirectly, those who bear costs arising from its activities. Similarly, if we tweak Pigou's taxing of wrongdoing and replace it with a delictual liability rule whereby those causing damage to the property of others are required to compensate them for their losses, this, too, would correspond to our intuitions regarding causation and responsibility.

Coase's response to Pigou's simple and intuitive solution²¹ is cast in the form of a series of familiar examples and recourse to the English common law,²² but at its very heart is the matter of transaction costs. Assuming zero transaction costs – “a very unrealistic assumption”²³ – Coase provocatively posits that social and private costs of a given activity would be equal, and that resources would be efficiently allocated between the interacting activities.²⁴ If the legal regime in place allows the burning of highly polluting coal and does not grant the laundry a right to clean air, the laundry owner is incentivised to pay the steel mill to reduce its output (or take other steps to reduce soot output). That source of potential revenue thus becomes an implicit cost to the steel mill if it declines to reduce production and, in this way, the private costs, explicit and implicit, are equal to the social cost of steel-making. As summarised by Harold Demsetz, “we may conclude from Coase's analysis that if transaction cost is zero no special government action is needed. Negotiations between the interacting parties will result in an efficient mix of outputs.”²⁵

Pigou's solution of the “internalisation of externalities” will thus impose a cost on the parties that cannot “ensure optimal outcomes (even in principle) within the constraints imposed by transaction costs”.²⁶ Rather than requiring the intervention of the state to determine legal entitlements, Coase argues that individuals will come to an agreement with an efficient result in the absence of transaction costs.

21 Duxbury (2005:961) is surely correct in that the “guiding impulse behind law and economics is counter-intuitiveness”.

22 Coase (1960:Pts III–V, VII).

23 (*ibid.*:15).

24 Demsetz (1998:268).

25 (*ibid.*:269).

26 Kramer (1991:101).

It is at this point that objections may be raised that transaction costs are rarely, if ever, zero and that this fatally undermines the ‘Coase Theorem’.²⁷ Coase anticipates this response:²⁸

In order to carry out a market transaction, it is necessary to discover who it is that one wishes to deal with, to inform people that one wishes to deal and on what terms, to conduct negotiations leading up to a bargain, to draw up a contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on. These operations are extremely costly, sufficiently costly at any rate to prevent many transactions that would be carried out in a world in which the pricing system worked without cost.

The implications of this recognition are significant for Coase’s subsequent arguments about transaction costs (discussed below), but also for understanding the nature of markets themselves. Rather than assume that markets resolve competing demands for scarce resources by an automatic price system free from central planning – a core tenet of neoclassical economics, Coase recognises that markets do not operate without cost, and that they can be “extremely costly”.²⁹ As such, markets cannot always be relied on to succeed without the aid of social planning, but rather only when “the increase in the value of production consequent upon the rearrangement is greater than the costs which would be involved in bringing it about.”³⁰

It should be clear, then, that to characterise the Coasian world as one in which transaction costs are unimportant suggests at the very least an unfamiliarity with his work. As he has pointed out, —³¹

I examined [in *The Problem of Social Cost*] what would happen in a world in which transaction costs were assumed to be zero. My aim in so doing was not to describe what life would be like in such a world but ...to *make clear the fundamental role which transaction costs do, and should, play in the fashioning of the economic system.* [Emphasis in original]

27 In addition, some scholars have challenged the use of the term *theorem* in this context; see Cooter (1991:51), who highlights that no ‘theorem’ bearing his name was ever written by Coase; the term was in fact coined by George Stiglitz – and that there are “several conventional interpretations of the Coase Theorem”; see also De Meza (1998:270), who notes that “the word ‘theorem’ evokes a mathematical style which is alien to Coase’s taste and may have done a disservice in diverting attention from his broader message”.

28 Coase (1960:15).

29 (*ibid.*: 15).

30 (*ibid.*:15–16).

31 Coase (1990:13).

Given the clarity of both Coase's original article and subsequent restatements, it is remarkable how commonly the basic elements of the argument are misrepresented.³² A particularly egregious example of this tendency comes from Chris Hilson³³ – editor of the *Journal of Environmental Law* from 2007 to 2012 and, as such, a particularly important interlocutor. He claims that “the Coase Theorem suggests that a Pigouvian tax is not necessary to achieve the economists' ideal of efficiency – all that is required is a bargained solution between polluter and polluted.”³⁴

No pinpoint reference to *The Problem of Social Cost* is given for this interpretation for the obvious reason that none exists. Moreover, it misstates one of the central impulses of the article – that while frictionless bargaining may result in optimal outcomes from an efficiency perspective, it is deeply improbable, given the ubiquity of transaction costs. Hilson goes on to claim in the attendant footnote that –³⁵

... it has long been pointed out that the theorem falls down where large numbers are involved and where bargaining cannot therefore take place without considerable transaction costs. Most modern pollution problems do of course involve large numbers, which means that the Coasian approach is of limited utility.

Again, Hilson's is a rather baffling assertion. In Coase's own words cited above, transaction costs will have the whip hand in determining which bargains are struck and which are not. Moreover, if such costs are present in the circumstances of simplistic scenarios of launderers and elementary arithmetic, they will certainly be present in the real world. Finally, Hilson's ignominy is complete when he claims that “Coase ... is a true free marketeer, who believes that an efficient solution can be found without the need for government intervention of any kind.”³⁶

Again, there is no direct reference for this statement, it ignores the implications of Coase's treatment of transaction costs, and it appears oblivious of Coase's own recognition that governmental regulation may –³⁷

... lead to an improvement in economic efficiency. This would seem particularly likely when, as is normally the case with smoke nuisance, a large number of

32 See Kramer (1991), who cites numerous misreadings of the argument.

33 Hilson (2000).

34 (*ibid.*:7).

35 (*ibid.*:7, No. 29).

36 (*ibid.*).

37 Coase (1960:18).

people are involved and in which therefore the costs of handling the problem through the market or the firm may be high.

One of the most important ways in which government intervention can improve efficiency is by assigning binding property rights where previously there were none – an intervention at the heart of both Coasian thought (as it is a prerequisite to the free exchange of entitlements and the operation of the market)³⁸ and its specific application to emissions trading (as without assigned property rights in the environment, there can be no trading). For a sense of how radical this step was, it should be recalled that water and air were traditional examples of free goods in economics.

Having cleared some of the undergrowth from the debate surrounding Coase, we can return to the fundamental problem of how to deal with externalities. Thomas H. Tietenberg summarises the pre-Coasian position as a series of stand-offs between policymakers and economists, the latter having regarded legal regimes (so-called command-and-control regimes) as not being cost-effective. With a switch to Pigouvian taxes, the economists argued, more pollution control could be gained with the same expenditure. In response to this, the policymakers not only doubted that the bureaucracy could design efficient taxes, owing to the information burden, but that taxes based on limited information might not be any better than legal regulation.³⁹ By thinking about the issue as one of property rights,⁴⁰ and arguing for such rights to be explicit and transferable, market actors can allocate the use of this property in a cost-effective way, that is, one that achieves the overall emissions objective at the lowest cost.

The application of this basic Coasian logic to the problem of pollution is now relatively straightforward and commonly associated with the proposals of T.D. Crocker⁴¹ and J.H. Dales.⁴² They elaborated schemes in which environmental resources such as air and water can be recognised as tradable property in the form of transferable discharge permits: a regulator determines

38 (ibid.:44); see also Coase (1959:27), who states that “the delimitation of rights is an essential prelude to market transactions”.

39 Tietenberg (2006:2).

40 (ibid.); see also Coase (1960:44): “If factors of production are thought of as rights, it becomes easier to understand that the right to do something which has a harmful effect... is also a factor of production.... The cost of exercising a right (of using a factor of production) is always the loss that is suffered elsewhere in consequence of the exercise of that right”.

41 Crocker (1966:61).

42 Dales (1968).

the total quantity of allowed emissions (the *cap*) and distributes rights in line with the cap, and a well-functioning market allows for permit holders (individual sources of emissions) to trade their permits until a cost-effective allocation has been reached. The great virtue of such a scheme, according to Dales, is that “no person, or agency, has to *set* the price – it is set by the competition among buyers and sellers of rights.”⁴³ [Emphasis in original]

The application of economic theory to the real life of public policy is a necessarily involved story. According to one version, the confluence of failed command-and-control regulations and political pressure in the late 1970s forced the US Environmental Protection Agency to consider “an early form of emissions trading”.⁴⁴ This led to the adoption of a series of new economic instruments to address a variety of environmental problems, both domestic and international. The former of these schemes included lead trading, sulphur dioxide trading under the Clean Air Act Amendments (1990),⁴⁵ and the Regional Clean Air Incentives Market (RECLAIM) in the Los Angeles metropolitan area;⁴⁶ the latter included, albeit later, the Montreal and Kyoto Protocols.⁴⁷ In the same period, advocates of “liberal law and economics”⁴⁸ argued along similar lines in the legal academy. A good place to start is the argument of Bruce Ackerman and Richard Stewart.⁴⁹ Two liberal, early adopters of law and economics, they write in an American context, concerned with environmental regulation in its broadest aspect:⁵⁰

The present regulatory system wastes tens of billions of dollars every year, misdirects resources, stifles innovation, and spawns massive and often counter-productive litigation ... Powerful organised interests have a vested stake in the status quo. The congressional committees, government bureaucracies, and industry and environmental groups that have helped to shape the present system

43 (ibid.:80). See also Tietenberg (2006:4): “[T]ransferability, at least in principle, allows the market to handle the task of ensuring that the assignment of control responsibility ultimately ends up being placed on those who can accomplish the previously stipulated reductions at the lowest cost”.

44 Tietenberg (2006:6–7).

45 Clean Air Act Amendments of 1990, Pub. L. 101–549, 104 Stat. 2399, 1990–11–15.

46 See Stavins (2003:407).

47 Kyoto Protocol; Montreal Protocol on Substances that Deplete the Ozone Layer (16 September 1987), 1522 UNTS 3. For a synoptic analysis of these policy initiatives, see Hahn & Stavins (2011:267); Stavins (2003).

48 The term derives from the seminal article by Kennedy (1981:387), arguably still the leading critique of the law and economics movement and method.

49 Ackerman & Stewart (1985:1333).

50 (ibid.:1333–1334).

want to see it perpetuated. But the current system is also bolstered by an often inarticulate sense that, however cumbersome, it ‘works’, and that complexity and limited information make major improvements infeasible.

In these four sentences, we see arguments that clearly resonate with the economic literature. The matter of “waste” or inefficiency is at the heart of the Coasian assault: the claim that whatever the other merits of Pigouvian taxes (intuitive appeal, simplicity, etc.) or governmentally imposed standards, they are not efficient and, as such, result in the misdeployment of resources, with the attendant consequences.⁵¹ Such standards, whether straightforward command-and-control or ‘best available technology’ (BAT) techniques, are what Julia Black calls “prescriptive regulation”.⁵² Furthermore, Ackerman and Stewart’s is a critique of BAT controls and the “lengthy regulatory and legal proceedings” that they entail, which delay and discourage new investment and stifle innovation.⁵³ As with setting the levels of Pigouvian taxes, the centralised determination of technical controls and standards –⁵⁴

... impose[s] massive information-gathering burdens on administrators and provide[s] a fertile ground for complex litigation in the form of massive adversary rulemaking proceedings and protracted judicial review.

These claims, it should be noted, are founded on an array of empirical studies. What is of interest for present purposes is the extent to which the rent-seeking, inefficiency, litigation and other suboptimal outcomes associated with prescriptive regulation by Ackerman and Stewart are unknown to European practices of emissions trading. Their claim is an example of the broader claims made of ‘marketisation’: that it can draw on well-known strengths of information processing, the opening up of enormous financial resources for effective and informed regulation, timely and effective enforcement, and powerful incentives for monitoring and enforcement.⁵⁵ In terms of the failings of the ‘statist’ approach, the promise is of avoiding cosy deals with incumbent industries, and wasteful litigation.

Having surveyed the intellectual foundations for emissions trading and briefly considered their application in the environmental context in the US, the discussion now moves to their use in the EU. It is argued that the EU’s ready adoption of economic instruments in the climate change context has,

51 (ibid.:1335).

52 Black (2001:103).

53 Ackerman & Stewart (1985:1336).

54 (ibid.:1337).

55 (ibid.:1343).

on occasion, been somewhat oversimplified. ‘Legal borrowing’ between regulatory spaces certainly has a place in the narrative, and Jonathan Wiener writes of “the remarkable fact that Europe has also borrowed the regulatory tool of emissions trading from the US in order to implement the Kyoto Protocol ... The basic reason is not mystery: cost-effectiveness.”⁵⁶

As true as this argument may be, it is somewhat hamstrung by its narrowness. It mistakes the part for the whole, ignoring broader trends and dynamics in EU governance, which have played no less significant a role in the EU’s climate change policies, both internal and external. In describing the European turn away from state planning in the second half of the 20th Century, historian Tony Judt frames the broader context as follows:⁵⁷

The state [as “neo-liberals” insisted] should be removed as far as possible from the market for goods and service ... it should not allocate resources In the view of one leading exponent of free-market liberalism, the Austrian economist Friedrich Hayek, even the best-run states are unable to process data effectively and translate it into good policy: in the very act of eliciting economic information they distort it Economic liberalization did ... illustrate a seismic shift in the allocation of resources and initiative from public to private sectors.

C. From Single Market to Environmental Constitutionalism

The shift from prescriptive regulation to incentive-based regulation has taken hold in Europe as in the US, albeit with some time lag. In tandem with this shift, there has also occurred in the EU a marked change in its recognition of environmental concerns. What follows highlights the repositioning of the environment from the periphery to the centre of EU policy debates and action. Although the history of environmental regulation is necessarily shallow in almost all polities, as discussed below, in the case of the EU this is especially so. That said, the EU has not allowed this fact to constrain its environmental regulatory efforts, especially not in the field of climate change: far from it. The EU immodestly proclaims itself to be the international leader in climate change legislation, but not without cause. The following sections briefly track the development of the EU’s environmental competence and

56 Wiener (2006:447–457).

57 Judt (2010:537, 558).

activities from the foundational period to the present day.⁵⁸ The transition from passivity to near-frenzied action is striking.

I. The Treaty of Rome (1957) and First Environmental Steps

Whether one views the legal constructs of the EU as a capitalist conspiracy⁵⁹ or historic guarantor of peace in the Atlantic world, it should not be surprising that environmental concerns were not present at the birth. The Treaty of Rome⁶⁰ – the constitutive legal text of the EU – made no explicit reference to the environment, and it was not until the mid-1960s that environmental legislation was passed by the European legislator.⁶¹ Given its firm foundations in the environmentally antithetical worlds of steel and coal market development, this slow start was inevitable. The elaboration and articulation of the ‘four freedoms’⁶² in the Treaty of Rome’s Article 3 were the overwhelming priority of the then European Economic Community (EEC),⁶³ until the intervention of UN-sponsored environmental activism in the form of the Stockholm Conference in 1972.⁶⁴

This kick-started “European” environmentalism (which had, of course, been steadily developing at the member state level) in typically hortatory

58 I draw here on the classification adopted in Holder & Lee (2007:Ch. 4); see also von Homeyer (2009:1).

59 Ward (2003:138–139) states the following: “The free market lay at the heart of the Treaty of Rome ... [the] four ‘freedoms’ [of goods, persons, services and capital] are the heartbeat of the common market But perhaps the deepest problem lies at the very heart of the notion of a ‘free market’ For, whilst the ‘common market’ might be ‘free’ in the economic sense, it is certainly not free in the political or ethical sense”.

60 Treaty Establishing the European Economic Community (25 March 1957), 298 UNTS 3 (hereinafter *Treaty of Rome*).

61 Chalmers (1999:653) cites Council Directive 67/548/EEC on the Approximation of Laws, Regulations and Administrative Provisions Relating to the Classification, Packaging and Labelling of Dangerous Substances, 1964 OJ (196) (EC).

62 The ‘four freedoms’ that underpin the European ‘common market’ are free movement of goods, workers, services and capital. The Treaty of Rome also provided common policies in agriculture, competition and transport, as well as in the field of social policy.

63 For an account of the ‘ordo-liberalism’ of the internal market, see Gerber (2001).

64 Declaration of the United Nations Conference on the Human Environment, 16 June 1972, available at <http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=97&ArticleID=1503>, last accessed 2 February 2013.

fashion, with the European Council of that year declaiming that “economic expansion is not an end in itself ... the protection of the *human* environment is a major issue which affects the well-being of people and economic development throughout the world.”⁶⁵ [Emphasis added]

There followed in 1973 the first of the Action Programmes for the Environment,⁶⁶ a four-year policy framework for European Community (EC) action relating to pollution control, biosphere protection, resource management, etc.⁶⁷ But if such considerations were not to be found within the foundational Treaty of Rome, upon which legal or constitutional authority could environmental protection be built?

II. Legal Basis

Questions of ‘legal basis’ loom large in EU legal discussions. The reason is straightforward, namely that the EU is based on the principle of attributed competence, meaning that its powers are limited to those conferred by the member states in the founding treaties.⁶⁸ It follows that, without a dedicated legal basis for taking action, the EU finds itself hamstrung. And so it was with environmental matters in the early days. Without a legal basis for legislating, the EC’s environmental policymaking relied on a bodge, or, at the very least, a strained interpretation of the Treaty of Rome, especially Article 2, which stated the EC’s tasks as including the promotion of “harmonious development [and] raising the standard of living through the establishment of a common market”.⁶⁹ As such, the EC’s early environmental policy existed under the guise of social policy. “Functional spillover”⁷⁰ was deployed

65 European Council (1972; cited in Holder & Lee 2007:157).

66 European Community, Action Programme for the Environment (First EAP), 1973 OJ (C 112/1). The Sixth EAP runs from 2002 to 2012; see The Sixth Environment Action Programme of the European Community 2002–2012, available at <http://ec.europa.eu/environment/newprg/>, last accessed 11 July 2012.

67 See generally Jans & Vedder (2011).

68 De Búrca (2003:403, 409).

69 Treaty of Rome, Article 2.

70 *Functional spillover* is the notion that integration is given impetus when cooperation in certain sectors of society creates technocratic pressure for cooperation in adjacent sectors; see Haas (2003:xxxiii).

as a device to justify the Dangerous Substances Directive⁷¹ on the basis of Article 100,⁷² and the protection of migratory birds on the basis of Article 235,⁷³ among myriad other instances.⁷⁴ Such creative use of these provisions to advance environmental ends might be thought to have required the imprimatur of the European Court of Justice, and indeed this was duly delivered in the case of *Procureur de la République v Association de Défense Des Brûleurs d'huiles Usagées* (hereafter *ADBHU* judgment).⁷⁵ In a “radical reading of the Treaty with, it must be said, little textual support”,⁷⁶ the Court determined environmental protection to be an “essential objective” of the EC.

The formalisation of this position came hard on the heels of the *ADBHU* judgment in the 1986 Single European Act (SEA),⁷⁷ which created a specific title on environmental protection in the form of its Articles 130r-130t, as well as Article 100a. Inter alia, environmental considerations were required “to be a component of the Community’s other policies”.⁷⁸ Although this gave legislative effect to the *ADBHU* judgment, environmental policy continued to operate as a ‘flanking policy’, complementary to the internal market.⁷⁹ That said, the SEA also introduced the concept of *sub-*

71 Council Directive 76/464/EEC on Pollution Caused by Certain Dangerous Substances Discharged into the Aquatic Environment of the Community, 1976 OJ (L 129) 23 (EC).

72 Treaty of Rome, Article 100: “[The Council may] issue directives for the approximation of such laws, regulation or administrative provisions of the Member States as directly affect the establishment or functioning of the common market”.

73 (*ibid.*:Article 235): “If action by the Community should prove necessary to attain, in the course of the operation of the common market, one of the objectives of the Community and this Treaty has not provided the necessary powers, the Council shall, acting unanimously on a proposal from the Commission and after consulting the European Parliament, take the appropriate measures”.

74 Holder & Lee (2007:158–161).

75 Case 240/83, *Procureur de la République v Association de Défense Des Brûleurs d'huiles Usagées* (*ADBHU*), 1985 ECR 531 (concerning Council Directive 75/439/EEC on the Disposal of Waste Oils, 1975 OJ (L 194) (EC)).

76 Holder & Lee (2007:161).

77 Single European Act, 1987 OJ (L 169) 1 (EC).

78 (*ibid.*:Article 130r(2)).

79 Complementary but hierarchically subordinate; see De Búrca (2003).

sidiarity, thereby flagging the desire on the part of some member states to constrain the development of an EC-wide environmental regime.⁸⁰

Subsequent treaty processes have followed the hares set running by the SEA. The 1992 Treaty on European Union (TEU) formally established environmental protection as a fundamental EC objective,⁸¹ and the 1997 Treaty of Amsterdam included in Article 2 the promotion of “balanced and sustainable development of economic activities [and] a high level of protection and improvement of the quality of the environment” as EC objectives.⁸²

In addition to the TEU’s inclusion of sustainable development among the objectives of the EU, the title on the EU’s external action states the following:⁸³

[That the] Union ... shall work for a high degree of cooperation in all fields of international relations, in order to ... foster the sustainable economic, social and environmental development of developing countries ... develop international measures to preserve and improve the quality of the environment and the sustainable management of global natural resources, in order to ensure sustainable development.

Accordingly, not only can environmental considerations form the legal basis for internal action, they can also be deployed to shape the ‘external action’ of the EU and its common foreign and security policy.

The latest element in the EU’s constitution-by-treaty process is the Treaty of Lisbon.⁸⁴ While it does not radically alter the constitutional architecture

80 SEA, Article 130r(4). The general aim of the principle of subsidiarity is to guarantee a degree of independence for a lower authority in relation to a higher body. Therefore, it involves the sharing of powers between several levels of authority – a principle which forms the institutional basis for federal states. When applied in a European context, the principle of subsidiarity serves to regulate the exercise of shared powers between the entity of the EC and its member states. On the one hand, it prohibits EC intervention when an issue can be regulated effectively by member states at central, regional or local level; on the other, it means that the EC exercises its powers when its member states are unable to achieve the objectives of the Treaties satisfactorily.

81 TEU, 7 February 1992, Articles 3(3) and 3(5), 1992 OJ (C 191) 1.

82 Treaty of Amsterdam Amending the Treaty on European Union, the Treaties Establishing the European Communities and Certain Related Acts, 2 October 1997, 1997 OJ (C 340) 1.

83 Consolidated Version of the Treaty on the European Union, Articles 21(2)(d) and 21(2)(f), 2006 OJ (C 155) 13.

84 Treaty of Lisbon Amending the Treaty on European Union and the Treaty Establishing the European Community, 13 December 2007, 2007 OJ (C 306) 50. See generally Ashiagbor et al. (2012).

of the EU for environmental purposes, it should be noted that the policy of integrating environmental policies is mentioned in a general context,⁸⁵ and in respect of energy policy.⁸⁶ Moreover, Title XX, entitled “Environment”, states, *inter alia*, that “[U]nion policy on the environment shall contribute to ... promoting measures at international level to deal with regional or worldwide environmental problems, and *in particular combating climate change*.”⁸⁷ [Emphasis added]

The specific reference to climate change is highly significant.

A final, Lisbon-inspired innovation comes in the field of EU external action, such as negotiations with other countries.⁸⁸ In the particular context of multilateral climate change negotiations, this was of particular importance, as the question arises as to who negotiates for the EU: is it the EU itself or its member states? The problem of *Who do I call when I want to speak to Europe?* (apocryphally attributed to former US Secretary of State, Henry Kissinger) has been putatively addressed by Article 18 of the TEU, which provides for the appointment of a “High Representative of the Union for Foreign Affairs and Security Policy”. The High Representative was intended in some quarters to operate as the EU’s ‘Foreign Secretary’, although the current incumbent, Catharine Ashton, is rarely viewed in those lofty terms. Indeed, at the recent Durban Summit, the EU delegation was led, apparently with efficacy, by the Commissioner for Climate Action, Connie Hedegaard.⁸⁹

What the foregoing demonstrates, at least in formal terms, is the remarkable development of legal capacity for the EU in the environmental realm. A policy area unknown to the EEC in its formative period, it has developed

85 Consolidated Version of the Treaty on the Functioning of the European Union, Article 11, 5 September 2008, 2008 OJ (C 155) 47 (hereinafter *TFEU*): “Environmental protection requirements must be integrated into the definition and implementation of the Union policies and activities, in particular with a view to promoting sustainable development”.

86 (*ibid.*:Article 194(1)): “In the context of the establishment and functioning of the internal market and with regard for the need to preserve and improve the environment, Union policy on energy shall aim, in a spirit of solidarity between Member States, to: (a) ensure the functioning of the energy market; (b) ensure security of energy supply in the Union; (c) promote energy efficiency and energy saving and the development of new and renewable forms of energy; and (d) promote the interconnection of energy networks”.

87 (*ibid.*:Article 191(1)).

88 See generally Cremona (2008); Cremona & De Witte (2008).

89 Harvey (2011).

into a complex and sophisticated set of legal institutions, instruments and norms. In terms of functions, it is notable that, although the EU and its member states commonly conclude ‘mixed agreements’ with third countries and international organisations⁹⁰ in the environmental field, the negotiations of the same – in the climate change arena at least – are very much led by the EC, not by its member states. As far as internal measures are concerned, the constitutional architecture has evolved to foreground environmental considerations, and new modes of governance have emerged to respond to such ambitions.

III. Environmental Governance

With the environment firmly located within the European legal firmament, the 1990s saw a shift in the modes of environmental protection. The long-standing so-called command-and-control model⁹¹ was supplanted by more “flexible” and “responsive” modes of governance.⁹² The reasons for change are in some respects common to cognate developments in other polities – the ascendancy of classical liberal thought in public policymaking, globalisation, and economic competition – but there are other reasons particular to the EU, such as waves of enlargement (with first Greece, Spain and Portugal, and then Central and Eastern European states), leading to a focus on the implementation of policy rather than new enactments. Specifically with reference to the discussion in the previous section, Simon Deakin has argued that –⁹³

... the revival and growth of interest in economic theories of law is closely bound up with contemporary policy debates over regulation versus deregulation ... and the appropriate role of the state in ensuring the efficient delivery of public services.

90 Hillon & Koutrakos (2010).

91 Black (2001:103): “[C]ommand and control’ is more a caricature than an accurate description of any particular regulatory system Essentially the term is used to denote all that can be bad about regulation: poorly targeted rules, rigidity, ossification, under- or over-enforcement, unintended consequences. The extent to which [command and control] does or does not live up to its caricatures is an empirical question which has been debated elsewhere”.

92 See von Homeyer (2009:7–24).

93 Deakin (1996:66).

The retreat from the high constitutionalism of the EU to governance or regulation can be evidenced in numerous ways. One of those which attracted much commentary in the 1990s was the increased variety of actors engaged in the EU policymaking processes, which included functionally dense committee structures,⁹⁴ agencies and advisory bodies.⁹⁵ Although operating within existing structures of EU policymaking (the Council, the Commission, etc.), these new institutional actors brought with them influential new modes of working, such as comitology.⁹⁶

Gráinne de Búrca focuses –⁹⁷

... on the range of policy processes that have been evolving over the past decade or more and expanding considerably in recent years both to new and existing areas of EU activity ... the open method coordination.

A form of governance which is cast in contradistinction to the traditional modes of European constitutionalism and command-and-control, the open method coordination is described by De Búrca as “less top-down in nature than before [and] premised on a more participatory and contestatory conception of democracy ... [but not without] the risk of dominance of particular economic values.”⁹⁸

Given the new governance’s problem-solving, deliberative and accommodating nature, it is not surprising that there has been an impact on flexibility in instrument choice. Moreover, the embrace of flexible regulation is, in part, a response to the changing nature of the objects of environmental law. Acute end-of-pipe air and water pollution, which can be readily solved by BATs, is increasingly being supplanted by more complex, globally salient and persistent, open-ended environmental challenges, of which climate change is obviously one.⁹⁹

The point is not that these are developments unique to the EU – they are not¹⁰⁰ – but that they represent new forms of governance within it that are

94 Joerges & Vos (1999).

95 Dehousse (1997).

96 Joerges & Vos (1999).

97 De Búrca (2003:404). The open method coordination consists of (1) setting EU-level guidelines for achieving objectives, (2) establishing benchmarks for comparison, (3) translating EU guidelines into (sub-)national policies, and (4) periodic peer review.

98 (ibid.).

99 von Homeyer (2010:121, 127).

100 Stewart (2003:437).

procedurally characterised by multilevel integration, participation, decentralisation and experimentation.¹⁰¹ Substantively, and most pressingly for present purposes, they mark a shift in the choice of tools in the environmental realm from the classic licensing approach towards flexible instruments: a mode of ‘new governance’ that foreshadows the keystone in the EU’s current climate change policy – the EU ETS.

D. EU Climate Change Regime¹⁰²

The confluence of economic theories of law, the growth of environmental policy within the structures of the EU, and the instrumentalisation of climate change policy for both internal and external reasons by the EU¹⁰³ leads with seeming inevitability to the EU ETS. This Part briefly surveys the ETS’s prehistory before explaining its operation to date and the important revisions made to it in the form of the 2009 *Climate and Energy Package*. While it may be seen as an exemplar of cost-effective, market-based regulation, the better view is more nuanced.

I. Pre-EU ETS: From Direct Regulation to Market-based Mechanisms

European leadership in combating climate change has become a familiar trope. In the multilateral arena, Europe has led efforts for efficient and effective approaches to climate change mitigation. That said, the deployment of a market-based mechanism as a solution to GHG emissions is a turnaround of some moment, given the EU’s historic hostility to such tools.¹⁰⁴ Since Kyoto, however, the EU has sought to position itself as a global leader in this policy area, with market mechanisms as its primary instrument.¹⁰⁵

The EU’s warm embrace of market solutions to environmental problems is emblematic of its changing policy toolkit over the past decade. For present purposes, it suffices to note that prior to and continuing into the 1990s, the

101 Sabel & Zeitlin (2010:1).

102 See more generally Ghaleigh (2009:367).

103 See the discussion on the motivations for the EU’s Climate and Energy Package in Part D, Section III.

104 See Damro et al. (2008:185).

105 See Oberthür & Kelly (2008:35).

EU is commonly characterised as having adopted a policy approach of ‘regulatory environmentalism’, premised on the assumption that reliance on free-market solutions would misallocate natural resources and produce inadequate incentives to prevent environmental degradation.¹⁰⁶ There also existed, however, a secondary and emerging strain in EU policy that, as early as 1993, in the form of the Community’s Fifth Environmental Action Programme, acknowledged the limitations of command-and-control regulation and the utility of market mechanisms to “internal[ise] external environmental costs”.¹⁰⁷ This approach cohered somewhat better with the well-detailed preference of the US for environmental markets, which were deployed with mixed success in the sulphur oxide/nitrogen oxide contexts.¹⁰⁸ Indeed, according to one account, the schooling of EU officials by their US counterparts in the “great success of the US acid rain training program put to rest many concerns about cap and trade”.¹⁰⁹ Also familiar is the influence that US domestic policy had on the negotiations at Kyoto, the architecture of the Kyoto Protocol, and in particular the flexibility mechanisms contained in its Articles 6, 12 and 17.¹¹⁰ Although it might be tempting to characterise this as the EU having ‘lost’ the battle of ideas over the optimal means by which to tackle climate change and subsequently embracing the new settlement, we have already seen that the EU was, in the early 1990s, already experimenting with economic incentives.¹¹¹

The Kyoto Protocol commits the EU-15¹¹² and all new member states (except Cyprus and Malta) to an 8% GHG reduction by the end of 2012, compared with 1990 base-year levels. Reductions were to be reassigned to

106 Golub (1998).

107 A European Community Programme of Policy and Action in Relation to the Environment and Sustainable Development, 1993 OJ (C 138) 5; see also Swanson (1995).

108 Ellerman (2006:48); see also Footnotes 41–50 above with their accompanying text.

109 Wiener & Richman (2010:363). The ‘greatness’ of these successes is far from universally agreed; see Stavins (1998, 2003).

110 Ghaleigh (2007:139).

111 See Swanson (1995).

112 *EU-15* refers to the member countries in the EU prior to the accession of ten candidate countries on 1 May 2004, namely Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

member states pursuant to the EU's own Burden-sharing Agreement.¹¹³ Foremost among the jointly implemented¹¹⁴ responses of the EU is the Emissions Trading Directive.¹¹⁵ The Directive followed EC consultations, studies, and finally a Green Paper,¹¹⁶ which not only acknowledged the EU's Kyoto obligations, but also deemed it necessary that the UNFCCC process should not represent the outer limits of the EU's relevant ambitions.

II. EU Emissions Trading Scheme

The EU ETS, which came into force in 2005, is a central policy instrument to achieve the climate policy objectives of the EU. All 27 member states participate in the scheme, as well as three non-members (Iceland, Liechtenstein and Norway). Its coverage will extend in 2013 to aluminium and ferrosilicon production, having included aviation in 2012, which was added to the original sectors of power and heat generation, oil refineries, and installations for the production of ferrous metals, cement, limes, paper and ceramics.¹¹⁷ In 2009, the scheme accounted for 43% of the EU's total GHG emissions, encompassing approximately 11,000 emitting installations.¹¹⁸

113 Council Decision 2002/358 Concerning the Approval, on Behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the Joint Fulfilment of Commitments Thereunder, 2002 OJ (L 130) (EC). Pursuant to this, some member states with historically low emissions are permitted to increase their emissions (i.e. Portugal +27.0%, Greece +25.0%, Spain +15.0%), while others with historically high emissions are required to cut their emissions significantly below Kyoto-mandated levels (i.e. Germany 21.0%, the United Kingdom 12.5%).

114 Kyoto Protocol, Article 4(1): "Any Parties included in Annex I that have reached an agreement [may] fulfil their commitments under Article 3 jointly ...".

115 Directive 2003/87 of the European Parliament and of the Council, Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61, 2003 OJ (L 275) 32 (EC). For various articles on aspects of the EU ETS's details, see Michaelowa & Butzengeiger (2005:1).

116 Green Paper on Greenhouse Gas Emissions Trading within the European Union, COM (2000) 87 Final (8 March 2000).

117 Directive 2009/29 of the European Parliament and of the Council of 23 April 2009 Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community, Annex I, 2009 OJ (L 140/63) (EC).

118 European Environment Agency (2011).

While the European Climate and Energy Package (discussed in Part D, Section III below) extends to issues of fuel efficiency and quality, vehicular emissions, biofuels, renewables, and carbon capture and storage, it is no exaggeration to describe the EU ETS as the keystone in the architecture of the European response to global climate change.

The EU ETS is in its basic structure a conventional cap-and-trade scheme. An overall ‘cap’ on emissions is set by a central authority and divided into tradable units. These units represent an allowance to emit a specified amount of GHGs. Installations subject to the cap are required to surrender an allowance for every ton they emit. The number of allowances under the cap can be reduced annually, thus ratcheting down emissions. These allowances may be given away for free to installations (‘grandfathered’)¹¹⁹ or sold at auction. Covered installations trade these allowances, so that the cheapest reductions possible are achieved. Companies that emit more than they have allowances to cover face a penalty.

Beyond this generic schema, the EU ETS’s specific approach to coverage and allowance should be noted. The Directive’s coverage of activities in its first two phases (i.e. 2005–2007 and 2008–2012) excluded aviation, shipping and, most contentiously, the aluminium and chemical sectors.¹²⁰ The EC’s Explanatory Memorandum to its original proposal justified the chemical exemption on the basis of the industry’s limited contribution to the EU’s total carbon dioxide emissions (approximately 1% of the total) and the fact that the large number of installations (approximately 34,000) would add significant administrative complexity to the scheme.¹²¹ The Memorandum remained silent on the exclusion of the aluminium sector.¹²² These choices

119 See Martinez & Neuhoff (2005:61).

120 Directive 2003/87 of the European Parliament and of the Council, Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61, 2003 OJ (L 275) 32 (EC), Annex I. Amendments to the scope of the Directive to include aviation have recently been adopted; see Directive 2008/101 of the European Parliament and of the Council, of 19 November 2008, Amending Directive 2003/87/EC so as to Include Aviation Activities in the Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, 2009 OJ (L 8) (EC).

121 Proposal for a Directive of the European Parliament and of the Council Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61/EC COM (2001) 581 Final, pt. 11, 2002 OJ (C 75E) 33.

122 For a very good discussion of the role of industry lobbying and regulatory capture in the design of the EU ETS, see Meckling (2011:Ch. 5).

have generated much subsequent controversy, not least before EC courts. Indeed, as I have written elsewhere, the EU ETS is the most heavily litigated instrument of EU environmental law.¹²³

Allowances have been a source of at least equal controversy.¹²⁴ Defined by Article 3(a) as the right to emit one ton of carbon dioxide equivalent¹²⁵ during a specified period,¹²⁶ allowances are allocated and issued to installations by way of a two-stage process. Stage 1 requires each member state to develop national allocation plans (NAPs) “stating the total quantity of allowances that it intends to allocate for that period and how it proposes to allocate them . . . based on objective and transparent criteria, including those listed in Annex III.”¹²⁷

Such NAPs are subject to EC approval, only after which may member states definitively determine the total quantity of allowances and the allocation of the same among installations.¹²⁸

The EU ETS has been implemented in phases – 2005 to 2007 and 2008 to 2012 – which are coordinated with the Kyoto Protocol compliance period as well as with Phase III to run from 2013 to 2020. Phase I was commonly described as a learning-by-doing phase, allowing member states to become acquainted with a novel system and to make progress towards their Kyoto Protocol commitments and towards meeting their particular carbon dioxide goals pursuant to the Burden-sharing Agreement.¹²⁹ It has been decided that the scheme will be extended to other GHGs and installations in Phase III.

123 Ghaleigh (2010:31).

124 For an ex ante discussion of the problem and challenges, see Grubb et al. (2005:127).

125 One ton of carbon dioxide equivalent (CO₂e) is used as the standard measurement in the carbon market. It is a measure of the global warming potential of various GHGs.

126 Directive 2003/87 of the European Parliament and of the Council, Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61, 2003 OJ (L 275) 32 (EC), Article 3(A): “‘Allowance’ means an allowance to emit one tonne of carbon dioxide equivalent during a specified period, which shall be valid only for the purposes of meeting the requirements of this Directive and shall be transferable in accordance with the provisions of this Directive”.

127 (*ibid.*:Article 9(1)).

128 (*ibid.*:Article 9(3)).

129 Council Decision 2002/358 Concerning the Approval, on Behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the Joint Fulfilment of Commitments Thereunder, 2002 OJ (L 130) (EC).

As is well known, the ‘trial period’ of Phase I was characterised by a price collapse in late April 2006, after the publication of the verified emissions data – by member state after member state – revealed that emissions were significantly below their allocations to installations. Early 2006 pre-announcement over-the-counter prices were slightly over €30 per ton. They had fallen by mid-May of that year to approximately €15 per ton, and then to near €0 from early 2007 until the end of Phase I. In a sense, it is inaccurate to characterise this as a market failure: the market reacted precisely as it ought to have, by adjusting when information that changed expectations was made available. Once aggregate emissions and the resulting demand for allowances were known, the fact of over-allocation had its predictable price consequences.¹³⁰

Thereafter, Phase II forward contracts dominated the markets’ attention, with December 2008 EU Allowances ranging from €12 to €25 per ton, remaining within the €20–€24 band for the majority of 2007. Upon the commencement of Phase II, such prices remained durable (at around €20–€25 for most of 2007), revealing the price of emitting GHGs in the EU, but also sending a strong signal to Clean Development Mechanism (CDM) and Joint Implementation (JI) project developers that emissions reductions generated through projects which generated carbon credits would find a robust market in the EU ETS.¹³¹

A consequence of the Phase I price collapse was its impact on the design of Phase II. The EC’s approach to the Phase II caps was much tighter, in an overt attempt to create demand for emissions reductions, whether generated within the EU or in non-Annex I countries. The Phase II cap for the EU–27¹³² is 2,098 Mt per year, cutting member states’ suggested allocations in NAPs by 245 Mt per year (10.4%). The largest absolute cuts were in Bulgaria, Germany and Poland, while the largest relative cuts were in the Baltic

130 In the EC’s view, the “swiftly corrected market price of allowances demonstrat[es] convincingly that the carbon market is working” (Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading System of the Community, COM (2008) 16 Final 2 (23 January 2008)). There is, however, also an argument that over-allocation was accompanied by over-abatement; see Ellerman & Buchner (2008:270).

131 For the very extensive use made of Kyoto mechanism credits in the EU for compliance purposes, see European Environment Agency (2011).

132 The full membership of the EU, to be contrasted with the EU–15.

states.¹³³ These figures represent a cut of 130 Mt of carbon dioxide (6%) below 2005-verified emissions and 160 Mt of carbon dioxide (7.1%) below 2007-verified emissions. While the cuts in member states' allowances were deep, the pain has been considerably eased by Phase II's "credit limits" (the maximum CDM/JI volumes that can be purchased for compliance purposes), which vary according to member states, from 10% in most cases and up to 22% for Germany.¹³⁴ Coupled with tightness of allocations, this creates the possibility for sizable offset/credit imports.¹³⁵

Two lessons emerge from this narrative. Firstly, we should make explicit the function and implications of a market-wide carbon price, as delivered by the EU ETS. A carbon price is a necessary element of any effective package to reduce GHG emissions.¹³⁶ The reason is that it creates incentives for businesses throughout the economy to reduce emissions, and for consumers to use energy more wisely; activities that cause the problem become more costly, and those that address the problem, less so. Carbon pricing sends a signal across the economy and creates incentives that reveal the cheapest ways of reducing pollution: such pricing allocates capital to improve efficiency and reduce emissions intensity, with the effect that, over time, the most efficient, least-polluting firms will have an advantage over less-efficient, higher-polluting firms.¹³⁷

The carbon price collapse detailed above obviously undermines the rationale of carbon pricing as a driver of low-carbon investment. Although 2008 saw relatively strong carbon prices of between €19 and €29 per ton, that price has steadily declined since the onset of the global recession. As of August 2012, a familiar combination of factors has reduced the EU Allowances market to a parlous state. The ongoing global recession has, in combination with the Eurozone crisis and Canada's withdrawal from Kyoto, reduced European carbon prices to historic (Phase II) lows, around

133 Point Carbon (2008:28, Table 1).

134 Facilitated by Directive 2004/101 of the European Parliament and of the Council Amending Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, in Respect of the Kyoto Protocol's Project Mechanisms, 2004 OJ (L 228) (EC) 18 (known as the *Linking Directive*).

135 Although outside the scope of this article, large-scale credit imports create a reliance on emissions reductions made in CDM/JI projects whose ability to achieve actual emissions reductions continues to be questioned; see Wara & Victor (2008), raising questions of effectiveness and, thereby, market and public confidence.

136 Stern (2007:Ch. 15).

137 See Ackerman & Stewart (1985).

€3.80.¹³⁸ Needless to say, such prices are utterly inadequate for the purposes of driving the vast investments necessary to decarbonise the EU economy.¹³⁹

Of more direct concern to lawyers is the matter of litigation. It is useful to recall Ackerman and Stewart's claim that market-based mechanisms have the merit, over command-and-control, of attracting less litigation: "[A] system of tradable rights will ... reduce the incentives for litigation, simplify the issues in controversy, and facilitate more intelligent setting of priorities."¹⁴⁰

It is certainly true that litigation of the precise sort associated with BATs and its associated inefficiencies has not been a feature of the EU ETS. Rather, the ETS has generated its own varieties of litigation, hand in glove with the development of the EU ETS to date. As I have explored elsewhere,¹⁴¹ the sheer volume of litigation before EC courts that has arisen in respect of the EU ETS Directive is remarkable. The Directive has generated over 40 proceedings before the European Court of Justice, falling into four categories:

- Challenges to the validity of the Directive
- Infringement proceedings
- Challenges to EC decisions on the 'national allocation plans' in Phase I (2005–2007) and Phase II (2008–2012) of the EU ETS's operation, and
- a category of miscellaneous cases.

That body of case law compares unfavourably, in volume terms, with all other environmental instruments of EU law. To determine the relevant comparators to the EU ETS, the approach of Jan H. Jans and Hans Vedder is followed.¹⁴² This approach maps 26 substantive areas of policy – from environmental impact assessments to environmental governance, eco-labelling, flood risk, emissions into the air, waste, transfrontier shipments of waste, wild birds, and climate change – which are addressed in 74 separate

138 Clark & Blas (2011). See also European Environment Agency (2011:46–47).

139 See House of Commons (2012:63) for oral evidence of Professor Michael Grubb and Professor Samuel Fankhauer, citing €50 per ton as the carbon price needed to drive low carbon investment to meet the target of 80% emission reductions by 2050.

140 Ackerman & Stewart (1985:1341–1342). See also (*ibid.*:1337): "Given the high costs of regulatory compliance and the potential gains from litigation brought to defeat or delay regulatory requirements, it is often more cost-effective for industry to 'invest' in such litigation rather than to comply".

141 Ghaleigh (2010:121).

142 Jans & Vedder (2011).

legal instruments. By comparing the total and per-annum number of EU court cases involving these environmental instruments and those relating to the EU ETS, we are given an indication of the exceptional nature of the EU ETS in EU law in respect of frequency of litigation. For ease of representation herein, however, those instruments that have been the subject of legal challenge fewer than five times have been excluded from Table 1, as follows:¹⁴³

Table 1¹⁴⁴

| Legal Instrument | Number of Actions | Years in Force | Actions per Annum |
|---|--------------------------|-----------------------|--------------------------|
| DIR 2003/47 EC (Emissions Trading Directive) | 43 | 6 | 7.2 |
| DIR 2004/35 EC (Environmental Liability Directive) | 7 | 3 | 2.3 |
| DIR 75/442 EEC (Waste) | 59 | 30 | 2.0 |
| DIR 92/43 EEC (Habitats protection) | 25 | 16 | 1.6 |
| DIR 85/337 EEC (Environmental Impact Assessment Directive) | 34 | 22 | 1.5 |
| DIR 79/409 EEC (Wild Birds protection) | 42 | 29 | 1.4 |
| REG 259/93 EEC (Control or Shipments of Waste) | 17 | 14 | 1.2 |
| DIR 2000/60 EC (Water Framework Directive) | 5 | 6 | 0.8 |
| DIR 96/82 EC (Protection from Major Industrial Accidents) | 7 | 10 | 0.7 |
| DIR 2006/11 EC, codifies DIR 76/464 EEC (Pollution by Dangerous Substances Directive – Aquatic Environment) | 17 | 34 | 0.5 |
| DIR 80/68 EEC (Groundwater Protection Directive) | 11 | 27 | 0.4 |
| DIR 90/313 EEC (Freedom of Access to Information on the Environment Directive) | 5 | 13 | 0.4 |
| DIR 67/548 EEC (Relating to the classification, packaging, and labelling of dangerous substances) | 7 | 38 | 0.2 |

143 For a fuller analysis of Table 1 and its methodology, see Ghaleigh (2010:50–51).

144 Reproduced from Ghaleigh (2010).

The key column is the fourth, “Actions per Annum” (by which the table is sorted). Firstly, the number of cases brought before EC courts pertaining to the EU ETS Directive is very high in comparison with all other instruments of EU environmental law. Of the 74 instruments surveyed herein, in terms of frequency of challenge, the EU ETS, with 43 actions, ranks second only to the venerable Waste Directive (59 actions). More significantly, however, when these figures are scrutinised on an annualised basis to reflect intensity of challenge, the EU ETS is an extraordinary outlier, attracting over seven challenges per year in its short life. The next most frequently litigated instrument in EU environmental law is the Environmental Liability Directive, with 2.3 actions per annum; but with only 7 actions in total for the latter, the possibility of statistical skewing is present. The Waste Directive has more data points, but at a rate of only two challenges per year, it is quite clearly the case that, across the entirety of EU environmental law, the EU ETS has attracted a unique number of challenges.

However we explain this, and whatever the merits of market-based mechanisms, they are not free from litigation. Rather, they are zones of the most intense contestation known to EU environmental law, where national governments, industrial actors and, indeed, extra-EU business interests entreat the courts to revisit substantive decisions taken by the political branches of the EU.¹⁴⁵ By way of the uncertainty that this adds to the carbon market, these can have direct impacts on the carbon price. Although the courts have in general resisted the pleas of litigants to expand supply (by loosening the overall level of the EU ETS cap)¹⁴⁶ or limit demand (by narrowing the class of those within the ambit of the EU ETS Directive),¹⁴⁷ they have not always done so and cannot be guaranteed to do so in the future.

To be fair to Ackerman and Stewart, their claim is that allowance auctioning is pertinent to the avoidance of litigation and this will only feature significantly in the EU ETS from 2013 onwards.¹⁴⁸ Would auctioning have

145 See Case C-366/10, *The Air Transport Association of America v Secretary of State for Energy and Climate Change* [2012] 2 CMLR 4.

146 See *Gorazdze Cement v Commission* [2008] ECR II-186.

147 Ghaleigh (2010:50-51).

148 In Phase III (2013-2020) a minimum of 50% of emissions allowances will be allocated by auctioning; see Directive 2003/87 of the European Parliament and of the Council, Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61, 2003 OJ (L 275) 32 (EC), as amended in Directive 2009/29 of the European Parliament and of the Council of 23 April 2009 Amending Directive 2003/87/EC so as to Improve and

taken the heat out of the challenges to the EU ETS and will it do so in the future? It is unlikely to be beyond the wit of lawyers to challenge auctioning's introduction. Furthermore, as noted, allowance-based challenges have not been the only form of challenge facing the EU ETS, nor the most important. Like other forms of environmental regulation, market-based mechanisms cannot be commended on the basis of their immunity from suit (even if one were to agree that that was a basis for commendation).

III. The Climate and Energy Package(s) — All Too Visible Hands?

Partly in response to these issues of robust legal challenges and weak price signals, the EU adopted a significant suite of additional policies in 2008 and 2009. The motivations for so doing, in addition to instrument effectiveness and coherence, certainly include the desire on the part of the EC to appear relevant by responding to an issue of high public saliency and thereby demonstrate its global environmental leadership.¹⁴⁹ Dieter Helm posits a further reason, noting that, “in 2008[,] the EU effectively made [climate change] its central policy focus” as a matter of expediency arising from the policy gap left by the failure to quickly ratify the Lisbon Treaty.¹⁵⁰ To this may be added the desire to arrive at the 2009 Copenhagen Conference of the Parties with a record of national achievement, both to placate non-Annex I concerns as to seriousness, and to shame laggard Annex I parties – the US in particular.

At the heart of what became the *Climate and Energy Package* was the 20–20–20 goal.¹⁵¹ The numbers refer to the policy goal of achieving 20% emissions reductions (below 1990 levels), 20% energy efficiency, and generating 20% of the EU's primary energy from renewable sources, all by 2020. The Package consists of six separate instruments, which –

Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community, Annex I, 2009 OJ (L 140/63) (EC). In Phases I and II respectively, only 5% and 10% of allowances had to be auctioned; see Directive 2003/87, Article 10 (before the amendments). This auctioning is subject to various caveats; see Directive 2003/87, Article 14 (of the amended Directive). These caveats will likely themselves be the subject of litigation.

149 Schreurs & Tiberghien (2010:23).

150 Helm (2009:222–223).

151 20 20 by 2020: Europe's Climate Change Opportunity, COM (2008) 30 Final (23 January 2008).

- (i) amend the EU ETS Directive¹⁵²
- (ii) differentiate national efforts to meet the goal¹⁵³
- (iii) regulate carbon capture and storage¹⁵⁴
- (iv) promote renewable energy¹⁵⁵
- (v) amend vehicle fuel quality,¹⁵⁶ and
- (vi) amend performance standards for cars.¹⁵⁷

There is a considerable literature on the Package,¹⁵⁸ and as a policy platform it has received all manner of plaudits, both from its authors¹⁵⁹ and no less gushingly from some academic commentators.¹⁶⁰ The present author shares, however, some of Helm's archly expressed doubts:¹⁶¹

Any package with a title of matching '20' numbers has got to be primarily political ... [It] targets an arbitrary number (20 per cent), and then for primarily political reasons applies this arbitrary argument to renewables and energy efficiency as well ... [T]he package is very unlikely to have the intended effects.

152 Directive 2009/29 of the European Parliament and of the Council of 23 April 2009 Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community, Annex I, 2009 OJ (L 140/63) (EC).

153 Decision 406/2009 of the European Parliament and of the Council of 23 April 2009 on the Effort of Member States to Reduce Their Greenhouse Gas Emissions to Meet the Community's Greenhouse Gas Emission Reduction Commitments up to 2020, 2009 OJ (L 140/136) (EC).

154 Directive 2009/31 of the European Parliament and of the Council of 23 April 2009 on the Geological Storage of Carbon Dioxide and Amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006, 2009 OJ (L 140/114) (EC).

155 Directive 2009/28 of the European Parliament and of the Council of 23 April 2009 on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 2009 OJ (L 140/16) (EC).

156 Directive 2009/30 of the European Parliament and of the Council of 23 April 2009 Amending Directive 98/70/EC as Regards the Specification of Petrol, Diesel and Gas-Oil and Introducing a Mechanism to Monitor and Reduce Greenhouse Gas Emissions and Amending Council Directive 1999/32/EC as Regards the Specification of Fuel Used by Inland Waterway Vessels and Repealing Directive 93/12/EEC, 2009 OJ (L 140/88) (EC).

157 Commission Regulation 443/2009, 2009 OJ (L 140/1) (EC).

158 See e.g. Helm (2009); Morgera et al. (2011:829); Scott (2011:805).

159 European Commission (2009).

160 Jordan et al. (2010) refers to the Package as "a momentous development".

161 Helm (2009:226, 229). See also Helm (2012:175–186).

Though politicians may legislate for the future, if the package lacks credibility it will almost certainly be revised *ex post*.

Given the flood of *ex post* revision, discussed below, we might conclude that Helm's suspicions were well founded.

The EU's *Second Climate Change Package* – the adjective being italicised to indicate that this is not at all an official designation – seems to have picked up where the CEP left off, with scarcely a break in time between the two, to remedy its flaws. To some extent, the Second Package adds to the list of complementary measures of the original Package, with new measures on the ecodesign of goods¹⁶² and enhanced energy efficiency standards for buildings.¹⁶³ These measures knit with the 2050 Low Carbon Economy Roadmap¹⁶⁴ of the EC's Directorate General for Climate Action, which plans for the post-2020 period, and include a series of proposed Directives on energy efficiency and energy infrastructure, an initiative on project bonds, and two further packages — a forthcoming EU infrastructure package and a *Third Energy Package* which was enacted in 2009.¹⁶⁵ Yet more demanding low-carbon ambitions are contained in the Energy Roadmap 2050 of late 2011.¹⁶⁶ A 'statement of intent' document rather than a binding instrument, it expresses the goal of 95% emissions reductions by 2050,¹⁶⁷ deploying and deepening the goals and mechanisms of the CEP.¹⁶⁸

EU climate change policy has been in a state of almost permanent revolution since its inception. EU ETS Phase III¹⁶⁹ will run for eight years from 1 January 2013. The emissions cap will henceforth be set not by individual member states but by the EC – a direct response to the various challenges to National Allocation Plans – and features a steady trajectory towards 2020 to

162 Directive 2009/125 of the European Parliament and of the Council of 21 October 2009 Establishing a Framework for the Setting of Ecodesign Requirements for Energy-related Products 2009 OJ (L 285) (EC).

163 Directive 2010/31 of the European Parliament and of the Council of 19 May 2010 on the Energy Performance of Buildings OJ (L 153) (EC); see Mertens (2012:327).

164 A Roadmap for Moving to a Competitive Low Carbon Economy in 2050, COM (2011) 112 Final (8 March 2011).

165 Mertens (2012).

166 Energy Road Map, COM (2011) 885/2 Final (15 December 2011).

167 (*ibid.*:2).

168 (*ibid.*:4).

169 Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading System of the Community, COM (2008) 16 Final 2 (23 January 2008).

reduce emissions by 21% overall, based on linear annual reductions of 1.74%.¹⁷⁰ The cap is then divided among member states according to emission levels under the EU ETS, and subject to a redistribution mechanism. Notably, the overall ‘cap’ figures are subject to EC modification during the detailed implementation phase, in order to meet the overall target of 20% by 2020 against a 1990 baseline.¹⁷¹ Recent debates at member state level and in the European Parliament have accordingly called for measures to ratchet down supply so as to drive up price. These have included proposals for a setting aside of 1,400,000,000 allowances *and* an adjustment of the annual emissions reduction factor to 2.25%.¹⁷² Although benefitting from the support of some member states, such as Denmark and the United Kingdom (UK) (which have traditionally been ‘pro-climate action’), others, most notably Poland, are strongly opposed to such measures, which they see as ‘gambling’ with Europe’s economic future.¹⁷³

Phase III exhibits a higher degree of harmonisation, partly in response to criticism of Phases I and II. This is evident in the EU-wide cap being determined by the EC, and harmonised rules for transitional free allocation. Although these measures benefit EU ETS participants by creating a more level playing field, that goal is achieved by the EC exercising a higher degree of control in implementing the scheme. Further centralisation has been mooted by the UK Parliament’s proposal for a “market oversight body [which] could make independent and expert adjustments to ensure that the ETS maintains the intended investment signals.”¹⁷⁴

A relatively new approach to climate change policy, and arguably the most significant, is the turn to unilateralism. In the EU, which is frustrated by the now long-familiar state of affairs whereby it leads, but nobody follows, a marked turn to unilateralism is discernible. The unilateralism of the

170 Directive 2003/87 of the European Parliament and of the Council, Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61, 2003 OJ (L 275) 32 (EC), Article 9.

171 (*ibid.*:Preamble, para. 14).

172 Sandbag, a leading environmental one-governmental organisation, has argued that over-allocation and the effects of the global recession require a Phase III setting aside of at least 3,100,000,000 allowances and a linear reduction factor of 2.52%; see Morris (2012:7).

173 Chaffin & Clark (2012).

174 House of Commons (2012:49–50).

EU is substantially motivated by the desire to negate carbon leakage,¹⁷⁵ but can also serve as a bargaining tool for the EU to deploy in international negotiations. Early instances of this approach are evidenced in Article 25 of the amended EU ETS Directive,¹⁷⁶ which creates a scheme whereby border tax adjustments could be put in place to protect EU industries vulnerable to leakage.¹⁷⁷

More telling, however, has been the “courageous”¹⁷⁸ step to include aviation in the EU ETS. This extension of the scope of the EU ETS has forced all airline operators whose flights take off from or land in the EU to surrender allowances equal to the carbon dioxide emitted in the entirety of those flights, including the portion outwith EU airspace. A decision that has attracted considerable scholarly criticism,¹⁷⁹ this matter has been adjudicated by the European Court of Justice, which dismissed the challenge brought by the Air Transport Association of America.¹⁸⁰ Whether the case comes before the International Court of Justice or other forums, it seems likely that threats of a trade war will not disappear quickly. As of November 2012, the EU agreed to suspend this extension of the scheme until the end of 2013, in order to facilitate a comprehensive aviation agreement under the auspices of the International Civil Aviation Organisation.¹⁸¹

One very obvious inference to be drawn from this narrative of repeated correctives is that the presence of markets does imply the absence of the intervening hand of the state. This may not be news to those familiar with

175 In the CDM context, “Leakage is defined as the net change of anthropogenic emissions by sources of greenhouse gases which occurs outside the project boundary, and which is measurable and attributable to the CDM project activity”; Report of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol on Its First Session, Decision 3/CMP.1: Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol, Annex, 51, UN Doc. FCCC/KP/CMP/2005/8/Add.1 (30 March 2006), at <http://cdm.unfccc.int/Reference/COPMOP/08a01.pdf>, last accessed 3 February 2013.

176 Directive 2009/29, *supra* note 115.

177 Such a scheme was in part mirrored by the defunct American Clean Energy and Security Bill of 2009, HR 2454, 111th Cong. (2009). For a comparison of the two measures and their World Trade Organization compliance, see Ghaleigh & Rossati (2011:63).

178 House of Commons (2012:32).

179 Scott & Rajamani (2012:469).

180 Case C-366/10, *The Air Transport Association of America v Secretary of State for Energy and Climate Change*, [2012] 2 CMLR 4.

181 Chaffin & Parker (2012).

the Cohen/Hale assault on laissez-faire liberalism.¹⁸² Both those who laud as well as those who lambast market-based solutions fall into the trap of believing them to operate outside the state's control. The European climate action experience demonstrates the fallacy of this mindset in two different ways. Firstly, as the EU ETS's dismal experience of problems of over-allocation, scope and a carbon price to drive polity-wide investment demonstrate, markets are far from self-correcting. In each of these respects, the state, whether in the form of the legislator or the courts, has had to intervene to effect some sort of market correction. It remains to be seen whether these corrections will be effective. Learning-by-doing is not a quick process. Secondly, the many non-ETS or even market-based elements of the EU's climate packages highlight the question of instrument choice that faces regulators. While economists sometimes bemoan this fact – the “one striking feature of current climate policy responses is that they are strongly guided by political factors, and only weakly by basic insights of economic theory”¹⁸³ – the evidence of the EU ETS and cognate regimes¹⁸⁴ is that this balance is not obviously wrong.

F. Conclusion

There can be no doubt that emissions trading is an instrument that solves problems for environmental lawyers and policymakers. With its promises of cost efficiency, and drawing on the many minds of the marketplace, it is a fixture in many climate change solutions, whether in existence,¹⁸⁵ forth-

182 This New-Deal-era body of work is comprehensively surveyed and referenced in Kramer (1999:112).

183 Hepburn (2011:365).

184 Stavins (1998).

185 In addition to the EU ETS, the International Emissions Trading scheme of the Kyoto Protocol, and those surveyed by Stavins (*ibid.*), there are schemes in operation in Australia (in New South Wales, and more recently at the federal level), New Zealand, the city of Tokyo, and in the US (the Regional Greenhouse Gas Initiative operates in north-eastern US states; the Western Climate Initiative operates in ten western states of the US and in provinces of Canada).

coming,¹⁸⁶ or nixed.¹⁸⁷ As a vehicle for achieving international cooperation on climate change mitigation, it clearly has considerable traction. The terms *transplantation* and *legal borrowing* have been used to describe the process of transnational mimesis by which economic instruments for environmental regulation travelled from the US to the EU;¹⁸⁸ the direction of travel seems to have been both reversed and diverted, despite the less-than-optimistic narrative – much of which is well known to policymakers – of the EU’s experience. Indeed, the optimistic narrative of the EU’s climate change policy is clearly difficult to sustain. Accordingly, the question is less whether market-based instruments *can* facilitate international cooperation on climate mitigation, but whether they *should*.

Starting with the motivations of the EU’s shift to market-based regulation, these are far more complex than is often asserted. Lessons from the US sulphur oxide/nitrogen oxide experience certainly played a role, but they must be seen in the context of wholesale regulatory shifts within the EU more generally, in areas ranging from food safety to product liability, and including environmental protection. Moreover, the enhanced ‘constitutional’ prominence of environmental concerns within the EU’s treaty structure has knitted with an emerging strategic desire for the EU to project powers and norms through its external actions. The prospect of a first mover’s advantage in the global carbon market certainly loomed. On the evidence to date, the approach of the Harvard theologian, Peter Gomes, seems apt – it is the second mouse that gets the cheese.¹⁸⁹ Although the EU has sought to protect its position in the carbon market, and more broadly by way of unilateral measures, it is far from clear that it will achieve its aim.

Secondly, and drawing on Ackerman and Stewart,¹⁹⁰ if one of the expected outcomes of an emissions trading scheme is the avoidance of ‘counterproductive litigation’ by powerful organised interests, the EU ETS has

186 Emissions trading schemes are scheduled to begin in China (pilot schemes in six provinces and cities in 2013, with a view to developing a nationwide trading scheme by 2015), and South Korea (from 2015, with approximately 60% coverage of its GHG emissions), as well as in California and Quebec.

187 The American Clean Energy and Security Bill of 2009, HR 2454, 111th Cong. (2009), proposed a cap-and-trade scheme, but failed to achieve Senate approval in mid-2010.

188 Wiener (2001).

189 Gomes (2003). Perhaps the Chinese or Australian or South Korean advocates of forthcoming emissions trading schemes see themselves in this light?

190 Ackerman & Stewart (1985).

not delivered. On the contrary, the remarkable volume of litigation before the EU courts can be seen as a series of attempts by member states (and private parties coordinating with them) to limit the impacts of the EU's ambitious climate change policy on their activities and on those of enterprises operating in their territory. This is unlikely to be a lesson that has gone unnoticed in other polities.

Thirdly, the notion of a simple recourse to markets is just that – simplistic. As evidenced by the CEP and the plethora of measures since, market mechanisms need to be buttressed by a range of relatively traditional forms of 'direct regulation' – whether fuel standards, energy efficiency goals, or subsidies for infrastructure, for example. Like all other markets, the ETS is a creation of the state and is necessarily reliant on regular maintenance from the same. Invisible hands are notable for their absence. The intervention of the state has been substantial and iterative. The idea that markets can 'do the job' is heavily undercut by fairly traditional command-and-control mechanisms that operate at various levels.

Finally, the promise of seamless markets has not been delivered in the EU. The contrast herein is to the costly bureaucracies which are necessary for the operation of command-and-control systems, and which necessarily involve the lobbying of industry and environmental groups as well as government intervention. Again, the above narrative can be characterised in exactly those ways, with the extraordinary windfall payments to the power sectors (€19,000,000,000 in Phase I, €71,000,000,000 in Phase II)¹⁹¹ being only the best known example of this. Whether responding to oversupply in the allowance market or the need to address the non-traded sector, or increasing the scope of the EU ETS, since its coming into force the scheme has been reviewed, amended and extended almost continuously. As a consequence, the role of the various EU and member state bureaucracies has been central. Given that the responsibility for setting the overall cap was transferred from member states to the EC, this process of bureaucratic centralisation has only increased over time.

Whatever else can be said of EU climate change law and policy, straightforward or handy characterisations are simply not available. For non-environmental strategic reasons, the EU has placed climate change at the heart of its external relations and internal industrial and energy policy. The operative mechanisms are diverse. Whatever may be said of the EU's climate

191 House of Commons (2012:Evidence 63).

change project, its past performance and current instantiation give few grounds for believing it to be, or likely to become, a success.

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The Emissions Trading System in the Context of Climate Change: China's Response

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Abstract

The Carbon Dioxide Emissions Trading System (ETS) refers to the trading of six major greenhouse gases (GHGs). It is an economic tool developed for the purpose of reducing GHG emissions cost-effectively. Carbon trading can be categorised into allowance-based transactions (or *cap-and-trade schemes*) and project-based transactions (or *credit schemes*). These schemes are regarded as one of the most cost-effective measures to combat climate change. Besides the European Union's ETS (EU ETS), several other ETSS operate or have been proposed across the world. These include but are not limited to Australia, Canada, South Korea, and the United States (US) as a whole as well as California as a US state.

Against this background, it is of great significance to focus on China's response to the ETS in the context of climate change because, as a major developing country and the largest GHG emitter, China plays a significant role in addressing global warming. This article focuses on the ETSS overseas; it discusses international experiences and implications for China's ETS; it explores the necessity of establishing a Carbon Dioxide ETS in China by discussing the country's external and internal pressures with regard to emissions reduction; it analyses the feasibility of establishing such an ETS in China by examining the existing policy support; it critically analyses past experiences, including what can be learnt from sulphur dioxide emissions trading, the Kyoto Protocol to the United Nations Framework Convention on Climate Change's Clean Development Mechanism (CDM), and voluntary carbon dioxide emissions trading; and subsequently points out key issues of a carbon dioxide ETS in China.

A. Introduction

The Carbon Dioxide Emissions Trading System (ETS) refers to the trading of six major greenhouse gases (GHGs). It is an economic tool developed for the purpose of reducing GHG emissions cost-effectively, and was initiated by, and developed based on, the three 'market-based' mechanisms: the Clean Development Mechanism (CDM), Joint Implementation, and Emissions Trading, as defined in the Kyoto Protocol¹ to the United Nations Framework Convention on Climate Change (UNFCCC)² as part of the response towards the mitigation of global warming. Thus, a new commodity was created in the form of emission reductions or removals. Since carbon dioxide is the principal GHG, people speak simply of *trading in carbon*. Carbon is now tracked and traded like any other commodity.

Carbon trading can be categorised into allowance-based transactions (*cap-and-trade schemes*) and project-based transactions (*credit schemes*). With the former, the governing body begins by setting a total cap on emission allowances. Subsequently, those allowances are allocated or auctioned off to individual regions, countries, or even firms. Members who do not have enough allowances in relation to their emissions must either make reductions or buy another member's spare allowances. Members with extra allowances can sell or bank them for future use. The European Union's ETS (EU ETS) is an example of such a trading system. These transactions may facilitate mandated participants to meet compliance requirements at the lowest possible cost. A project-based transaction may allow the buyer to purchase emission credits from a project that can verifiably demonstrate GHG emission reductions compared with the emissions that would have incurred anyway, by funding pre-approved emissions reduction projects in other countries.³ The CDM of the Kyoto Protocol is the most notable example of such a project.

The ETS has been regarded as one of the most cost-effective measures to combat climate change. As set out in Article 17 of the Kyoto Protocol, emis-

1 Kyoto Protocol, opened for signature 11 December 1997, entered into force 16 February 2005, available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf>, last accessed 20 December 2012.

2 United Nations Framework Convention on Climate Change, opened for signature 12 June 1992, entered into force 21 March 1994, available at <http://unfccc.int/resource/docs/convkp/conveng.pdf>, last accessed 20 December 2012.

3 Capoor & Ambrosi (2007:8).

sions trading establishes a system of emission rights trading whereby one so-called Annex I country⁴ might directly purchase some of its rights to emit GHGs from another Annex I country. ETSs may be established as climate policy instruments at the national and regional level. The EU ETS is the largest of such schemes in operation. Besides the EU ETS, several other ETSs operate or have been proposed across the world. These include but are not limited to Australia, Canada, South Korea, and the United States (US) as a whole as well as California as a US state.

China also announced its plan to establish domestic carbon markets. As a major developing country and the largest GHG emitter, China plays a significant role in addressing global warming. With a view to reducing carbon emissions in a cost-effective manner, China approved mandatory cap-and-trade emissions trading pilot schemes in seven provincial regions by 2013, and will expand them nationally in 2015 in an effort to encourage carbon emission reductions. If the schemes are introduced in 2013, China could consider introducing a nationwide ETS in its next Five-year Plan, covering the period starting in 2016. In spite of the intention to launch the pilot schemes in 2013, making cap-and-trade a reality in China will be challenging. The key issues are still under discussion, including the future design of the pilot schemes, the timetable for implementation, obstacles and challenges to be addressed, and perspectives for a nationwide ETS.

Against this background, it is of great significance to focus on China's response to ETSs in the context of climate change. Therefore, this chapter aims to discuss ETSs in the context of China through a comparative study of international experience, and by analysing the feasibility and necessity of establishing a carbon dioxide ETS in China. To achieve this aim, this article is divided into four sections: B, C, D, and E. Section B focuses on ETSs overseas, and discusses international experiences and their implications for China's carbon dioxide ETS. Section C explores the necessity of establishing a carbon dioxide ETS in China by discussing the external and internal pres-

4 *Annex I countries* refers to the industrialised countries listed in Annex I to the UN-FCCC, which committed to returning their GHG emissions to 1990 levels by the year 2000 as per Article 4.2(a) and (b). These countries also accepted emissions targets for the period 2008–2012 as per Article 3 and Annex B of the Kyoto Protocol. They include the 24 original Organisation for Economic Co-operation and Development (OECD) members, the EU, and 14 countries with economies in transition (Croatia, Liechtenstein, Monaco and Slovenia joined Annex I at COP3, and the Czech Republic and Slovakia replaced Czechoslovakia).

tures on the country with regard to emissions reduction. Section D analyses the feasibility of establishing a carbon dioxide ETS in China by examining the existing policy support, as well as critically analysing past experiences and lessons learnt from emissions trading of sulphur dioxide, the Kyoto Protocol's CDM, and voluntary carbon emissions trading. Section E points out the key issues of a carbon dioxide ETS in China.

B. International Experiences and their Implications for China

I. The EU

The EU ETS is a cornerstone of the EU's policy to combat climate change, and is its key tool for reducing industrial GHG emissions cost-effectively. The EU has allocated a market price to carbon emissions and has proved the possibility of trade in GHG emissions. This flexibility ensures that emissions reduction occurs in a cost-effective way.

Being the first and biggest international scheme for the trading of GHG allowances, the EU ETS now operates in 30 European countries⁵ and currently covers over 11,000 installations in the energy and industrial sectors, which are collectively responsible for close to half of the EU's emissions of carbon dioxide, and 40% of its total GHG emissions.⁶ It covers carbon dioxide emissions from installations such as power stations, combustion plants, oil refineries and iron and steel works, as well as factories making cement, glass, lime, bricks, ceramics, pulp, paper and board.

There have been three phases under the EU ETS to date since its launch on 1 January 2005. The first trading period (Phase I) ran for three years, to the end of 2007. This was a 'learning-by-doing' phase to prepare for the crucial second trading period (Phase II). Phase I successfully established the free trading of emission allowances across the EU, putting in place the necessary infrastructure and developing a dynamic carbon market. However, the environmental benefit of this phase may have been limited due to excessive allocation of allowances in some member states and sectors.

Phase II began on 1 January 2008 and ran for five years, until the end of 2012. The importance of this phase stemmed from the fact that it coincided

5 The 27 EU member states, plus Iceland, Liechtenstein and Norway.

6 For more details, see Emissions Trading Scheme (EU ETS), available at http://ec.europa.eu/clima/policies/ets/index_en.htm, 12 December 2012.

with the first commitment period of the Kyoto Protocol. For Phase II, EU ETS emissions were capped at around 6.5% below 2005 levels, to help ensure that each member state, as well as the EU as a whole, delivered on their Kyoto commitments.

As from the third trading period (Phase III), a single EU-wide cap will apply, and allowances will be allocated on the basis of harmonised rules. At the same time, in order to strengthen the system, a series of important changes will take effect to the way the EU ETS works. The most significant one is that the auctioning of allowances will become the basic principle for allocation. Member states will be responsible for ensuring that the allowances given to them are auctioned. The distribution of the auctioning rights to member states is largely based on emissions in Phase I, but part of the rights will be redistributed from richer member states to poorer ones to take into account the latter's lower per capita gross domestic product (GDP) and higher prospects for growth and, therefore, emissions.

In addition, as from 2013, the scope of the EU ETS will be extended to other sectors and GHGs. Carbon dioxide emissions from petrochemicals, ammonia and aluminium will be included, as will nitrous oxide emissions from the production of nitric, adipic and glycolic acid, and perfluorocarbons from the aluminium sector. The capture, transport and geological storage of all GHG emissions will also be covered.

The EU also passed legislation to establish a scheme for GHG allowance trading within the European Community⁷ Member states have to bring into force the legal instruments necessary to comply with the legislation. The relevant regulations in the legislation have been revised multiple times. When an international agreement is reached, the European Commission will submit a report to the European Parliament and the Council of Europe assessing the nature and implications of the measures set out in the international agreement, in particular with respect to the risk of carbon leakage. On the basis of the European Commission report, the Commission will then adopt a legislative proposal amending the present Directive, as appropriate. Moreover, the national laws, regulations and administrative provisions will have to be ready.

7 Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a Scheme for Greenhouse Gas Emission Allowance Trading within the Community and amending Council Directive 96/61/EC, released on 13 October 2003, available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0087:EN:HTML>, last accessed 12 December 2012.

It is predicted that, under the EU ETS, emissions will be 21% lower in 2020 than in 2005.⁸ Furthermore, the Commission sees the EU ETS as an important building block for the development of a global network of ETSs. Linking other national or regional cap-and-trade schemes to the EU ETS can create a bigger market, potentially lowering the aggregate cost of reducing GHG emissions.

In spite of this achievement, there are some people and organisations that have responded differently to the EU ETS. Firstly, the EU ETS needed to be supported by other policies regarding technology and renewable energy. Policy on technology is necessary to overcome market failures associated with delivering low-carbon technologies, e.g. by supporting research and development.⁹

Secondly, the EU ETS has been criticised for several failings, including over-allocation, windfall profits, price volatility, and generally for failing to meet its goals.¹⁰ In addition, the scheme has been criticised for having caused a disruptive spike in energy prices.¹¹ It is said that the scheme does not correlate with the price of permits, and in fact the largest price increase occurred at a time when the cost of permits was negligible, i.e. March to December 2007.¹²

Thirdly, there was an oversupply of emissions allowances in Phase I. This drove the carbon price down to zero in 2007.¹³ This oversupply reflects the difficulty in predicting future emissions, although a prediction is necessary to set a cap. Given the poor data regarding emissions baselines, the inherent uncertainty of emissions forecasts, and the very modest reduction goals of the Phase I cap (1–2% across the EU), it was entirely expected that the cap may have been set too high.¹⁴

Fourthly, there are some concerns that the EU ETS has brought about crime. In 2009, Europol informed that 90% of the market volume of emissions traded in some countries could be the result of tax fraud – more specifically, missing trader fraud – costing governments more than €5 billion.¹⁵ In

8 For more details, see EU ETS, available at http://ec.europa.eu/clima/policies/ets/index_en.htm, last accessed 12 December 2012.

9 The Committee on Climate Change (2008:155).

10 Corporate Europe Observatory (2011).

11 Mufson (2007).

12 Ellerman & Joskow (2008).

13 The Committee on Climate Change (2008:140).

14 Ellerman & Joskow (2008).

15 Phillips (2009).

December 2011, in a trial involving evasion of taxes on carbon permits, a German court sentenced six men to jail terms between three years and seven years and ten months. Furthermore, cyber fraudsters attacked the EU ETS using a phishing scam, which cost one company €1.5 million.¹⁶ In response to all of this, the EU revised the EU ETS rules to combat crime.¹⁷

The success and criticism of the EU ETS could have implications for the design of the Chinese ETS. There are other lessons to be learnt from the experiences of the first two phases of the EU ETS, such as –

- adequate preparation time is essential to implement a well-designed ETS
- the EU's adoption of the cap-and-trade approach to emissions control makes it the preferred approach for other countries wishing to eventually trade emission permits beyond their own borders
- a well-informed trading market requires verifiable emissions data being made available before emissions trading commences, and
- maintaining the relative scarcity of emission permits requires unlimited banking of unused permits, together with no forfeiture of those permits should a particular emitting facility close down.

The main lesson to be learnt from the EU ETS experience is that the relative scarcity of emission permits in a cap-and-trade system need to be maintained if an emissions market is to meet its overall objectives. This constitutes the primary principle, and the lesson should be applied to the Chinese ETS.

II. The United States

The US has also used market-based instruments to reduce emissions, which include, but are not limited to, the Regional Greenhouse Gas Initiative (RGGI), the Global Warming Solutions Act of 2006, and the Chicago Climate Exchange (CCX). According to estimates, some 67% of this €2 trillion (US \$3.1 trillion) – equivalent to €1.25 trillion (US\$2.3 trillion) – would be traded within the US ETS, while the second largest ETS, the EU scheme, would trade 9 Gt of carbon dioxide, equivalent to 23% of the global market.¹⁸ Therefore, the US ETS is expected to play an indispensable role in the global carbon market, and it is necessary to review its experience and practice.

16 Phillips (2010).

17 EurActiv.com (2009).

18 See Point Carbon (2008).

The RGGI is a cooperative effort by ten north-eastern and mid-Atlantic US states to reduce carbon dioxide emissions from electricity-generating plants. It is a multi-state, cap-and-trade emissions programme with a market-based emissions trading system – the first of its kind in the US. The RGGI is designed to reduce carbon dioxide while maintaining the affordability and reliability of electricity. The programme also directly funds energy efficiency and cleaner energy programmes that will lower GHG emissions.

The RGGI's goal is to reduce carbon dioxide emissions from power plants in participating states through a mandatory cap-and-trade programme. To implement the programme, each RGGI participant state is obliged to enact agreed rules by way of state legislation or administrative regulations. The programme caps GHG emissions in ten states in the north-eastern US, and allocates the right to emit through the auction of allowances. The programme's first three-year compliance period began on 1 January 2009 and ended on 31 December 2011. Emission permit auctioning began in September 2008.

From 2012, the RGGI aimed to build on the success of its first three-year compliance period, and made key improvements as it entered its second three-year compliance period. On 17 January 2012, RGGI member states announced several actions to reduce the number of available emission allowances. Firstly, auctions in 2012 only offered allowances for 2012 and none from the next compliance period (2015–2017). Secondly, at least six states (Connecticut, Delaware, Massachusetts, New York, Rhode Island and Vermont) agreed to retire unsold allowances from the first compliance period, which could otherwise have been used in later compliance periods. With fewer total allowances available for auction, cumulative emissions will decline. Many states have faced an oversupply of allowances as emissions from power plants are approximately 30% less than the cap; this was due in part to the economic recession, as well as to investment in natural gas and renewable electricity generation.

Beyond withholding future compliance-period allowances and retiring unsold allowances, the RGGI might also consider additional measures to increase the market pressure on electricity generators to reduce carbon emissions. Tightening annual emissions caps may be an additional option identified by RGGI's first mandated programme review, which was completed in the summer of 2012.

The economic benefits from the RGGI's first compliance period were significant. An Analysis Group Report,¹⁹ released in November 2011, estimated that the RGGI produced US\$1.6 billion in economic value for its member states between 2009 and 2011. The proceeds from sales of RGGI allowances have funded energy efficiency improvement programmes, community-based renewable energy projects, and assistance to low-income customers, education and job-training programmes.

The State of California not only leads the nation in energy efficiency standards and environmental protection, it is also one of the larger emitters of GHG worldwide. In 2006, California became the first state in the US to create a legally binding programme to limit GHG emissions. The Global Warming Solutions Act of 2006, also known as the Assembly Bill (AB) 32, is an exceptional legislative example of addressing climate change and carbon emissions. It is a California state law that fights climate change by establishing a comprehensive programme to reduce GHG emissions to 1990 levels by 2020, by considering all sources throughout the state.

On 17 December 2010, AB 32 adopted a cap-and-trade programme to place an upper limit on state-wide GHG emissions. This programme, the first of its kind in the US, took effect at the beginning of 2012. It includes an emissions limit which will be reduced by 2% each year through 2015, and 3% each year from 2015 to 2020. At first, the rules of the programme were to apply to utilities and large industrial plants; from 2015, they would apply to fuel distributors as well, eventually totalling 360 businesses at 600 locations throughout California. Free credits are to be distributed to businesses that account for about 90% of overall emissions in their sector. Additional emissions have to be accounted for through the purchase of either allowances or credits. Offsets, i.e. actions such as the planting of trees that absorb GHGs, can also be drawn upon to account for up to 8% of emissions.

California is also the key to the Western Climate Initiative, the West's answer to RGGI, which aims "to design a regional cap-and-trade program that can deliver GHG emission reductions within the region at costs lower than could be realized through a California-only program."²⁰

In the meantime, California will become the country's testing ground for cap-and-trade policy. The now defunct CCX was North America's only voluntary, legally binding GHG reduction and trading system for emission

19 See http://www.iclei.org/documents/USA/NEG-ECP_CCAP.PDF, last accessed 20 December 2012.

20 Franks (2011).

sources and offset projects in North America and Brazil. Although participation was voluntary, compliance with emission-reduction objectives was legally binding once a member joined. The CCX started trading in October 2003, prior to the commencement of trading in the EU through the EU ETS. The Exchange traded in emissions of six gases: carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, perfluorocarbons and hydrofluorocarbons. The CCX had more than 400 members, including corporations such as Ford, DuPont and Motorola; states and municipalities such as Chicago and Oakland; educational institutions such as the University of California, San Diego; and farmers and their organisations, such as the National Farmers Union and the Iowa Farm Bureau.²¹ The CCX says its 450 members achieved reductions of 700 million t of GHG emissions over the seven-year life of the cap-and-trade programme. Some 88% of these reductions were achieved through direct industrial emission cuts, and 12% through offsetting.²²

However, due to a lack of legislative interest, this pilot programme for the trading of GHGs in the US shut down. Although the nation's first experiment in carbon emissions cap-and-trade ended, its impact on the climate change industry will be felt for some time to come. CCX was a pioneer in establishing a cap-and-trade system. As the first such system established in North America, it gave companies the opportunity to gain experience and learn about emissions-reduction commitments and carbon trading. In addition, California's recent move toward mandatory emissions trading is reviving the market. RGGI officials are also involved in talks to reform their system. Furthermore, CCX officials state that, although they have closed their contractually binding trading platform, they aim to leverage their relationship with some of the nation's largest companies to revitalise the voluntary carbon market, while maintaining their dominant position as the largest host of trading in a variety of environmental commodities.

21 See Participants of Chicago Climate Exchange, available at http://en.wikipedia.org/wiki/Chicago_Climate_Exchange#cite_note-10#cite_note-10, last accessed 20 December 2011. See also the CCX Membership List, available at <http://chicagoclimatex.com/content.jsf?id=64>, last accessed 20 December 2011.

22 Gronewold (2011).

III. Other Countries

The success of the EU ETS has inspired other countries and regions to launch cap-and-trade schemes of their own. Australia also endeavours to take market-based initiatives in response to the challenge of climate change.

The Australian ETS was due to come into effect in 2010, but was delayed – the main reason being the expected increase in electricity, transport and fuel costs due to the introduction of carbon pricing. Australia's Parliament passed landmark laws to allocate a market price to carbon emissions, ensuring the start of a carbon tax on 1 July 2012, ahead of a full ETS from mid-2015. The Clean Energy Legislative Package includes four main Bills:

- The Clean Energy Bill (2011)
- The Clean Energy Regulator Bill (2011)
- The Climate Change Authority Bill (2011), and
- The Clean Energy (Consequential Amendments) Bill (2011).

This legislation has resulted in Australia becoming an example for many of the key players in the global carbon market, particularly in Europe and the United Kingdom, whose own carbon markets continue to suffer from apparent oversupply. Furthermore, it works towards linking Australia's carbon market with the EU ETS.

The carbon price is a central policy of Australia's Prime Minister, Julia Gillard, who is struggling in the polls and who has staked her government's future on a plan to price carbon emissions from Australia's top 500 polluting companies. The carbon price is the key measure to help Australia – which accounts for 1.5% of global emissions – to reach its target to curb emissions by 5% by 2020, based on levels in 2000. The Australian ETS would have forced up the price of emissions-intensive products such as coal-fired power, gas and, possibly, petrol and beef, thus encouraging people to use less of these commodities. The Australian ETS would probably not actually have discouraged consumption, however; rather, it would have forced consumers to pay higher prices.

Essentially, the Australian ETS works like this: the government sells carbon permits. Permit owners then have the right to emit a ton of carbon. For the first three to five years, an unlimited number of permits are sold at a fixed price (yet to be released). This effectively acts as a tax. After three to five years, the government will move from selling an unlimited number of permits to auctioning a limited number of them. The permits are sold to the highest bidders, who can then use them to emit carbon, or sell them on to

other parties. The price of carbon will vary depending on demand for emissions and the amount of permits auctioned each year by the government.

Like Australia, the Republic of Korea is also making advances in the trading system. On 2 May 2012, the South Korean National Assembly passed the Act on Allocation and Trading of Greenhouse Gas Emissions Allowances, with 148 in favour and three abstentions, showing remarkable political consensus.²³ Under this legislation, the ETS will commence on 1 January 2015 in South Korea for 60% of total GHGs.

C. Necessity of a Carbon Dioxide ETS in China

1. Internal Pressures: Unsustainable Development

Climate change has a different impact on every country, depending on its national circumstances.²⁴ China has the basic national circumstances described below.

1. Physical Features

China is located in eastern Asia on the western shores of the Pacific Ocean. It is the third largest country in the world, after Russia and Canada, with a total area of 9.6 million km². The country has a continental coastline extending over 18,000 km, and an adjacent sea area of 4.73 million km².²⁵

China's terrain comprises a large variety of landscapes. There are extensive and densely populated alluvial plains in the east, while grasslands dominate the north. For 2005, China's grassland area was 400 million ha, most of which is cold high prairie and desert steppe, while the temperate grasslands in northern China are on the verge of degradation and desertification due to drought and environmental deterioration.²⁶ Southern China is dominated by hill country and low mountain ranges. The deltas of China's two major rivers, the Yellow River and the Yangtze River (Chang Jiang), lie in the east-central part of the country. Further west there are mostly mountains

23 Noh (2012).

24 Adapted from Jiang (2012).

25 PRC (2007:15).

26 (ibid.).

– the Himalayas being the most well-known example – with high plateaus and deserts. For 2005, China's total area of desertification was 2.63 million km², accounting for 27.4% of the country's territory.²⁷ Arable land only accounts for 14.86% of the total territory of China.²⁸ The national forest area for 2005 was 175 million ha, with a coverage rate of only 18.21%.²⁹

2. *Population*

China has the largest population in the world. In 2005, the population of the mainland was 1.31 billion, accounting for 20.4% of world population.³⁰ Yet the excessive population-growth trend has been under effective control since the One Child Policy was introduced by the Chinese Government in 1982.

Along with industrialisation, China is seeing rural–urban migration: the urban population, which accounted for only 26.4% in 1990, had increased to 43% by 2005.³¹ However, China is still at a relatively low level of urbanisation, with 750 million people living in rural areas, and an urban population accounting for 43% of the national population, which is lower than the world average.³² However, the enormous population, together with increasing urbanisation, results in huge employment pressure for China, with more than 10 million new workers moving to urban areas each year.³³

3. *Economic Development*

China's economy has been developing rapidly since the Reform and Opening Up Policy³⁴ proposed by Xiaoping Deng in 1978. Consequently, living standards have improved dramatically. Although great economic changes have taken place, China is currently at a relatively low level of economic

27 (ibid.).

28 CIA (2008).

29 PRC (2007:15).

30 (ibid.).

31 (ibid.).

32 See China Today.com (2001).

33 PRC (2007:15).

34 The nature of the economy has changed from a centrally planned system under rigid political control to a more market-oriented economy that has a rapidly growing private sector and is a major player in the global economy.

development. In 2005, China's per capita GDP was about US\$1,714 (based on the exchange rate of the same year), which only accounted for about one fourth of the world average.³⁵

Remarkable disparity in economic development exists among different regions of China. In 2005, the per capita GDP of the eastern areas of the country was US\$2,877, while that of the western areas was US\$1,136 – only 39.5% of the former. Shanghai (in the east) is experiencing particularly rapid economic development.³⁶ According to international standards on statistics, the per capita GDP in Shanghai in 2006 was over US\$7,000.³⁷

The income disparity between rural and urban residents is also significant. In 2005, the per capita disposable income of urban residents was US\$1,281, while that of rural residents was only US\$397, equivalent to 31.0% of the former.³⁸ Furthermore, poverty eradication is still a huge challenge for China. By the end of 2005, the poverty-stricken people in the country's rural areas numbered 23.65 million, with the per capita annual pure income less than ¥683 (less than US\$100).³⁹

4. *Climate*

In addition to China's extensive territory and complex topography, it has an extremely diverse climate, which ranges from tropical areas in the south to subarctic areas in the north. The northern zone, where Beijing is situated, has summer daytime temperatures of more than 30°C and winters of arctic severity, with the lowest temperature of -30°C in northernmost Heilongjiang Province. The central zone, where Shanghai is situated, has a temperate continental climate, with very hot summers and cold winters. The summer temperatures in the famous 'Three Ovens' cities along the Yangtze River – Chongqing, Nanjing and Wuhan – have been known to reach up to 40°C. The southern zone, where Guangzhou is situated, has a subtropical climate, with very hot summers and mild winters.

35 PRC (2007:16).

36 (ibid.).

37 According to the news conference of the Information Office of Shanghai Municipal Government, 7 February 2007.

38 PRC (2007:16).

39 (ibid.).

Moreover, most parts of China have a continental monsoon climate, with more drastic seasonal temperature variations. As a result, the winter temperature in China is 5–18°C lower than other areas on the same latitude, such as North America and western Europe.⁴⁰

5. *Air Quality*

The air quality in the country is poor. Although the pace of worsening air quality in the cities has slowed, the overall pollution level remains high.⁴¹ According to the *China Environmental Quality Communiqué* of 2006, 62.4% of the cities monitored had met the national air-quality standard of Grade II, while 37.6% were worse than Grade II. A total of 51 cities had air quality worse than Grade III, accounting for 9.1% of the total cities monitored.⁴²

Air pollution leads to acid rain.⁴³ China is one of the world's countries that suffers from severe acid-rain contamination, which causes many environmental hazards, affects people's standards of living, and is harmful to their health. Central, southern, south-western and eastern China experience serious acid-rain impacts.

In conclusion, China is vulnerable to the impacts of sea-level rise, as it has a long continental coastline. Most of the relatively developed cities, including Shanghai, are situated along this coastline. Despite its huge territory, China still has a vulnerable ecosystem. This is due to the lack of arable land and forest, as well as the expansion of its deserts. The country is facing the challenge of reducing employment pressure caused by its huge population, coupled with increasing urbanisation. As the priorities for China at this stage are to reduce poverty and develop its economy, these goals will require more energy. This will inevitably lead to increased carbon emissions. China has relatively harsh climatic conditions, so inhabitants use more energy to maintain a relatively comfortable room temperature. Air pollution is a serious issue, and more efforts are needed to improve air quality. All of this clearly shows that China is under considerable pressure to reduce emissions without undermining its economic development.

40 See China Today.com (2008).

41 According to PRC (1996–2008).

42 PRC (2006a).

43 Acid rain is caused mainly by sulphur dioxide and mono-nitrogen oxides from burning coal and oil.

6. Energy Requirements

The demand and supply of energy are affected by economic growth and the structural change of the economic sectors. China has had a very high economic growth rate since the implementation of its Economic Reform and the Opening-up Policy.⁴⁴ China's annual GDP growth rate has remained at approximately 10% throughout the eight-year period from 2000 to 2010.⁴⁵ In particular, the GDP in 2007 reached ¥2.47 trillion, showing an 11.4% growth rate.⁴⁶ Moreover, it is predicted that this growth momentum will continue.⁴⁷

While China astonishes the world with its rapid economic development, the country is experiencing problems regarding energy and how to fuel its future economic growth. China will certainly require more energy: more electricity is required, for example, to advance industrial development and maintain living standards. Although the industrial structure has been improved through a series of policies that aim to restructure secondary industries and accelerate the development of tertiary industries, the ratio of secondary to tertiary industry remains seriously high in comparison with developed countries. In this scenario, great efforts should be made to optimise the structure of industry, on the one hand, and, on the other, to address the issue of increasing electricity and raw material requirements of the dominating secondary industry sector. Furthermore, as living conditions improve and urbanisation speeds up, more electricity will be required to maintain and raise living standards.

In addition, China's transportation sector is developing rapidly. In the early 1980s, private ownership of cars was very rare. This situation has changed as the country's economy has developed and rising incomes make

44 The programme of economic reforms in the People's Republic of China called *Socialism with Chinese Characteristics* started in December 1978 by pragmatists within the Communist Party of China led by Deng Xiaoping, and have been ongoing since the start of the 21st century. The goal of Chinese economic reform was to generate sufficient surplus value to finance the modernisation of the mainland Chinese economy; see http://en.wikipedia.org/wiki/Economic_reform_in_the_People's_Republic_of_China, last accessed 10 August 2012.

45 See Chinability, available at <http://www.chinability.com/GDP.htm>, last accessed 10 August 2012.

46 See the primary accounting of China's National Statistics Bureau, available at <http://www.stats.gov.cn/english/>, last accessed 10 August 2012.

47 (*ibid.*).

private cars more affordable to the growing middle class. According to a China National Statistics Bureau report, by 2001, China had 7.71 million private cars, a number which may increase to 140 million by 2020.⁴⁸ Under this scenario, the consumption of fuel for transportation will increase massively, together with the demand for energy, which will result in energy-related carbon emissions.

China has rich resources of coal, which is the country's main energy source. Historically, coal has supplied more than 70% of China's energy. It is reported that the share of coal in the country's primary energy mix was 76.2% in 1990, while the shares of oil, gas and hydro were 16.6%, 2.1% and 5.1%, respectively.⁴⁹ Coal combustion in China is responsible for 70% of its carbon dioxide emissions, 90% of its sulphur dioxide emissions, and 67% of its mono-nitrogen oxide emissions.⁵⁰ Thus, in facing the dual problem of drastic air pollution from coal combustion and international concerns regarding carbon emissions caused by coal use, China has realised that its long-term reliance on this resource is unsustainable. Hence, it began to reduce coal's dominance by increasing the share of other energy sources such as oil, nuclear, hydro, natural gas and other various forms of renewable energy. As a result, the share of coal in the total primary energy supply has gradually decreased.

Furthermore, low energy efficiency and high energy intensity, which are measured by the ratio of energy consumption to GDP, may compound China's energy problems. During 1977–1997, China's energy intensity declined by about 60%.⁵¹ However, until 2002, China's percentage increase in energy consumption – with increasing efficiency – was lower in relative terms than its economic growth rate. Still, the energy efficiency is relatively low compared with international energy consumption per unit of GDP. The ratio in 2005 was 0.91, which is 2.4 times higher than the global average, 4.9 times higher than in EU countries, and 8.7 times higher than in Japan.⁵² Furthermore, China's energy demands will continue to grow with advancing economic development. Accordingly, China has endeavoured to optimise its energy mix by developing low-carbon and renewable energy alternatives. However, due to its lack of clean technologies and the large amount of coal

48 See *China Daily*, 5 September 2004, China to Have 140 Million Cars by 2020.

49 PRC (2007:9).

50 Sinton et al. (2005:19).

51 Chandler et al. (2002:13).

52 Fu (2006:2).

reserves, in the short term, the country has not been able to completely change the fact that coal is the dominant primary energy resource.

Based on the above analysis, large demands for energy and the domination of coal will lead to increased carbon emissions in future in China. Despite China's increasing emissions, its historical and per capita GHG emissions are very low. According to a study carried out by the World Resource Institute, cumulative emissions in China accounted for 9.33% of the world total emissions during 1950–2002, and the cumulative carbon dioxide emissions per capita were 61.7 t over the same period, ranking China 92nd in the world.⁵³ Even when compared to earlier data, China's cumulative emissions remain relatively low. During 1950–2002, China contributed only 7.6% to worldwide cumulative emissions, while the US contributed 29.3%, and the 25-member EU 26.5%.⁵⁴ In addition, statistics from the International Energy Agency indicate that, per capita, carbon dioxide emissions from fossil-fuel combustion in China were 3.65 t in 2004, which is below the world average and equivalent to one third of the level in Organisation for Economic Co-operation and Development (OECD) countries.⁵⁵

In conclusion, the rapid development of China's economy has resulted in massive GHG emissions which will continue into the foreseeable future. Despite enormous efforts to improve environmental quality in general and the capacity for cutting emissions specifically, it is difficult for China to shift to a low-carbon-consumption society in the short term due to the lack of clean technologies and funding in China. In terms of this scenario, international assistance and cooperation with regard to reducing GHG emissions are of great importance to the country.

II. External Pressures: Post-Kyoto Negotiations

China was not subject to a binding emissions-cut target in the first Kyoto period (before 2012).⁵⁶ However, national circumstances have resulted in a rapid growth in both its economy and its emissions. In order to reduce emis-

53 Baumert et al. (2005:13).

54 (ibid.:14).

55 See Statistics and Balance, International Energy Agency, available at <http://www.iea.org/stats/index.asp>, last accessed 10 August 2012. The OECD comprises mostly developing countries.

56 Adapted from Jiang (2012).

sions, China has been actively participating in the United Nations (UN) post-2012 negotiations as well as in other arenas in which key countries meet to discuss the mitigation of global warming.

Throughout these climate change negotiations, China's position regarding the post-2012 regime has been clearly expressed. Firstly, China acknowledges the major role of the UNFCCC in the international community to structure a post-2012 regime, and insists on "the principle of common but differentiated responsibilities".⁵⁷ Secondly, China advocates reducing emissions with technical and financial support from developed countries rather than accepting mandatory emissions cuts in any post-2012 regime. Thirdly, China recognises the urgent need to address climate change and is willing to enter a range of domestic commitments, provided that real action is taken by the developed countries. China announced at the Copenhagen Climate Summit⁵⁸ that it would reduce its carbon intensity by 40% to 45% by 2020, based on 2005 levels. This essentially means that China will continue to grow, but will do so more efficiently and in ways that will feature reduced emissions.

Based on their national circumstances and specific interests, the various countries have adopted different positions regarding the post-2012 regime. Three different positions (elaborated below) are held by the following three groups: the EU, the 'Umbrella Group' (a group of developed countries excluding the EU), and the developing countries.

1. *The EU*

The EU sees itself as a champion in the fight against climate change, leading the world in legislation, technology and action regarding energy-saving and

57 The principle of common but differentiated responsibilities informs in particular the UNFCCC and the Kyoto Protocol. The principle has emerged as fundamental to international environmental law, and was explicitly formulated in the context of the 1992 Rio Earth Summit. Indeed, Principle 7 of the Rio Declaration provides its first formulation, as follows: "In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command".

58 Hereinafter *Copenhagen*.

emissions reduction. The EU has committed to reducing its GHG emissions by 20% by 2020, compared with 1990 levels.⁵⁹ Furthermore, it was considering raising the 20% target to a 30% cut in carbon emissions if a legally binding treaty for the post-2012 era was concluded.⁶⁰ Although the EU has committed to battling global warming with a binding target beyond 2012, it is watching the moves of the US and the major developing countries. It believes that the shift in economic weight for developing countries, as well as for the US, could impact on future approaches to global warming. The economic growth of developing countries, combined with relatively low economic growth rates in the EU, implies that the latter's relative share in global GDP, global energy demand (from 16.6% in 2001 to 12.5% in 2030),⁶¹ and global carbon dioxide emissions (from 14% in 2000 to 8% in 2050)⁶² will decrease, while the shares of developing countries will increase. As countries such as Brazil, China, India, Japan, Russia and the US will be the leading economies of the future and should be part of new commitments to address global warming,⁶³ the EU has urged them to set emissions reduction targets. Moreover, the European Commission (EC) has proposed freezing new demand for CDM projects in 2012 unless the major polluters like China, India and the US set emissions reduction targets.⁶⁴

2. *The Umbrella Group*

The Umbrella Group is a loose association of developed countries, which includes Australia, Japan and the US. These countries adopt similar positions regarding their reduction obligations in the post-2012 regime. Their medium-term emissions reduction targets for 2020 are low and are conditional upon the participation of the major developing countries.

59 Information Note on the UNFCCC, Council of the European Union, 15838/09 (11 November 2009), 2, available at www.consilium.europa.eu/uedocs/cmsUpload/ST15838_09.pdf, last accessed 8 August 2012.

60 (*ibid.*:6).

61 IEA (2004:59–80).

62 See EC (2005:35).

63 Perlot (2005:4).

64 See The World Bank (2008).

3. *The US*

The US is not only the largest and technologically most powerful economy in the world, but also possesses the largest share of historical emissions. Indeed, it ranks first in the world as regards per capita emissions levels. However, the economic growth of the US is not as rapid as that of the major developing countries such as China and India. The GDP growth rate in the US has been less than 3% for the four consecutive years from 2006 to 2009,⁶⁵ which means the increase in the demand for energy is lower than that of the major developing countries.

Despite its huge contribution to global carbon emissions, the US has not signed the Kyoto Protocol. The country has, however, become less negative as regards tackling climate change since President Barack Obama took office in January 2009. The Obama Government actively promotes new energy policies. The American Clean Energy and Security Act,⁶⁶ an energy bill that addresses climate change and establishes a version of a cap-and-trade plan for GHGs, was approved in June 2009. According to this Act, the US is empowered to impose carbon tariffs on imports from the countries that do not have limited emissions reduction targets. In spite of this active stance, the US still refuses to adopt the Kyoto Protocol. However, it has promised to commit to enhancing financial support for developing countries to address climate change in the context of mitigation actions by major developing countries being transparent.

4. *Japan*

Japan, one of the world's biggest emitters of GHGs, has a target under the Kyoto Protocol to cut its emissions by 6% from 1990 levels over the period 2008–2012. Meeting the Kyoto target may be difficult, however, as Japan's GHG emissions are set to rise over the next few years. With regard to the post-2012 regime, the Japanese Prime Minister stated that the country would assume responsibility for creating a post-2012 framework and setting a fair emissions reduction target for the world as a whole, including all the major polluter nations.⁶⁷ The 'sectoral approach' to reducing carbon emissions was

65 Trading Economics (2009).

66 American Clean Energy and Security Act of 2009.

67 Hatoyama (2009:3).

proposed.⁶⁸ Also, Japan seeks to design an emissions trading programme to help fight climate change after the Kyoto Protocol expires in 2012. Even though a target of reducing GHG emissions by 25% by 2020 against 1990 levels was announced in Copenhagen, it would be contingent on a deal involving all major emitters.⁶⁹

5. *Australia*

Australia, with 0.32% of the global population, contributes 1.43% of the world's carbon emissions.⁷⁰ Hence, it is not surprising that Australia's per capita emissions are higher in comparison with those of other developed countries. Australia's per capita emissions in 2004 were 4.5 times the global average, just below that of the US.⁷¹ Despite its large emissions on a per capita basis, Australia was granted a limitation of an 8% increase of the Kyoto target.⁷²

The Australian Government moved to ratify the Kyoto Protocol in December 2007. It had committed to reducing emissions by 60% on 2000 levels by 2050, and has actively tried to achieve and even better this target.⁷³ Measures taken by the government include the Renewable Energy Target Scheme to ensure that 20% of Australia's electricity supply comes from renewable sources by 2020, and the Emission Trading Scheme to slow the rise of carbon emissions.

68 The sectoral approach is to identify carbon-intensive industries such as power, steel, cement, transportation, and building and construction, and to set uniform, global efficiency norms and lower carbon-emission standards for each sector, which would add up to form a national target.

69 Hatoyama (2009:1).

70 Raupach (2007:3).

71 (*ibid.*).

72 The UNFCCC gives special consideration to some countries. Thus, Article 4, section 8(h) refers to "countries whose economies are highly dependent on income generated from the production, processing and export, and/or on consumption of fossil fuels and associated energy-intensive products". Australia belongs to this category as it is the world's largest coal exporter and is reliant on fossil fuel for transportation and energy.

73 See Ferguson (2008).

6. *The Developing Countries*

Copenhagen saw three demands from three groups based on their different interests:

- the Group of 77 (G77) and China⁷⁴
- the Small Island Developing States (SIDS), and
- the Topical Forest Group.

7. *The G77 and China*

The G77 includes most of the developing countries. Their positions are consistent with China's in that they agree on long-term cooperative actions on climate change, mitigation of emissions, adaptation to the impact of climate change, and provision of financial and technological support to developing countries.⁷⁵ In addition, the G77 have stated that the developed nations should honour their commitment to establishing and accomplishing the medium-term emissions reduction targets. Moreover, concerns of the least-developed countries, SIDS and African countries should be considered.⁷⁶

In addition, after China announced it would reduce its carbon intensity, India followed with an announcement of a 24% reduction by 2020.⁷⁷ India is regarded as another 'major emitter' due to its huge population and rapid economic growth, and is also the focus of negotiations to mitigate global warming for the post-2012 era. However, India does not consider itself a major emitter, arguing that neither the total volume of its carbon dioxide emissions nor its present per capita emissions serve to qualify it as such.⁷⁸

74 The Group of 77 at the UN is a loose coalition of developing nations, designed to promote its members' collective economic interests and create an enhanced joint negotiating capacity in the UN. There were 77 founding members of the organisation in 1964, but it has since expanded to include 134 member countries. China is not a member, although it does support the Group's claims.

75 CCTV.com (2009).

76 (ibid.).

77 Wiener (2009).

78 Saran (2008). Despite a population of 1.15 billion and a GDP growth rate of 8.5% in 2007, India's total emissions are 4% of the global figure. India emits about 1.1 t of carbon dioxide per capita, while the corresponding figure for the US is more than 20 t. Furthermore, India accounted for only 2% of the cumulative carbon dioxide emissions between 1850 and 2000.

India insists on the per capita standard, and emphasises the distinction between *lifestyle emissions* and *survival emissions* to address global warming issues.⁷⁹ Accordingly, India claims that it is not prepared to accept any limitation on its carbon emissions in the post-2012 period.

8. *Small Island Developing States*

Small Island Developing States (SIDSs) is another coalition of developing countries. It represents 43 developing island countries with low coastlines which are extremely vulnerable to sea-level rise caused by climate change. Facing this situation, they put forward Tuvalu's Proposals⁸⁰ at Copenhagen to call for a new, legally binding agreement to include commitments from the US. SIDS also brought up other issues, such as adaptation and finance, and claimed that global emissions should be reduced by 85% by 2050.⁸¹

9. *Topical Forest Group*

The Topical Forest Group is composed of rainforest countries in Africa and South America. These countries need the security of financial assistance to realise the objective of reducing deforestation by at least 50% by 2020.⁸² They stress the responsibility of developed countries to provide financial support.

10. *Summary of Key Points*

It can be concluded from the above that, firstly, most countries worldwide have recognised the urgency of reducing carbon emissions and are involved in the post-2012 negotiations. Although these negotiations have not been concluded, most countries have set their individual numerical targets for

79 (ibid.:78).

80 Tuvalu called for a discussion on what form the final deal from Copenhagen would take. The small island states put forward a proposal for a new protocol – in addition to the Kyoto Protocol – to include the commitments from the US. The proposal also addressed other issues such as adaptation and finance.

81 UN News Centre (2009).

82 FRG (2009).

addressing emissions reduction beyond 2012. Moreover, they are taking on, or have promised to take on, measures to reduce their domestic emissions.

Secondly, the divisions between developing and developed countries, and between the EU and the US, originate in different national interests and are shaped by different national circumstances. This is the root cause of different positions regarding the post-2012 regime.

Thirdly, the positions of China and the US play a decisive role in designing a post-2012 framework. China functions as a model for other developing countries. When China leads, other developing countries tend to follow. In addition, the position of the US influences the stance of other countries with regard to their obligations in the post-2012 regime.

Finally, the critical factor impeding the post-2012 negotiations is the division between developing and developed countries, especially between the US and China. The major developing countries, which have relatively low historical and per capita emissions to date, are expected to produce substantial emissions in the coming decades due to economic growth. By contrast, the major developed countries, which are the main contributors to current global warming, will decrease their share in global carbon emissions due to their relatively low economic growth rates. In this scenario, most developed nations believe that, for the next global agreement to be meaningful, it has to contain GHG reduction commitments from China, India and the other large developing economies. The developing countries, however, are reluctant to commit to specific targets because of the restrictive effects such targets may have on their economic development. Consequently, although the developed countries under the Kyoto Protocol are urging China and the US to accept mandatory emissions cuts in a post-2012 regime, neither of these two countries are willing to move on the issue.

In conclusion, with China overtaking the US as the largest carbon dioxide emitter, it is urgent for China to find a way to meet the huge challenge of reducing its carbon emissions beyond 2012 without undermining its economic development.

D. Feasibility of a Carbon Dioxide ETS in China

I. Policy Support

Although China has been the largest emitter of gases responsible for global warming and climate change, it – like other developing nations – has not

been bound by the Kyoto Protocol to reduce gas emissions. However, addressing climate change is regarded as one of the most important, long-term strategies for China's economic and social development. Thus, the following goals regarding the control of GHG emissions until 2020 were put before Copenhagen as China's contribution to international efforts to address climate change:

- Reduce carbon dioxide emissions per unit of GDP by 40–45% by 2020 compared with 2005 levels
- Increase the share of non-fossil fuels in primary energy consumption to around 15% by 2020, and
- Increase forest coverage by 40 million ha and forest stock volume by 1.3 billion m³ by 2020, compared with 2005.

China's attempts to address emissions have predominantly focused on administrative measures and legislation in areas such as energy efficiency and the feed-in tariff under its renewables law. Having adopted market mechanisms throughout its economy, China is now embracing carbon trading and is exploring provincial and/or city-based trading schemes.

Firstly, the ETS in China is supported by the latest of its five-yearly national socio-economic development plans. Faced with severe pollution, a predicted surge in urbanisation, and a struggle to ensure adequate energy supplies to fuel its rapid growth, China has outlined its intention to reduce carbon emissions in its 12th Five-year Plan,⁸³ which was endorsed by the National People's Congress on 14 March 2011. The Plan seeks to establish a "green, low-carbon development concept".⁸⁴ This is the first Plan to include a commitment to gradually introduce market mechanisms to control carbon pollution. China announced several new carbon and energy targets, namely to –

- increase the proportion of non-fossil fuels in energy consumption to 11.4% by 2015, from 2010 levels
- reduce energy consumption per unit of GDP by 16% by 2015, from 2010 levels, and
- reduce carbon dioxide emissions per unit of GDP by 17% by 2015, from 2010 levels.

83 Hereinafter *Plan*.

84 PRC (2011:29).

According to the Plan, China will establish low-carbon product standards, improve statistical accounting systems for GHG emissions, and introduce the “step by step establishment of carbon emission trading markets”.⁸⁵ The use of market mechanisms to incentivise energy savings is included in the Plan.

The Plan also prioritises “strategic emerging industries” for industrial innovation and development,⁸⁶ which include –

- energy efficiency technologies, recycling and waste management
- advanced nuclear, wind, solar, smart-grid and biomass energy, and
- hybrid and pure electric vehicles.

Secondly, the Working Strategy on controlling GHG emissions was released in 2011 by the National Development and Reform Commission (NDRC), with a commitment to realising the reduction goal under the Plan and in which attempts to establish a carbon emissions trading market are addressed. The first requirement is to establish project-based, national, voluntary ETSs, and implement mandatory, cap-and-trade, carbon emissions trading pilot schemes. A second requirement is the enhancement of the establishment of the supporting system for carbon emissions trading is expected to be enhanced.

The NDRC also designated 13 areas to operate a variety of pilot schemes as part of the country's commitment to reduce its emissions. In July 2010, the NDRC issued a policy paper entitled *Notification on Advancing the Low Carbon Pilot Projects on Province and City Level*. According to this paper, pilot schemes were to be deployed in five provinces⁸⁷ and eight cities.⁸⁸ Each of these provinces and cities was expected to develop its own plan to reduce emissions, and submit a strategy for developing a lower-carbon economy, some of which were expected to include carbon trading schemes for inclusion in the Plan.

Relevant government officials in those provinces and cities have promised to research and develop a low-carbon development plan to accelerate the establishment of an industry structure featuring low-carbon emis-

85 (ibid.:30).

86 (ibid.:10).

87 Guangdong, Hubei, Liaoning, Shaanxi and Yunnan.

88 Baoding, Chongqing, Guiyang, Hangzhou, Nanchang, Shenzhen, Tianjin, and Xiamen.

sions, and to actively promote low-carbon lifestyles and consumption patterns to reduce carbon emissions.

The NDRC also required these experimental areas to –

- clearly establish operational goals and specify tasks and measures to control local GHG emissions
- establish statistics and management systems for GHG emissions
- explore a mechanism to promote energy conservation and emissions reduction
- develop the low-carbon industry and implement a target-related responsibility system to control GHG emissions
- explore effective government guidance and economic incentive policies
- study and apply the market mechanism to achieve the emissions goals
- follow closely the latest technological advancements in the low-carbon field
- actively promote the introduction, absorption and innovation of technologies, and
- conduct joint research and development on new technologies with overseas companies.

It can be observed that a favourable political environment has been created in China for reducing carbon emissions and establishing a national ETS, as these issues have been placed high on the political agenda.

II. Case Studies on Sulphur Dioxide ETSs

Sulphur dioxide is one of the pollutants responsible for acid rain, which can damage forests and acidify lakes and streams, rendering some of them incapable of supporting aquatic life. Sulphur dioxide air pollution also causes respiratory and other health problems. Initially, a cap-and-trade system was imposed on sulphur dioxide emissions in the US in the context of acid rain reduction, under Title IV of the Clean Air Act amendments of 1990.

China's 11th Five-year Plan (2006–2010) established a mandatory sulphur dioxide emissions reduction target of 10%. To encourage sustainable reductions in sulphur dioxide emissions, the Chinese Government proposed that a market-based sulphur dioxide trading system be used to complement command-and-control instruments. The introduction of such a trading system provides a market-based mechanism to manage sulphur dioxide emissions at the lowest economic cost. The government sets a national emissions

cap before establishing an emissions trading platform, based on emission allowances allocated to sulphur dioxide emitters. Emission sources with excess reductions can then trade their allowances. The trading system operates to identify least-cost emission reductions. This cap-and-trade system complements existing policy initiatives to reduce sulphur dioxide emissions. To date, the national sulphur dioxide ETS has not been set up, but pilot sulphur dioxide trading projects at the city and provincial levels in China have provided valuable lessons for developing a carbon trading scheme. Additionally, sulphur dioxide emissions were reportedly reduced by 29% in 2010, compared with 2005 levels.⁸⁹ Therefore, it is necessary to conduct a case study on a sulphur dioxide ETS in China.

After careful preparations, a tradable permit system targeting sulphur dioxide emissions was launched in 2002. However, the performance of the sulphur dioxide ETS was disappointing. Three factors could have led to this situation. Firstly, no working regulation or law deals with the right to emit sulphur dioxide. The legal and ownership issues concerning sulphur dioxide emissions reduction are still uncertain. This deficiency does not provide appropriate protection for the legitimate interests and rights of the relevant parties.

Secondly, the financial penalty for not reducing sulphur dioxide emissions is too lenient, so companies do not take any real action to reduce them. In most cases, ¥30,000 is the maximum that a local government can impose on a company that does not reduce its sulphur dioxide emissions as required. Most companies in this situation are more likely to pay the fine than reduce their sulphur dioxide emissions because, if the company pays, it may be allowed to emit sulphur dioxide without restriction.

Thirdly, the enforcement capability of the local environmental agencies is unsatisfactory: economic issues are often more of a concern to local officials than environmental issues.

To summarise, it is not surprising that the pilot implementation of a sulphur dioxide ETS has failed to yield the desired outcome expected of a market-based instrument. As some observers have noted, the local environmental agency is still struggling with basic issues such as how to ensure compliance with environmental requirements, and how to achieve regulatory

89 *Xinhua News*, 12 November 2011, China to Pilot Carbon Emission Rights Trading Scheme: Economic Planner, available at http://news.xinhuanet.com/english2010/china/2011-11/22/c_131263322.htm, last accessed 12 December 2012.

independence.⁹⁰ Domestic motivation and the basic institutional prerequisites require further examination.⁹¹ As a result, the accomplishments achieved are not as inspiring as the lessons that can be learnt from the pilot.

III. CDM Experiences

As already mentioned, CDM is a voluntary, project-based carbon ETS for developing and developed countries.⁹² The first CDM project in China, the Huitengxile Windfarm Project in Inner Mongolia, was registered by the CDM Executive Board in June 2005 with credits purchased by the Dutch Government. Since then, China has dominated the global carbon market by participating in CDM projects, and has become the largest beneficiary. Further implications for China will derive from the implementation of CDM projects over several years.

Firstly, whether the projects are voluntary or mandatory, the enthusiasm of participants is of great significance. Initially, Chinese enterprises knew little about the CDM and its implications. In 2000, Peking University's Guanghua Management College conducted a CDM-related survey by questionnaire which targeted Chinese enterprises.⁹³ The results showed that only a few Chinese enterprises knew about the CDM and that they were not concerned about its influence. The main reason for this lack of understanding at the time was that people did not know what benefits the CDM could bring them. Subsequently, China's potential to implement the CDM has attracted developed countries to conduct CDM capacity-building projects in China, which, to some extent, would promote the development of the CDM in China and enhance CDM-related training and education for Chinese Government officials and researchers. However, local private-sector players in the CDM, whose involvement was potentially major, were neglected. At that time, there were few capacity-building projects at an enterprise level, and cooperation and communication on concrete CDM projects was rare. Conse-

90 See Morgenstern et al. (2004).

91 See Bell (2003).

92 Adapted from Jiang (2012).

93 "Chinese Enterprises' Understanding of the CDM", translation of 中国企业对 CDM 的理解, available at cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=41, last accessed 30 July 2012.

quently, most Chinese enterprises did not really understand the significance of the CDM, and thus did not participate in it.

Secondly, the government should pay attention to the scope of projects. The HFC-23⁹⁴ destruction projects were very popular in China because they had a short cycle time, they offered large volumes of credits for a low capital investment and low mitigation costs, and the additional assessments were relatively straightforward. In addition, it is estimated that China accounted for more than half of the global emissions of HFC-23.⁹⁵ Therefore, developing the HFC-23 CDM projects could bring more economic benefit to industries than would innovative technology to reduce HFC-23 emissions. Based on the above, most Chinese industries would rather apply for CDM projects with the current HFC-23 emissions level than reduce it. However, there is limited potential for these projects as a significant proportion of such projects is already in the CDM pipeline and, thus, cannot bring long-term benefits to China. Considering all of this, China began to attach great importance to the energy sector, primarily to renewable energy and energy efficiency.⁹⁶ The majority of registered and issued credits in China after 2007 began to be concentrated in this sector.

Thirdly, the measures for emissions trading play an important role in the carbon market. In 2005, the Chinese Government issued *Measures for the Operation and Management of CDM Projects in China*,⁹⁷ which is regarded

94 The compound HFC-23 (hydroflourocarbon) is generated as a waste gas in the manufacturing process of HCFC-22 (chlorodifluoromethane), which is a gas used as a refrigerant, as feedstock, and as a raw material for other products. It has a global warming potential 11,700 times greater than carbon dioxide. The UNFCCC and the Kyoto Protocol list HFC-23 as a major potential GHG, and one of the first types of projects established under the CDM was to invest in the destruction of HFC-23.

95 Ellis & Kamel (2007:10).

96 The Chinese Government issued *Measures for the Operation and Management of CDM Projects in China* in 2005. Article 4 of the Measures stipulates the following: "The priority areas for CDM projects in China are energy efficiency improvement, development and utilization of new and renewable energy, and methane recovery and utilization". In addition, the Chinese Government imposed different ratios of tax to encourage the energy sectors. Article 24 of the Measures stipulates that "(1) the Government of China takes 65 per cent CER [certified emission reduction] transfer benefit from HFC [hydroflourocarbon] and PFC [perfluorocompound] projects; (2) the Government of China takes 30 per cent CER transfer benefit from N₂O project; (3) the Government of China takes 2 per cent CER transfer benefit from CDM projects in priority areas and forestation projects".

97 Hereinafter *Measures*.

as a basic regulation guiding the implementation of CDM projects in the country. The Measures were revised in 2011, when a chapter entitled “Liability” was added to safeguard the smooth implementation of CDM projects.

Fourthly, information disclosure is another concern. Initially, when the CDM was being implemented in China, participants claimed that some of the information on the carbon market was not available. This caused them to lose the opportunity to find buyers, and undermined their confidence in implementing CDM projects.

Fifthly, another concern is the unsatisfactory performance of designated operational entities (DOEs). The emissions reduction needs to be certified by the DOE, which plays an important role in developing CDM projects as it decides directly on the successful registration of such projects, on the successful issuance of emissions reduction, and on the quantity of certified emission reductions (CERs) that can be issued. However, the current problems of the DOEs per se cause barriers to CDM projects in China. The DOE’s current staffing is too small to handle the rapid processing of an increasing number of CDM projects. The problem of insufficient staff is compounded by asymmetrical information. As a result, the CDM system relies on verifiers to validate the project developers’ claim. Many proposed CDM projects in China are delayed because of the wait for DOE validation. Moreover, the DOE’s performance is highly volatile, and there are questions about the qualification of its staff.

Finally, the carbon-trading-related service industry needs to be regulated. As mentioned previously, the CDM operational rules are extremely detailed and technical, and the CDM project owners do not usually have the necessary expertise, technical capacity or practical experience to successfully implement CDM projects in China. Consequently, they tend to resort to the CDM-related consultancy service agencies – and indeed, this service industry is deemed an indispensable part of the implementation of CDM projects in China. However, the CDM-related industry has no professional standardisation, so the quality of its services and the qualification of its staff cannot be guaranteed. This situation results in many problems within CDM projects, such as a low CER issuance rate, and great inconsistency between monitoring plans and operations in practice.

To address this situation, the *Important Declaration of Standardization of Consulting Service and Appraisal Work for CDM Projects in China*⁹⁸ was

98 Hereinafter *Declaration*.

issued by the Office of the Committee in February 2006.⁹⁹ The Declaration is mainly aimed at regulating the behaviour of CDM-related service agencies. It addresses issues such as concluding contracts with project developers for direct sharing of CERs, concluding contracts with project developers for direct sharing of CERs or the proceeds of transferred CERs upon project implementation, and other behaviours that violate the Measures.

As it is an inevitable and long-term trend to reduce carbon emissions through carbon trading, and as the CDM is developing rapidly in China, it is necessary to enact a series of comprehensive and compulsory professional standards for the CDM-related service industry. The Declaration has a limited binding effect in China and can no longer meet the demand caused by the development of CDM projects in the country. It is, therefore, urgent and necessary to set up legitimate and legally binding standards for the CDM-related service industry, with a view to regulating and ensuring quality of service and highly qualified staff.

IV. Case Studies on Carbon Dioxide ETSs

Voluntary carbon dioxide ETSs have already been trialled. These trials have provided valuable experience. China launched a carbon dioxide ETS, led by the China Beijing Environmental Exchange, the Shanghai Environment Energy Exchange, and the Tianjin Climate Exchange. All three exchanges were set up in 2009.¹⁰⁰ The Tianjin Climate Exchange established China's first comprehensive platform for enabling the transfer of credits for energy intensity, and aims to promote environmental protection and emissions reduction by means of market and financial measures. While the traded unit was a carbon emission credit, it was created on the back of a local energy efficiency scheme. The China Beijing Environmental Exchange created China's first voluntary emissions reduction standard, dubbed the *Panda Standard*, which will certify domestic environmental projects across a variety of industries, including forestry and agriculture. This is likely to lead to the creation of a number of offsetting projects and new projects which could lead to new investment opportunities.

99 PRC (2006b).

100 See Oster (2008:A11).

These exchanges build domestic platforms for carbon credit trading. International companies can come to China to buy carbon credit on the exchange. In the meantime, the public trading of carbon credits on the exchange could help China gain its pricing rights in the global carbon emissions market. On the other hand, China is a big user of carbon resources, but it is currently at the lower end of the carbon trading market, and its carbon finance market is relatively backward. Until now, China has been a seller of carbon credits, allowing Western companies and nations to offset their emissions by buying up the credits generated by environmental schemes in China. Now the world's largest emitter of GHGs is likely to emerge as a big buyer of the credits. According to the credit rating agency Standard & Poor's, the potential value for a domestic trading market in China is about £125 billion a year, nearly twice that of the entire global carbon trading market. This is because China's rapid economic expansion implies it will continue to produce large amounts of emissions. China is currently in keeping with predictions that it will account for a third of global emissions by 2030.

So far, however, these exchanges have only served as platforms for individual, small-scale deals.¹⁰¹ China's first voluntary carbon trade was agreed in 2009, when the Shanghai-based Tianping Auto Insurance Co. Ltd purchased credits generated in Beijing during the 2008 Beijing Olympics through the deployment of a green commuting campaign, where motorists could only drive on certain days. It is expected that the unsatisfactory situation will change, following the issuance in 2012 of the *Measures for Implementing a Voluntary Emissions Scheme in China*.

E. Key Issues of Carbon Dioxide ETSs

Based on the above analyses, as well as on domestic and international circumstances, it can be concluded that it is both necessary and feasible to implement a carbon dioxide ETS in China. Although a pilot programme is being carried out in different regions, the future of China's ETS is still uncertain. There are some key issues that need to be addressed before the establishment of a nationwide carbon market in China can be considered. These are discussed in the following subsections.

101 China Tells (2009).

I. Purposes and Principles

China is under considerable pressure to reduce carbon emissions without undermining its economy. According to the experience and practice of other countries, carbon dioxide ETSs have proved to be a cost-effective tool to reduce emissions. Therefore, China is attempting to establish a nationwide scheme for carbon dioxide emissions trading to promote the reduction of carbon dioxide emissions in a cost-effective and economically efficient manner. The objective of China's carbon dioxide ETS is to put in place the necessary infrastructure to develop a dynamic domestic carbon market. In order to realise this objective, the current plan is to establish regional carbon dioxide ETSs targeted for certain industries by 2013, after which regional carbon markets targeted for key industries will be established by 2015, and finally a national carbon market will be set up, commencing in 2015.

The establishment of China's emissions trading market will be based on the principles of –

- cost-effectiveness
- openness, impartiality and fairness
- state guidance and adapting measures to local conditions
- promoting outstanding features
- steady progress and gradual development, and
- combining government guidance with public supervision.

II. Mode of Emissions Trading: Cap-and-trade or Baseline-and-credit?

There are two modes of emissions trading: cap-and-trade, and baseline-and-credit. Under the former system, a government authority first sets a cap by deciding on the total emissions allowed. Next, companies are allocated credits – essentially permits to emit – based on their size, what industries they operate within, etc. If a company emits below its cap, it is granted credits which it may then trade with other companies. For companies which emit below their caps, a cap-and-trade system works well because they can sell their extra credits. Therefore, they make a profit while reducing their emissions. For companies which cannot get their emissions under control, this system penalises them for their excess emissions, yet it still brings their overall emission rates down. In a sense, the need to purchase credits acts as a fine, encouraging companies to reduce their emissions.

In a baseline-and-credit system there is no explicit cap on aggregate emissions. Instead, each company has the right to emit a certain baseline level of emissions which may be derived from historical emissions or from a performance standard that specifies the permitted ratio of emissions to output. Companies create emissions reduction credits by emitting fewer than their baseline emissions. These credits may be banked or sold to companies who exceed their baselines. The effect is to limit aggregate emissions to an implicit cap equal to the sum of the individual baselines. Typical baseline-and-credit plans also differ from classic cap-and-trade plans in a number of ways, e.g. credits are often computed on a project-by-project basis rather than on the basis of enterprise-wide emissions. They are also required to be certified and registered before they can be traded, and there are generally restrictions, e.g. credits cannot be registered until the emissions reduction has actually occurred. In operation, therefore, the baseline-and-credit system is more complex than the cap-and-trade system.

Based on China's national circumstances, and in accordance with the principles discussed above, it is appropriate for China to adopt a hybrid plan which combines the two systems, i.e. companies targeted for an ETS are divided into existing and new enterprises in a specific year. A cap-and-trade mode is adopted for existing companies, and a baseline-and-credit mode for new companies. The baseline-and-credit mode is to set a higher baseline level of emissions than that in a business-as-usual scenario. The new companies create emission reduction credits by emitting less than their baseline emission, and these credits may be banked or traded in the carbon market.

III. Targeted Industries

Three factors need to be considered when deciding which industries would be covered by China's ETS in its current phase:

- China's level of economic development
- The country's regional economic disparities, and
- The regional differences between the various industries, and their different emissions levels.

Based on the above-mentioned factors, China's ETS should cover carbon dioxide emissions from installations such as power stations, combustion plants, oil refineries and iron and steel works, as well as factories making cement, glass, lime, bricks, ceramics, pulp, paper and board. Nitrous oxide

emissions from certain processes would also be covered. Thus, the target industries may include the power industry, the chemical industry, the non-metal mineral processing industry, the metallurgy industry, transportation equipment manufacture, etc.

IV. Allocation of Emission Credits

The existing methods of apportioning carbon credits in the international carbon market include free allocation, auction, and mixed allocation. Each method has its own advantages and disadvantages. The free allocation method, for example, allows the large carbon emitters to obtain emission rights free of charge, reducing economic efficiency and undermining market competition. The auction method best ensures the efficiency, transparency and simplicity of the system, and creates the greatest incentive for investments in a low-carbon economy. It also complies best with 'The Polluter Pays' Principle, and avoids giving windfall profits to certain sectors that have passed on the notional cost of allowances to their customers despite receiving them for free. However, the auction method also has shortcomings in that it increases production costs, so companies often resist it. The mixed allocation combines free allocation with auction. Parts of the allowances are allocated for free, and other parts are allocated via auction.

As the originator of the ETS, the EU member states allocated at least 95% of the allowances free of charge for the three-year period beginning 1 January 2005, and at least 90% of such allowances free of charge for the five-year period beginning 1 January 2008. From 2013 onwards, the EU member states will gradually transfer the method of free allocation to one of auctioning all allowances which are not allocated free of charge.

China's ETS would follow the EU's example. Various regions would allocate all allowances free of charge by 2015. Once a national ETS is set up, China would allocate one part of the allowances free of charge, and the ratio of allowances allocated free of charge would gradually be reduced until all allowances are auctioned. The auctioning of allowances will become the basic principle according to which allocations would operate.

V. Other Key Issues

There are other key issues which need to be considered when designing domestic carbon markets. The competent authorities, as well as their responsibilities, should be clearly defined. Registry systems need to be set up to track changes in allowances. Offset mechanisms and linkage programmes should also be considered to promote the development of China's ETS. Incentives and penalty mechanisms also play an essential role in encouraging companies' enthusiastic participation.

F. Conclusion

As global warming emerges as one of the greatest challenges for humankind, carbon dioxide ETSs will become an increasingly universal instrument to reduce emissions. The Chinese Government has a strong political will to promote the establishment and development of a national carbon dioxide ETS. Indeed, China has adopted a pilot ETS programme and plans to establish a nationwide ETS in the near future. Having reviewed the international experience of carbon dioxide ETSs, as well as lessons learnt from pilot ETSs in China, it is considered both necessary and possible for China to establish a national carbon market, in spite of the practical difficulties and challenges it faces.

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Climate Change, Human Security and Regional Integration: The Example of the Southern African Development Community*

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Abstract

The Southern African Development Community (SADC) has been in existence for 20 years.¹ During this period, climate change² has made itself apparent in powerful ways. Observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level provide unequivocal evidence that the climate system is warming.³ As such, the phenomenon of climate change continues to be the subject of scientific and political debate. But how are climate-change-related concerns embedded in the legal and policy framework of the SADC? Two of the objectives behind the establishment of the SADC are the acceleration of development and economic growth, and the achievement of sustainable utilisation of natural resources and effective protection of the environment. The attainment of these objectives is hampered, and will continue to be hampered, by the impacts that climate change has on the environment, the

* This updated article is largely based on Ruppel & Ruppel-Schlichting (2012).

1 SADC was established in Windhoek in 1992 as the successor organisation to the Southern African Development Coordination Conference (SADCC), which was founded in 1980. SADC currently counts 15 states among its members, namely Angola, Botswana, the Democratic Republic of Congo (DRC), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, the Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe.

2 The definition for climate change which is used for the purpose of this article is that of the IPCC according to which “[C]limate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use”. See IPCC (2007c:Annex II).

3 IPCC (2007c:2).

people and the economy in the region. This article focuses on the linkages between climate change, human security and regional integration in the SADC.

A. Introduction

The SADC region is home to a large number of poor people; and although poverty in proportionate terms has been declining in most SADC countries, food insecurity, poverty and malnutrition remain major challenges to socioeconomic development.⁴ Climate change can be considered to be one of the drivers in this regard. The Intergovernmental Panel on Climate Change (IPCC) in its *Fourth Assessment Report* states that in southern Africa, food security, already compromised by a number of factors such as HIV/AIDS, poor governance and poor adaptation, is likely to be further aggravated by climate variability⁵ and change.⁶ Climate change is thus going to add to the already precarious conditions of people within the SADC, mostly the poor and vulnerable – which poses a major development challenge for all SADC countries. Moreover, climate change has, and will have, severe implications for the region's biodiversity on which mostly the poor, and more specifically women, depend for their survival.⁷ Assessments of water availability, including water stress and water drainage, show that parts of southern Africa are highly vulnerable to climate variability and change.⁸ Taking into consideration that large parts of the agricultural production derive from rainfed production systems susceptible to droughts and floods, the possible impacts of climate change cannot be overemphasised. As much as 70% of the population in the region depend on agriculture for food, income and employ-

4 SADC (2011b:iii).

5 According to the IPCC, '[C]limate variability refers to variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all spatial and temporal scales beyond that of individual weather events. Variability may be due to natural internal processes within the climate system (internal variability), or to variations in natural or anthropogenic external forcing (external variability)'. Cf. IPCC (2007c:Annex II).

6 Boko et al. (2007:451).

7 Ruppel (2011a:313).

8 Boko et al. (2007:451).

ment, and the agricultural sector contributes to more than 35% of the SADC regional economy.⁹

The aforementioned and many other factors are related to the encompassing concept of human security, which is severely affected by the impacts of climate change. Since SADC countries have a number of shared characteristics, regional cooperation has the potential and the responsibility to contribute to mitigating and adapting to the effects of climate change and to enhance human development and poverty reduction in all countries of the region.

In 2011 the 17th Conference of the Parties (COP17) to the United Nations Framework Convention on Climate Change (UNFCCC) and the 7th Session of the Conference of the Parties serving as the Meeting of the Parties (MOP7) to the Kyoto Protocol were held in Durban, South Africa. Already before this meeting it had become very clear that the SADC and the African continent needed to press for the opportunities presented under climate change negotiations to address questions about justice and distribution and thus to achieve better development aspirations.¹⁰ In this context, the draft decision -/CP.17, the so-called Durban Platform for Enhanced Action by the Conference of the Parties, sensibly recognised –¹¹

that climate change represents an urgent and potentially irreversible threat to human societies and the planet and thus requires to be urgently addressed by all Parties, and acknowledging that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response

The 18th Session of the Conference of the Parties to the UNFCCC and the 8th Session of the Conference of the Parties serving as the MOP to the Kyoto Protocol were held from 26 November until 8 December 2012 in Doha, Qatar. A number of decisions were adopted at this conference (the Doha Climate Gateway).¹² A second commitment period under the Kyoto Protocol

9 SADC (2011c:23).

10 Ruppel et al. (2011).

11 See http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_durbanplatform.pdf, last accessed 13 April 2013.

12 All decisions adopted by COP18 and CMP8 can be accessed at http://unfccc.int/meetings/doha_nov_2012/meeting/6815.php#decisions, last accessed 16 January 2013.

has been launched, with the end date being 2020.¹³ It has been agreed to work towards a universal climate change agreement covering all countries from 2020. Such agreement is to be adopted by 2015. Countries have furthermore agreed on ways and means to deliver scaled-up climate finance and technology to developing countries: in the Work Programme on Long-Term Finance it has for example been decided –¹⁴

to extend the work programme on long-term finance for one year to the end of 2013, with the aim of informing developed country Parties in their efforts to identify pathways for mobilizing the scaling up of climate finance to USD 100 billion per year by 2020 from public, private and alternative sources...

COP18 has also taken note of the first annual report of the Board of the Green Climate Fund to the Conference of the Parties and endorsed the consensus decision of the Board of the Green Climate Fund to select Songdo, Incheon, in the Republic of Korea, as the host of the Green Climate Fund, on the basis of an open and transparent process.¹⁵ Further key elements of the outcome included an agreement to consider loss and damage in developing countries, which are particularly vulnerable to the adverse effects of climate change.

B. Human Security and Climate Change: The Nexus

The issue of human security has already been addressed by the founders of the United Nations. However, the initial development of today's concept of human security can be attributed to the Human Development Report of the United Nations Development Programme in 1994, which formulated new dimensions of the idea of human security.¹⁶ According to this report, the concept of human security rests on two factors: the *freedom from fear* factor focuses on protecting individuals from violent conflicts and from denial of

13 However, some previously participating countries in the Kyoto Protocol have not joined the second period, namely Russia, Canada, New Zealand and Japan.

14 See UNFCCC Draft Decision -/CP.18 *Work Programme on Long-term Finance*, Advance unedited version, available at http://unfccc.int/files/meetings/doha_nov_2012/decisions/application/pdf/cop18_long_term_finance.pdf, last accessed 17 April 2013.

15 See UNFCCC Draft Decision -/CP.18 *Report of the Green Climate Fund to the Conference of the Parties and Guidance to the Green Climate Fund*, Advance unedited version, available at http://unfccc.int/files/meetings/doha_nov_2012/decisions/application/pdf/cop18_report_gcf.pdf, last accessed 17 April 2013.

16 UNDP (1994:24).

civil liberties and ensures freedom of expression and belief. The *freedom from want* factor emphasises satisfying the basic needs of individuals for food, shelter and clothing. A human security approach focusing on people as the prime referents of security is increasingly being integrated into policy-making and jurisprudence.¹⁷

Seven broad, interdependent components of human security were originally identified: economic security, food security, health security, environmental security, personal security, community security and political security. Climate change has impacts on all these components of human security, either directly or indirectly, as will be outlined in the following paragraphs.

It has been stated that “in no other continent are threats to human security more dire and the absence of protection infrastructure more conspicuous, than in Africa”.¹⁸ Undoubtedly, this assessment also applies to climate-change-related threats to human security. It should be pointed out beforehand that, despite Africa’s relatively low contribution to the world’s total greenhouse gas (GHG) emissions, Africa is one of the most vulnerable continents to climate change and climate variability.¹⁹ Climate change is expected to have impacts on various sectors including water, energy, health, agriculture, ecosystems, coastal zones, tourism, settlements, industry and infrastructure. But particularly, climate change and variability have the potential to impose additional pressures on human security along with many socioeconomic factors and to overwhelm adaptive capacities of societies in many world regions, including southern Africa. Interrelating issues between climate change and human security include water stress, land degradation and food insecurity, natural disasters and environmental migration, to name but a few.

C. Impacts of Climate Change on Various Components of Human Security: Some Hotspots

The most direct link between climate change and threats to human security is probably the aspect of environmental security, which aims to protect people from the short- and long-term ravages of nature, man-made threats to nature, and deterioration of the natural environment.²⁰ Other environmental

17 Abass (2010).

18 (ibid.).

19 Boko et al. (2007:435).

20 Bantekas (2010).

threats include non-access to clean water resources and air pollution. One major environmental security issue is global warming, caused by the emission of greenhouse gases.

The ultimate damages of climate change may significantly affect economic growth.²¹ The impacts on economic security as one aspect of human security are manifold. Economic security requires an assured basic income for individuals, usually from productive and remunerative work or, as a last resort, from a publicly financed safety net.²² The impacts of global warming on the agricultural sector in Africa are probably of the most direct and profound nature, compared to elsewhere. Water scarcity, for example, has a direct impact on many economic development initiatives in the agricultural sector, which is a vitally important sector in the economies of African countries, particularly for those, which are not oil-exporting. Climate change has economic impacts on crop and livestock farming systems: warmer and drier climates adversely affect net farm revenues, thus translating into worsening food security situations in those regions.²³

Another important component of human security is food security, which implies that all people should have access to sufficient, safe and nutritious food at all times.²⁴ The Food and Agricultural Organisation has estimated that, in sub-Saharan Africa, the proportion of undernourished people in the total population was 27% in the period 2006–2008²⁵ and, undoubtedly, climate change played a major role in this context. Although the extent and nature are uncertain, increasing temperatures and declining precipitation in Africa resulting from climate change are likely to reduce yields for primary crops in the next two decades. These are changes which will have a substantial impact on food security in Africa.²⁶ Periods of droughts and floods will affect food availability and food access.²⁷ It is predicted that the impacts of climate change such as sea-level rise, droughts, heat waves, floods and rainfall variation, could by 2080 push another 600 million people into malnutrition and increase the number of people facing water scarcity by 1.8

21 Lecocq & Shalizi (2007).

22 UNDP (1994).

23 Nhemachena et al. (2010).

24 FAO (1996).

25 FAO (2011).

26 Boko et al. (2007).

27 Ziervorgel et al. (2006).

billion.²⁸ Although the overall cereal production in the SADC has increased in recent years, the number of people requiring food and non-food assistance in this region is estimated to be 4.04 million.²⁹ Climate-related factors³⁰ that have contributed to food insecurity include erratic rainfall, dry spells and floods.

Health security aims to guarantee a minimum protection from diseases and unhealthy lifestyles. Africa is particularly vulnerable as regards health, as threats to health security are usually greater for poor people in rural areas, particularly children, owing to malnutrition and insufficient access to health services, clean water and other basic necessities. Major killer diseases could expand their coverage as a result of global warming. For example, an additional 220–400 million people could be exposed to malaria – a disease that already claims around 1 million lives annually.³¹ Other examples of climate-change-related threats to health security include the further spread of other infectious diseases, such cholera and meningitis.

Personal security aims to protect people from physical violence by states or individuals, while community security is concerned with protecting people from the loss of traditional relationships and values and from sectarian and ethnic violence. Political security addresses the question as to whether people live in a society that honours their basic human rights. All these factors are of relevance in terms of violent conflicts and migration. War and conflict are undoubtedly political reasons for migration. The effects of global warming could lead to increased border tensions and conflicts over food and water. The question whether a direct link exists between climate-related environmental variability and conflict has attracted much attention and debate. There seems to be consensus, however, that the environment is only one of several interconnected causes of conflict and is rarely considered to be the

28 UNDP (2008).

29 SADC (2011b:3f).

30 Further drivers regarding the vulnerability to food insecurity are high prices of fuel; high staple food prices; high prices of agricultural inputs; low incomes; low prices for some of the cash crops; civil unrest in eastern and central DRC; outbreak of livestock diseases and wildlife and human conflict in Namibia, Tanzania, Botswana and Angola (SADC 2011b:5ff.).

31 UNDP (2008).

most decisive factor.³² Environmentally induced migration³³ due to the effects of climate change is closely related to the concept of human security. People migrate either temporarily or permanently, within their country or across borders, and have an environmental signal in their reason for migration. Along with low-lying islands and coastal and deltaic regions, sub-Saharan Africa is one of the regions that would be affected by such population movements.³⁴ Environmental reasons for migration refer to environmental changes and natural disasters like floods or droughts. Three types of impacts of climate change on migration have been identified that seem most likely to have an effect on migration patterns: extreme weather events, sea-level rise and water stress.³⁵

The total number of displaced people in Africa increased from almost 700,000 in 2008 to 1.1 million in 2009, and 1.7 million in 2010.³⁶ To estimate the number of people who have migrated for climate-change-related reasons would, however, be speculative, as migration drivers are usually not mono-causal but influenced by multiple factors.³⁷ Besides war and conflict and environmental factors, further reasons for migration include responses to socioeconomic circumstances and pressures, for example unemployment, family dispersals or famine, as well as to institutional settings like intra-household structures, which may determine the gender aspect of migration.³⁸

Climate change impacts on size and characteristics of rural and urban human settlements in Africa. The problems associated with voluntary or involuntary environmentally induced migration to Africa's large and intermediate cities will be exacerbated as a result of climate change.³⁹ Migration flows can be observed away from flood-prone localities, as well as potentially large-scale internal and cross-border mobility away from agricultural zones undermined by changing climatic conditions or declining water avail-

32 Kolmannskog (2010).

33 The terminology with regard to environmentally induced migration is varying and inconsistent (see Warner (2010)) and creates conflicts of a legal nature, when it comes to the question as to whether or not a person can be classified as a refugee with the legal consequences of international refugee law.

34 Gemenne (2011).

35 (*ibid.*).

36 IDMC (2011).

37 Smith et al. (2011).

38 Grote & Warner (2010).

39 Ruppel (2011c).

ability.⁴⁰ Environmental and climatic stress not only increases existing inequalities between rich and poor, it also contributes to rural-urban migration on the African continent.⁴¹ In sub-Saharan Africa, climatic change is considered to be an important determinant of urbanisation, as climatic conditions force people out of rural areas into urban areas.⁴² African agriculture relies heavily on rainfall for watering of crops. The declining rainfall, droughts and floods have the potential of rendering agricultural lands unproductive and making rural settlements uninhabitable, which in turn affects the livelihoods of rural residents, forcing them to migrate to the urban areas.⁴³ As a result, African large and medium-sized cities experience extreme population growth. In 2009, almost 40% of Africa's total population of one billion lived in urban areas and it is estimated that Africa's collective population will become 50% urbanised by 2030 and 60% urbanised by 2050.⁴⁴

Africa has 37 cities with populations above one million, half of which are within low elevation coastal zones. Low-lying cities located on lagoons, estuaries, deltas or large river mouths, such as Maputo or the Cape Flats area of Cape Town are particularly vulnerable to extreme weather events caused by climate change. They are likely to experience storm surges, sea-level rises, increased flooding, (semi-)permanent inundation, coastal erosion, landslides, and the increase of water-borne diseases, which may all have devastating effects on human settlements, especially if no measures are taken to ensure risk reduction in terms of urban planning, land-use management and the quality of housing and infrastructure.⁴⁵ In this regard, the high risk for low-lying urban slums has to be pointed out. Although the proportion of urban slum dwellers is decreasing, informal settlements remain one of the major threats to African urban stability and, by extension, to overall political stability.⁴⁶ African inland cities are quite exposed to higher ambient temperatures and more frequent heat waves, with potential risk of water shortages, damage to infrastructure and desiccating vegetation, due to the impacts of climate change.

40 UN-Habitat & UNEP (2010).

41 Scheffran & Battaglini (2011).

42 Barrios et al. (2006).

43 Hope (2011).

44 UN-Habitat & UNEP (2010).

45 Mosha (2011).

46 UN-Habitat & UNEP (2010).

Climate change affects not only populations, but also infrastructure. Increased flooding, more frequent severe storms and rising sea levels increasingly influence the integrity of the built environment, including the supporting infrastructure consisting, amongst others, of roads, transport, water supply, sewers, energy, electrical grids and telecommunications. Depending on their location and nature of construction, buildings and supporting infrastructure are vulnerable to flooding and other extreme weather events, which increase the likelihood of landslides and building subsidence. Structures, especially those erected on clay soils, require enhanced construction standards for improved resistance and protection. These may include raised foundations, road strengthening and increased stormwater drainage capacity.⁴⁷

D. The Role of Regional Integration

The role that regional integration can play with regard to the impacts of climate change is as multifaceted as the concept itself. With reference to the Cotonou Partnership Agreement it has been proposed to define regional integration as –⁴⁸

the process of overcoming, by common accord, political, physical, economic and social barriers that divide countries from their neighbours, and of collaborating in the management of shared resources and regional commons.

The process of regional integration is thus characterised by arrangements for enhancing cooperation through regional rules and institutions entered into by states of the same region. Particular cornerstones of regional integration within the SADC are guided by the objectives as laid down in the constitutive legal document of the SADC, the SADC Treaty, which in its Article 5(a) identifies regional integration as a tool to “achieve development and economic growth, alleviate poverty, enhance the standard and quality of life of the people of southern Africa and support the socially disadvantaged”. This

47 (ibid.); Mosha (2011).

48 EC (2008:3).

and further objectives of the SADC⁴⁹ are all relevant in terms of human security in view of the complexity and versatility of the climate change phenomenon.

Some broad aspects of regional integration and their role in climate change mitigation and adaptation should be stressed: Economic development is probably at the core of most regional integration initiatives, including the SADC. The free movement of capital, labour, goods and services spur economic growth more effectively in larger and more harmonised markets. But what is the impact of international trade on the environment and climate in particular and vice versa? The general debate about *trade versus environment* has given rise to many polarising viewpoints.⁵⁰ What can be stated outright, however, is that trade has contributed to the development of today's industrialised nations and can be expected further to contribute to the economies of less developed countries, including African economies. Furthermore, it is beyond doubt that economic growth, as a result of trade, carries the risk of environmental degradation, particularly through, but not limited to, the production of goods. With regard to climate change, the IPCC in its last Assessment Report⁵¹ states that “[m]ost of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations”. The different sectors which contributed to the total anthropogenic GHG emissions in 2004 in terms of carbon dioxide (CO₂) include energy supply (25.9%), industry (19.4%), forestry (17.4%), agriculture (13.5%), transport (13.1%), residential and commercial buildings (7.9%), and waste and wastewater (2.8%),⁵² and are in one way or another all related to economic development resulting from trade. Conversely, climate change has the potential negatively to affect the ability to trade as a result of direct and indirect impacts on productive capacity, particularly in the agricultural sector in Africa owing

49 As listed in Article 5: “evolve common political values, systems and institutions; promote and defend peace and security; promote self-sustaining development on the basis of collective self-reliance, and the interdependence of Member States; achieve complementarity between national and regional strategies and programmes; promote and maximise productive employment and utilisation of resources of the Region; achieve sustainable utilisation of natural resources and effective protection of the environment; strengthen and consolidate the long standing historical, social and cultural affinities and links among the people of the Region”.

50 UNEP (2005).

51 IPCC (2007b:10).

52 Rogner et al. (2007:105).

to climate-change-related water stress, as “[t]he area suitable for agriculture and the length of the growing seasons and yield potential, particularly along the margins of semi-arid and arid areas, are expected to decrease”.⁵³ The two-way relationship between economic development and climate change, however, not only becomes apparent in terms of the negative effects that one might have on the other, but, in fact, cross-fertilisation between trade and climate change regimes may also create synergy effects, potentially beneficial for both in economic development and climate change mitigation and adaptation.

The stimulation of growth and income levels, for example, potentially enable nations to have opportunities to generate additional resources to address climate-change-related issues more effectively. The increasing awareness about the negative effects of climate change and the ongoing communication among international institutions, as well as the public dialogue, necessarily lead to the rethinking and eventually to adjustments of traditional frameworks. These also lead to fruitful discussions, for example, on new trade and climate-change-related measures such as carbon labelling or similar standards or regulations, or on the imposition of border carbon adjustments, which impose border taxes on the embodied carbon of imported goods, set at the level of equivalent domestic taxes.

Regional integration furthermore provides an opportunity to enhance political stability by establishing regional organisations which play an increasing role in defusing conflicts within and between countries and in promoting human rights. In terms of climate-change-related matters, such organisations are of the utmost relevance, especially when it comes to climate-change-related disaster management and environmentally induced migration. In this context, regional integration may serve as a tool to maintain political stability by building trust, enhancing understanding between groups and deepening interdependence.

Regional cooperation in climate-change-related matters, including knowledge and technology transfer, is another important link between regional integration and climate change. Besides addressing climate change per se, such cooperation can serve to confront further interrelated challenges of a transnational dimension, such as threats to food security, biodiversity and natural resources, and disease and pest control. One example in this regard is the ongoing energy deficit, in terms of which the considerable hydroelec-

53 IPCC (2007a:13).

tric, solar and wind energy potential existing in southern Africa can be collaboratively explored. Since several SADC countries share relevant resources, such as cross-border river basins, a regional approach is best suited to attract respective investment.

In the light of the fact that the global village, with international trade as one foundation stone, has become a reality, it is commendable that the trade versus environment debate has shifted towards the concept of mutual supportiveness between trade and environment or trade and climate change, even though it might – at a first glance – appear to be a forced marriage. Despite many uncertainties which may still surround the risks associated with climate change, it is indisputable that climate change is one of the greatest challenges of our time. It is not only reflected in many international agreements, but has also been emphasised by various political,⁵⁴ religious⁵⁵ and economic⁵⁶ leaders and heads of international organisations,⁵⁷ and last but not least by the SADC Summit in August 2011.⁵⁸ It is therefore

54 E.g. Jacob Zuma, Address to the Informal Ministerial Consultations on COP17 on 9 September 2011, available at <http://www.info.gov.za/speech/DynamicAction?pageid=461&sid=21490&tid=42441>, last accessed 16 September 2012; Barack Obama and Hu Jintao of China in a joint statement on 19 January 2011, available at <http://www.whitehouse.gov/the-press-office/2011/01/19/us-china-joint-statement>, last accessed 16 September 2012; and Angela Merkel on 24 January 2007 at the World Economic Forum in Davos, see http://www.bundesregierung.de/nn_916176/Content/DE/Bulletin/2007/01/07-3-bk-davos.html, last accessed 16 September 2012.

55 “Preservation of the environment, promotion of sustainable development and particular attention to climate change are matters of grave concern for the entire human family” (Pope Benedict XVI, Letter to the Ecumenical Patriarch of Constantinople on the Occasion of the Seventh Symposium of the Religion, Science and the Environment Movement, 2007, available at http://www.vatican.va/holy_father/benedict_xvi/letters/2007/documents/hf_ben-xvi_let_20070901_symposium-environment_en.html, last accessed 16 September 2012).

56 E.g. Bill Gates, chairman and former chief executive of Microsoft at the occasion of the launch of the report titled *A Business Plan for America's Energy Future* on 10 June 2011: “The world faces many challenges, but none more important than taking immediate and decisive action to develop new, inexpensive clean-energy sources that avoid the negative effects of climate change”.

57 Including United Nations Secretary-General Ban Ki-moon at the opening of the United Nations General Assembly on 23 September 2009; and jointly by Director-General of the WTO Pascal Lamy and Executive Director of UNEP Achim Steiner, in the joint report (WTO & UNEP (2009)) by the WTO and UNEP on Trade and Climate Change in 2010.

58 SADC (2011a).

of particular relevance to analyse how the SADC links its regional integration agenda to climate-change-related issues.

E. The SADC Climate Change Agenda

It should be stated in advance that up to the present time, the SADC does not have a specific agenda on climate change per se,⁵⁹ though several of its provisions address climate change either directly or indirectly, and the current institutional structure supports climate-change-related action to a certain extent.

As briefly sketched in the paragraphs above, interrelating issues pertaining to climate change include water stress, land degradation, food insecurity, health insecurity and environmentally induced migration, amongst many others. As such, the negative effects of climate change, and thus climate change adaptation and mitigation, must be analysed against the backdrop of SADC environmental law in its entirety. Although the number of climate-change-related programmes and initiatives⁶⁰ is increasing in the SADC, much still needs to be done in the region when it comes to the implementation and enforcement of policy and law.

The SADC region is particularly vulnerable with regard to the impacts of climate change as it is one of the poorest in the world and has experienced unusual weather patterns over the past years in terms of drought and flooding.⁶¹ This has, inter alia, led to destruction of habitats, loss of crops, livestock and settlements, as well as to displacement of people and, concomitantly, to an increase in poverty. Predicted impacts associated with temperature increases include a further rise in sea levels, changes in precipitation patterns, and the resultant threat to food security and sustainable development in general, with more people being caught up in the poverty trap – especially in developing countries whose economies are particularly sensitive and vulnerable. It is also expected that the water side of climate change is likely to generate a significant impact on national and global economies; and it is not unlikely that this will result in increased local and international

59 The SADC Climate Service Centre is still very weak in terms of capacity.

60 An overview of subregional climate change programmes in Southern Africa can be found in Chishakwe (2010).

61 Haensler et al. (2010:2).

conflict.⁶² The interconnectedness and interdependence of water, energy, national welfare and international economies becomes clearer, as the deleterious effects of climate change progress around the world.⁶³

In the forest sector, the SADC member states have decided on a participatory process to develop a programme that addresses the common problems of deforestation and degradation in the region and to formulate joint climate change mitigation measures in order to contribute to the sustainable management of the forests within the SADC and to facilitate poverty reduction and sustainable development. To this end, the SADC ministers responsible for Environment and Natural Resources Management have approved the SADC Support Programme on Reducing Emission from Deforestation and Forest Degradation (REDD+)⁶⁴, a programme to support member states in their efforts to combat climate change and achieve their development goals through reduced emissions in the forestry sector. A comprehensive framework for the region to participate actively in and benefit from the carbon market is provided, which will contribute to the social and economic development in the member states.

In the absence of a clear climate change agenda on the SADC level, it is commendable that the SADC Summit⁶⁵ underscored the importance of the multilateral dialogue in addressing challenges posed by climate change.

F. Relevant SADC Law

The SADC Treaty as amended by the SADC Amendment Treaty is the constitutive document from which all subsequent instruments are derived. En-

62 Scholtz (2010).

63 This has for example been addressed at the 32nd SADC Energy Ministers Meeting held in Gabarone, Botswana in May 2011, where Isak Kitali emphasised that the SADC region needed to seriously address the challenges of the diminished surplus power generation capacity. It was also stated that there was need to ensure that the solutions that are pursued will result into sustainable energy development in the region. See <http://www.sadc.int/news/32nd-sadc-energy-ministers-meeting> last accessed 16 September 2012.

64 The programme was approved during the SADC Ministerial Meeting in Windhoek, Namibia on 26 May 2011. See <http://www.sadc.int/REDD/index.php/document-bank/documents/>, last accessed 16 September 2012.

65 At the 31st Ordinary Summit of SADC Heads of State and Government held in August 2011 in Luanda, Angola.

suing legal instruments are the SADC protocols⁶⁶ and legally non-binding instruments such as memoranda of understanding,⁶⁷ other agreements,⁶⁸ charters⁶⁹ and pacts.⁷⁰

In view of the heterogeneity of SADC member states in terms of surface area, population figures, size of domestic markets, per capita incomes, endowment with natural resources, social and political situation, and also in respect of variety of legal systems applied,⁷¹ it is of increasing significance for the SADC member states to harmonise the law by means of implementation and transformation of SADC protocols aiming to reduce or eliminate the differences between national and SADC community law.⁷²

I. The SADC Treaty

The SADC was established by signature of its constitutive legal instrument, the SADC Treaty.⁷³ In terms of the SADC community law, the SADC Treaty is the highest source of law within the SADC's legal framework. In its preamble, the SADC Treaty determines, inter alia, to ensure, through common action, the progress and well-being of the people of southern Africa, and recognises the need to involve the people of the SADC region centrally in the process of development and integration. The SADC envisages "... a

66 SADC protocols are legal instruments of implementation of the SADC Treaty and it is required that two-thirds of member states ratify a protocol before it becomes legally binding.

67 A Memorandum of Understanding (MoU) is a preliminary legal document describing an agreement between parties.

68 An agreement is a less formal document dealing with a more specific subject, or narrower range of issues, than a protocol. It is generally used for outlining technical or administrative areas of cooperation. One such example is the Agreement on the Establishment of the Zambezi Watercourse Commission.

69 A charter is a document incorporating an institution and specifying its rights, privileges and responsibilities. It usually includes the set of principles that form the constitution of the organisation.

70 A pact is similar to an agreement, although its contents are usually defence or security related.

71 Ruppel-Schlichting & Ruppel (2011:305-307).

72 Ruppel (2011b:62ff).

73 The consolidated text of the SADC Treaty as amended is available online at <http://www.sadc.int/english/key-documents/declaration-and-treaty-of-sadc/>, last accessed 16 September 2012.

common future, a future in a regional community that will ensure economic well-being, improvement of the standards of living and quality of life, freedom and social justice, and peace and security for the peoples of southern Africa.” This shared vision is anchored on the common values and principles and the historical and cultural affinities that exist between the peoples of southern Africa.⁷⁴

To this end, the SADC’s objectives include the achievement of development and economic growth, the alleviation of poverty, the enhancement of the standard and quality of life, support of the socially disadvantaged through regional integration, the evolution of common political values, systems and institutions, the promotion and defence of peace and security, and the achievement of the sustainable utilisation of natural resources and the effective protection of the environment.⁷⁵ Amongst other aspects, food security, land and agriculture, and natural resources and the environment have been identified as areas of cooperation by the SADC Treaty (Article 21.3).

II. The SADC Protocols

Besides the aforementioned general provisions and objectives in the SADC Treaty, the SADC legal regime becomes responsive to climate-change-related concerns in various other legal instruments as well. One category of such documents constitutes the SADC protocols. The protocols are instruments by means of which the SADC Treaty is implemented, and they have the same legal force as the SADC Treaty itself. The protocols of particular relevance for climate change will briefly be introduced in the following paragraphs.

1. The Protocol on Energy

Energy is a defining issue and closely linked with key contemporary global challenges in the SADC region: social development and poverty alleviation, environmental degradation, climate change, food security, etc. Better energy efficiency plays an important role in sustainable growth and development and can produce substantial benefits both for global economic growth and

74 For SADC’s vision see <http://www.sadc.int/>, last accessed 16 September 2012.

75 These are some of the SADC objectives laid down in Article 5 of the SADC Treaty.

poverty reduction as well as for mitigating climate change. In the household sector, efficient use of energy can directly reduce household expenditure on energy services, and therefore directly help to reduce poverty.

The Protocol on Energy⁷⁶ strives to outline means of cooperation in the development of energy to ensure security and reliability of energy supply and the minimisation of costs. The protocol does not explicitly refer to climate change. However, it is emphasised that development and the use of energy must be environmentally sound (Article 2.8). To achieve this objective, the Guidelines for Cooperation annexed to the protocol *inter alia* propose cooperation in the development and utilisation of energy in the sub-sectors of wood fuel, petroleum and natural gas, electricity, coal, new and renewable energy sources, and energy efficiency and conservation. The protocol formulates the intention to promote increased production of new and renewable sources of energy in an economically and socially acceptable manner, including biogas, windmills, mini-hydroplants, passive solar design of buildings, and photovoltaic, solar thermal and solar stoves and water heaters. The development of national energy efficiency and conservation plans is encouraged.

On the basis of the SADC Treaty and the Protocol on Energy, the SADC Energy Corporation Policy and Strategy (1996), the Energy Action Plan (1997) and the Energy Sector Activity Plan (2000) have been drafted in order to –⁷⁷

position the energy sector such that the region can derive maximum benefits from a rationalisation of resources and facilities in the region, and to develop initiatives that contribute to building the capacity of energy institutions in the region to participate effectively in future liberalisation of the energy sector, as well as in the regional economy.

Conducive policies are central to the development of sustainable energy generation and markets. Laws governing sustainable energy development and supply cut across many sectors such as mining, forestry, agriculture, environment, water, industry, electricity and petroleum, and hence require coordination – a complex challenge that is not easily overcome. The energy sector and the provision of electricity for southern Africa's population and industries make for a complex issue. Although the protocol aims to achieve

76 The Protocol entered into force on 17 April 1998. Text available http://www.tralac.org/wp-content/blogs.dir/12/files/2011/uploads/20060623_protocol_energy.pdf, last accessed 16 September 2012.

77 SADC (2009).

cooperation regarding new and renewable energy resources, amongst others, the influence of climate change is not included in the equation. In southern Africa, most CO₂ emissions are caused by the burning of fossil fuels (liquid fuels and especially coal in the thermal power stations of South Africa) and deforestation.⁷⁸ If the SADC intends reducing its GHGs, a transition to sustainable energy is essential. This requires redefining the region's competitive advantage and moving away from attracting energy-intensive sectors on the basis of non-renewable energy (e.g. coal) to building a new advantage around climate friendly technology and energy. What remains a challenge is how emerging regional and national legislation can harmonise and coordinate the work around the issues of sustainable energy. Cross-sectoral coordination and responsibilities need to be streamlined in order to assure that decision-making promotes energy security in the region through more effective energy trade mechanisms in future. In the same context, policy-makers and government officials need to be capacitated to translate international policy to national and local levels, and vice versa. Further emphasis needs to be placed on linking national, regional and international policy-making.

2. *The Protocol on Forestry*

In maintaining the Earth's climate, forests play a crucial role as they are effective sinks for the carbon dioxide produced as a result of animal respiration, burning of fossil fuels, and other natural and human-induced phenomena, and release oxygen into the atmosphere. Moreover, forests are home to the majority of terrestrial biodiversity; they provide water, food and shelter, and the livelihoods of many people depend on forests. Sustainable forest management can therefore contribute significantly to sustainable development and human security; and regional approaches towards policy harmonisation and transboundary forest conservation and sustainable use concepts are important mechanisms to attain regional integration.

Within the SADC region, forests cover an area of 357 million hectares, corresponding to about 33%.⁷⁹ The basic regional policy for sustainable

78 Chishakwe (2010).

79 See <http://www.sadc.int/fanr/naturalresources/forestry/management.php>, last accessed 16 September 2012.

management of forests in the SADC region is the Protocol on Forestry⁸⁰. It is a set of rules or principles agreed upon by the SADC member states on how to integrate and cooperate among themselves in order to jointly conserve and manage the SADC forests and woodlands for the benefit of the SADC people.

The protocol recognises the transboundary nature of forests, the importance of transboundary management strategies, and the vital role of forests in protecting water catchments, particularly of shared water courses; and understands that potential harm to these forests is not limited by national boundaries. According to Article 3(1)(f) of the protocol, one of the objectives is “effective protection of the environment” and the ways listed to achieve the objectives include “harmonising approaches to sustainable forest management, forest policy, legislation and enforcement”. The guiding principles include the obligation of state parties to “facilitate, promote and continually improve policy and legal frameworks that promote sustainable forest management” (Article 4(4)).

Recognising the essential role which forests play with regard to maintaining the earth’s climate, controlling floods and erosion, and as sources of food, wood and other forest products, the protocol’s primary objective is to promote the development, conservation, sustainable management and utilisation of all types of forests and forest products in order to alleviate poverty and generate economic opportunities. To this end, the protocol in Article 3(2)(a) *inter alia* addresses issues of common concern including deforestation, genetic erosion, climate change, forest fires, pests, diseases and invasive alien species, and deals with law enforcement.

Furthermore, states are called upon to facilitate the gathering and monitoring of information, and the sharing and dissemination of information, expertise and technology concerning forests; and to harmonise approaches to sustainable forest management, forest policy, legislation and enforcement, and issues of international concern. State parties are encouraged to undertake national forest assessments, which should, amongst others, include data on climate, environment and uses of forest products (Article 9). However, such assessments are subject to the availability of funds and human resources. Trade and investment are to be promoted based on the sustainable management and utilisation of forests and the rights of communities are to be

80 The Protocol entered into force on 17 July 2009. Text available at http://www.tralac.org/wp-content/blogs.dir/12/files/2011/uploads/20060623_protocol_forestry.pdf, last accessed 16 September 2012.

strengthened by facilitating their participation in forest policy development, planning and management. The protocol emphasises that traditional forest-related knowledge must be protected and requires mechanisms to ensure the equitable sharing of benefits from forest resources.

3. *The Protocol on Health*

Health largely depends on a minimum protection from diseases and unhealthy lifestyles. Many people in southern Africa are particularly vulnerable to health threats. These threats are usually greater for poor people in rural areas, particularly children, women and indigenous groups and arise from (situations of) malnutrition, insufficient access to health services, lack of clean water and other basic necessities.⁸¹

The adverse impacts of climate change on health, combined with poverty, poor policy and institutional frameworks, make Africa one of the most vulnerable continents to climate change and climate variability. The Protocol on Health⁸² was adopted primarily in order to enhance cooperation in addressing the health problems and challenges facing member states through effective regional collaboration and mutual support. The protocol does not explicitly refer to climate change. However, as a clean environment can provide best for the health of the region's population, state parties undertake to collaborate, cooperate and assist each other in a cross-sectoral approach in addressing regional environmental health issues and other concerns, including toxic waste, waste management, port health services, pollution of air, land and water, and the degradation of natural resources (Article 23).

4. *The Protocol on Mining*

The SADC region is extremely rich in natural resources, including minerals, which can contribute to accelerating the economic and social development and growth. The mining industry in the SADC contributes about 60% of foreign exchange earnings and 10% of gross domestic product and the share

81 UNDP (2008).

82 The Protocol entered into force on 14 August 2004. Text available http://www.tralac.org/wp-content/blogs.dir/12/files/2011/uploads/20060623_protocol_health.pdf, last accessed 28 April 2013.

of mineral exports in total exports in the SADC accounted for 29.1 % in 2006.⁸³ On the one hand, the mining industry is vulnerable to climate change as reduced water levels or severe floods may negatively affect mining activities. On the other hand, mining activities may have a negative impact on climate owing to related deforestation, land degradation and the release of emissions into air, soil and water. It is therefore of utmost importance for SADC states to ensure a balance between mineral development and environmental protection. The Protocol on Mining⁸⁴ strives to harmonise national and regional policies and strategies related to the development and exploitation of mineral resources through developing human and technological capacity, including collaboration between the mining industry and training institutions. The protocol takes up the issue of environmental protection in Article 8, which encourages member states to “promote sustainable development by ensuring that a balance between mineral development and environmental protection is attained”. Measures to ensure environmental protection include environmental impact assessments (especially in shared systems and cross-border projects), and sharing information on environmental protection and rehabilitation.

5. The Revised Protocol on Shared Watercourses

Southern Africa is projected to suffer a decrease of water resources due to climate change. Higher water temperatures and extreme weather events resulting in droughts and floods will affect water quality and exacerbate water pollution. Moreover, changes in water quality and quantity resulting from climate change are expected to lead to decreased food security and increased vulnerability of the rural poor.⁸⁵ Water resources management is therefore required in order to develop suitable mitigation and adaptation strategies. The Revised Protocol on Shared Watercourses⁸⁶ amends and clarifies the

83 Twerefu (2009).

84 The Protocol entered into force on 10 February 2000. Text available at http://www.tralac.org/wp-content/blogs.dir/12/files/2011/uploads/20060629_protocol_mining.pdf, last accessed 28 April 2013.

85 Bates (2008).

86 The Protocol entered into force on 22 September 2003. Text available at http://www.tralac.org/wp-content/blogs.dir/12/files/2011/uploads/20060629_protocol_shared_watercourses.pdf, last accessed 28 April 2013.

text of the previous Protocol on Shared Watercourse Systems⁸⁷. The scarcity of water restricts “economic development and social upliftment” in the SADC region.⁸⁸ Successfully managing water resources in southern Africa will contribute to reaching the SADC’s vision of sustainable development in the region.⁸⁹

The people of southern Africa call for a desirable future in which the region’s environment is conserved among all the competing uses of water, recognising the constraints inherent in natural ecosystems so that the environment can be sustainably improved, used and managed in the spirit of social and environmental justice.

This protocol recognises international consensus on a number of concepts and principles related to water resource development and management in an environmentally sound manner. The protocol acknowledges the Helsinki Rules, the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses and Agenda 21 concepts, and facilitates the establishment of shared water agreements.⁹⁰

The protocol does not explicitly refer to climate change but aims to foster closer cooperation for judicious, sustainable and coordinated management, protection and utilisation of shared watercourses and advance the SADC agenda of regional integration and poverty alleviation. In order to achieve the objective, this protocol, by virtue of Article 2, seeks to promote and facilitate the establishment of shared watercourse agreements and shared watercourse institutions for the management of shared watercourses;⁹¹ to advance the sustainable, equitable and reasonable utilisation of the shared watercourses; to promote coordinated and integrated environmentally sound development and management of shared watercourses; to promote the harmonisation and monitoring of legislation and policies for planning, development, conservation, protection of shared watercourses, and allocation of the resources thereof; and to promote research and technology development,

87 Text available at http://www.tralac.org/wp-content/blogs.dir/12/files/2011/uploads/20060629_protocol_shared_watercourse_systems.pdf, last accessed 28 April 2013.

88 SADC (2011d).

89 (ibid.).

90 Ruppel & Bethune (2007).

91 Various bilateral and multilateral water commissions within the SADC region have been established, such as the Permanent Okavango River Basin Water Commission (OKACOM); the Zambezi River Commission (ZAMCOM); the Permanent Water Commission (PWC); and the Orange-Senqu River Commission (ORASECOM).

information exchange, capacity building, and the application of appropriate technologies in shared watercourses management.

Recognising the principle of the unity and coherence of each shared watercourse, the SADC states undertake to harmonise the water uses in the shared watercourses, to ensure that all necessary interventions are consistent with the sustainable development of all watercourse states, and to observe the objectives of regional integration and harmonisation of their socio-economic policies and plans.

State parties are obliged to respect the existing rules of customary or general international law relating to the utilisation and management of the resources of shared watercourses. According to Article 3.4 of the protocol, state parties commit themselves to maintaining a proper balance between resource development for a higher standard of living for their people, and to conservation and enhancement of the environment to promote sustainable development.

Of particular relevance with regard to climate-change-related concerns is Article 4 on planned measures; environmental protection and preservation; management of shared water resources; prevention and mitigation of harmful conditions; and emergency situations. Watercourse states undertake, in their respective territories, to utilise a shared watercourse in an equitable and reasonable manner, taking into account the interests of other watercourse states concerned, consistent with adequate protection of the watercourse for the benefit of current and future generations, and to participate in the use, development and protection of a shared watercourse in an equitable and reasonable manner. Such participation includes both the right to utilise the watercourse and the duty to cooperate in the protection and development thereof, as provided in this protocol. Furthermore, state parties have to take all appropriate measures to prevent the causing of significant harm to other watercourse states. Where significant harm is caused to another watercourse state, the state whose use causes such harm is to take all appropriate measures to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation.

Even though climate change is not explicitly mentioned in the protocol, it should be noted that at the meeting of the Committee of SADC Water Ministers in Maseru, Lesotho, in September 2011, it was stated that –⁹²

92 Opening Remarks by the Deputy Executive Secretary – Regional Integration Engineer Joao Caholo at the SADC Ministers Responsible For Water Meeting and the Regional Strategic Water Infrastructure Investor/Donors Conference. See <http://www>.

climate change has also seen us facing more intense and frequent extremes of weather such as droughts and floods, thus necessitating coordinated management of our shared water courses and resources. For the SADC region with its multiplicity of shared watercourses, issues of cooperation and joint planning and management of the development and utilisation of our shared resources is of paramount importance.

6. *The Protocol on Trade*

As stated earlier, a two-way relationship exists between trade and climate change. Trade may have a negative effect on the greenhouse gas status, for example, by increasing emissions through production and transportation; while climate change, on the other hand, may affect production patterns and international trade flows, for example, by giving rise to water shortages or extreme weather events. Climatic or geophysical conditions which might constitute a comparative advantage for specific countries today may in future alter as a result of climate change and lead to shifts in the pattern of international trade. Furthermore, climate change may “increase the vulnerability of the supply, transport and distribution chains upon which international trade depends”.⁹³ As such, trade and climate-change-related policies need to be drafted and implemented in a mutually supportive way. So far, climate change has not explicitly been anchored in the primary legal trade instruments – neither within the legal framework of the World Trade Organisation (WTO)⁹⁴ nor by the SADC Protocol on Trade.⁹⁵

The primary objective of the latter is to liberalise intraregional trade in goods and services to ensure efficient production within the SADC, reflect-

sadc.int/files/1013/1678/2942/REMARKS_BY_DES_AT_SADC_MINISTERS_OF_WATER_MEETING_and_DONORS_CONFERENCE_MASERU_SEP_2011_22h00.pdf, last accessed 16 September 2012.

93 WTO & UNEP (2009).

94 “The WTO does not have a specific agenda on climate change per se, though several of its provisions and work in some of its Bodies overlaps with steps required to address climate change”, stated by WTO Deputy Director-General Harsha V. Singh in his opening address at the at the Trade and Climate Change Symposium, organised jointly by the International Centre for Trade and Sustainable Development (ICTSD), the WTO and the South African Department of Trade and Industry, in Durban, South Africa on 5 December 2011. See http://www.wto.org/english/news_e/news11_e/en_vir_05dec11_e.htm, last accessed 29 August 2012.

95 Text available at http://www.tralac.org/wp-content/blogs.dir/12/files/2011/uploads/20060623_protocol_on_trade.pdf, last accessed 28 April 2013.

ing the dynamic comparative advantages of its members states, contributing towards the domestic, cross-border and foreign investment climate, and enhancing the development, diversification and industrialisation of the region. Environmental conservation in general, however, is integrated (in comparable style as it has been done within GATT Article XX) in that the protocol provides for general exceptions from the protocol's principles in order to ensure the conservation of exhaustible natural resources and the environment (Article 9(h)). Furthermore, member states undertake to make compatible their respective standards-related measures, so as to facilitate trade in goods and services within the SADC – however, without reducing the level of protection of human, animal or plant life or health, or of the environment (Article 17).

Regional trade can be a powerful source of economic growth. But trade does not automatically mean economic growth, let alone poverty reduction or sustainable development. The ability to benefit from regional trade and foreign investment is dependent on a number of factors, particularly the quality of the policies and institutions on the ground. Thus, trade should be considered as a means to an end, but not as the end in itself: an effective SADC trade regime must first and foremost be friendly to the environment, reduce poverty and sustain development. Indeed, sustainable development is an objective of the Doha Development Round, the latest multilateral round of negotiations to further open up world trade. The negotiations aim to help remove environmentally harmful trade-distortionary measures and promote greater access to environmental goods and services at a cheaper cost.⁹⁶ Yet, after more than 10 years of repeated negotiation failures, the Doha Development Round is unlikely to be concluded in the near future. It has even been contended that the “WTO risks its future by keeping Doha alive”.⁹⁷

7. The Protocol on Transport, Communications and Meteorology

Considering that transport, communications and meteorology are a prerequisite for economic growth and development, the Protocol on Transport,

96 WTO (2011).

97 See <http://www.taipeitimes.com/News/editorials/archives/2011/12/31/2003522031>, last accessed 20 May 2012.

Communications and Meteorology⁹⁸ aims to establish efficient, environmentally and economically sustainable, fully integrated infrastructures for the transport, communications and meteorology sectors.

Member states acknowledge that they are members of the World Meteorological Organisation (WMO) and, through its national meteorological services, they constitute an integral part of the regional and global system or network of the WMO's programmes and structures, in particular the World Weather Watch Programme (Article 12.1). Within the regional and international cooperative system of the WMO, members are encouraged to provide adequate legal frameworks and appropriate financial support to the national meteorological services to establish an integrated network of observation, data processing and communications systems, and to enhance the provision of meteorological services for general and specialised applications in the region and internationally (Article 12.2). Such a cooperation framework obliges member states to strengthen, inter alia, their weather and climate monitoring systems, improve public and specialised weather services, promote sustainable development with the emphasis on climate change and protection of the environment, and strengthen meteorology research capacity in the region.

The protocol provides that sustainable development is to be promoted with an emphasis on climate change and protection of the environment. These aims are to be achieved by means of strengthening the capabilities of national meteorological centres in climate applications and advice; enhancing existing environmental monitoring activities; optimising the use of regional structures; and fostering an awareness of the contributions which can be made by national meteorological centres to planning sustainable development in agriculture, forestry and related areas (Article 12.7). The SADC Climate Service Centre is placed under the SADC Secretariat in Gaborone, Botswana.

III. The Regional Indicative Strategic Development Plan

Apart from the treaty and protocols, the SADC also provides other instruments at different levels. These are not binding, and do not require ratifica-

98 The protocol entered into force on 6 July 1998. Text available at http://www.tralac.org/wp-content/blogs.dir/12/files/2011/uploads/20060629_protocol_comm_transp ort_met.pdf, last accessed 28 April 2013.

tion by the SADC member states. In March 2001, the Heads of State and Government approved the restructuring of SADC institutions by means of a Regional Indicative Strategic Development Plan (RISDP)⁹⁹. The RISDP reaffirms the commitment of SADC member states to good political, economic and corporate governance entrenched in a culture of democracy, full participation by civil society, transparency and respect for the rule of law.

The focal point of the RISDP is thus to provide strategic direction with respect to SADC programmes and activities, and to align the strategic objectives and priorities of the SADC with the policies and strategies for achieving its long-term goals. The role of the RISDP is indicative in nature, merely outlining the necessary conditions that should be realised towards achieving those goals. The purpose of the RISDP is to deepen regional integration in the SADC. The plan has identified gaps and challenges in existing policies and strategies, and used them to reorient those policies and strategies. In the light of the identified gaps and challenges, Chapter 4 of the RISDP focuses on a number of priority intervention areas of both cross-sectoral and sectoral nature that are critical for the achievement of SADCs objectives, in particular in promoting deeper regional integration, integrating the SADC into the world economy, promoting equitable and balanced development, eradicating poverty and promoting gender equality, protecting the environment and strengthening sustainable development.

In order to attain these goals, the SADC will, inter alia, need to harmonise policies, legal and regulatory frameworks for the free movement of production factors, and to implement policies to attain macroeconomic stability and build policy credibility. The RISDP has identified environment and development as cross-sectoral priority intervention areas, as these present opportunities for the region to advance its programme of action in environment and natural resources management and forge harmonisation of and compliance with environmental policies, standards and guidelines by pursuing the strategic objectives outlined in the RISDP.

In Chapter 2 of the RISDP, which deals with the socioeconomic situation in the SADC, the link between poverty and climate change is acknowledged:

Apart from lack of adequate capital assets, the rates of return on the physical, human and social capital of the poor are generally low due to low physical productivity and low prices for their goods and services, which are the by-prod-

99 Text available at <http://www.sadc.int/english/key-documents/regional-indicative-strategic-development-plan/> or <http://www.tralac.org/2011/03/24/sadc-legal-texts/#RISDP>, last accessed 20 August 2012.

ucts of: ... Climate change and desertification, soil erosion and degradation, water pollution and scarcity, and depletion of forests and other natural resources caused by inappropriate agricultural practices, urban development and growth of population.

IV. The Declaration on Agriculture and Food Security

With the 2003 Declaration on Agriculture and Food Security,¹⁰⁰ Heads of State and Government gave substantial means to some specific objectives laid down in Article 5 of the SADC Treaty, namely the promotion of sustainable and equitable economic growth and socioeconomic development to ensure poverty alleviation, with the ultimate objective of its eradication and the achievement of sustainable utilisation of natural resources and effective protection of the environment. With this declaration, SADC member states committed themselves to promote agriculture as a pillar of strength in national and regional development strategies and programmes, in order to attain their short-, medium-, and long-term objectives on agriculture and food security.

Climate change has not been explicitly formulated as part of the declaration. However, the declaration covers a broad range of issues relevant to human rights, including the sustainable use and management of natural resources and the protection and promotion of human health. And rightly so, because increasing temperatures and declining precipitation in the region resulting from climate change are likely to reduce yields of primary crops in the next decades – changes which will have a substantial impact on food security in the SADC, although the extent and nature thereof is still uncertain.¹⁰¹

G. Institutional Framework

Aside from the sector specific institutions that are established by the various SADC protocols, one important cross-sectoral entity with regard to climate change within the SADC institutional framework is the Food, Agriculture

100 Text available at http://www.tralac.org/wp-content/blogs.dir/12/files/2011/uploads/20060629_declaration_agric.pdf, last accessed 28 April 2013.

101 Boko et al. (2007).

and Natural Resources (FANR) Directorate under the umbrella of the SADC Secretariat. Its functions include the coordination and harmonisation of agricultural policies and programmes in the SADC region, in line with priorities in the RISDP. Focus areas of the FANR are agricultural research and development; environment and sustainable development; food security; and natural resources management.

Furthermore, the work of the SADC Climate Service Centre (CSC) should be particularly mentioned in terms of an institutional climate change structure in the SADC. The CSC is placed under the SADC Secretariat and has the mandate to contribute to mitigating adverse impacts of extreme climate variations on socioeconomic development. Through the CSC, the SADC organised the 15th Southern Africa Region Climate Outlook Forum (SARCOF-15) in Windhoek, Namibia, in August 2011. The SARCOF process is continuing to transform into an effective and reliable source for climate information and prediction services in order fully to exploit the potential for enhancing multisectoral, social and economic development. SARCOF-15 is a collaborative effort between the CSC, the SADC Disaster Risk Reduction Unit, the World Bank's Global Facility for Disaster Reduction and Recovery, the World Meteorological Organisation (WMO), the Food and Agricultural Organisation (FAO), the International Strategy for Disaster Reduction (ISDR), the Office of Coordination of Humanitarian Assistance (OCHA), and other partners.¹⁰² However, although the CSC organises the Climate Outlook Forum (SARCOF), it is still very weak in terms of capacity, lacking resources to carry out its mandate adequately.¹⁰³

H. Gaps and Challenges

One major challenge within the legal framework of the SADC in respect of climate-change-related issues is the fact that there is no climate change agenda per se. Although some relevant provisions can be found in various sectoral legal instruments, there is at this stage no clear legally binding

102 See <http://www.sadc.int/news/sarcof-15-announcement/>, last accessed 25 September 2012.

103 Such was the message of SADC official B. Garangonga at the First Climate Change and Development in Africa (CCDA-1) Conference organised by the United Nations Economic Commission for Africa, the African Union Commission and the African Development Bank in Addis Ababa, Ethiopia, 17–19 October 2011.

roadmap focusing on climate change, nor a consolidated climate change strategy or action plan. Some important topics related to the effects of climate change are not covered by the protocols at all. The legal gap concerning the group of themes around environmentally induced cross-border migration must be pointed out in this context.

One further challenge with regard to implementation is the lack of financial and human resources. National forest assessments, for example, as encouraged by Article 9 of the Protocol on Forestry, which would be supportive in terms of climate change adaptation and mitigation, are subject to the availability of funds and human resources. This unfortunately makes it rather unlikely that such measures will ever be taken. The non-binding character of legal instruments, other than the SADC Treaty and the protocols, is a further obstacle. With regard to climate change, this is particularly true for the provisions contained in the RISDP and the Declaration on Food Security. This leads further to the problem of enforcement. Given that, in the legal sense, only provisions of a binding nature can be enforced, the SADC Treaty and its protocols are pivotal to enforcing environmental provisions within the SADC. The supreme judicial institution within the SADC is the SADC Tribunal, which was established in 1992 by Article 9 of the SADC Treaty. The inauguration of the tribunal and the swearing in of its members took place on 18 November 2005 in Windhoek, Namibia. The judicial body began hearing cases in 2007. The Tribunal has the mandate to adjudicate disputes between states, and between natural and legal persons in SADC. Furthermore, it has jurisdiction over all matters provided for in any other agreements that member states may conclude among themselves or within the community, and that confer jurisdiction to the tribunal.¹⁰⁴ In this context, the SADC Tribunal also has jurisdiction over any dispute arising from the interpretation or application of protocols relevant to climate change. The Tribunal was primarily set up to resolve disputes arising from closer economic and political union.¹⁰⁵ However, recent cases before the Tribunal¹⁰⁶ have demonstrated that it can also be called upon to consider other implications of economic policies and programmes.¹⁰⁷

104 See Article 15(2), Protocol on the Tribunal and Rules of Procedure thereof.

105 Viljoen (2007:503).

106 See *Mike Campbell and Another (PVT) Limited v The Republic of Zimbabwe* SADC (T) 2/2007.

107 Ruppel (2012).

In 2010, however, the SADC Tribunal was dissolved by SADC Heads of State and Government. Moreover, at the 2012 32nd Session of the Summit of the Heads of State and Government of the SADC, which was held in Maputo, Republic of Mozambique, on 17 and 18 August 2012, it was concluded, *inter alia*, as follows:¹⁰⁸

Summit considered the Report of the Committee of Ministers of Justice/Attorneys General and the observations by the Council of Ministers and resolved that a new Protocol on the Tribunal should be negotiated and that its mandate should be confined to interpretation of the SADC Treaty and Protocols relating to disputes between member states.

The aforementioned resolution limits the competence of the SADC Tribunal, as it was initially provided with the competence to deal with proceedings initiated by private parties against either the community or member states. Without the competence to deal with proceedings initiated by private parties, the SADC Tribunal will in future only operate (if at all) with its wings cut, because up to that point basically all proceedings had been initiated by natural or legal persons. The aforementioned developments – which not only infringe the SADC Treaty,¹⁰⁹ but most probably also the African Charter¹¹⁰ – were linked to the continued Zimbabwean non-compliance¹¹¹ with the

108 SADC (2012).

109 According to Article 4 of the SADC Treaty, its Member States are required to “act in accordance with the following principles: ... (c) human rights, democracy and the rule of law; ... and (e) peaceful settlement of disputes”; Article 6 (1) of the SADC Treaty requires Member States to “adopt adequate measures to promote the achievement of the objectives of SADC, and [to] refrain from taking any measure likely to jeopardise the sustenance of its principles, the achievement of its objectives and the implementation of the provisions of this Treaty”. Moreover, according to Article 6(2) of the same Treaty, SADC Member States “shall not discriminate against any person on grounds of gender, religion, political views, race, ethnic origin, culture or disability”.

110 Article 7(1) of the African Charter provides, among other things, that “[e]very individual shall have the right to have his cause heard”, which also comprises “(a) the right to an appeal to competent national organs against acts of violating his fundamental rights as recognized and guaranteed by conventions, laws, regulations and customs in force ...”. According to Article 26 of the African Charter, “States Parties to the present Charter shall have the duty to guarantee the independence of the Courts and shall allow the establishment and improvement of appropriate national institutions entrusted with the promotion and protection of the rights and freedoms guaranteed by the present Charter”.

111 See Ruppel (2012); (2009a); and (2009b).

Tribunal's judgment(s) in the *Campbell* case.¹¹² In 2007 Mike Campbell and other white commercial farmers had challenged violations brought about by the expropriation of agricultural land in Zimbabwe by that country's government. The SADC Tribunal ruled in the farmers' favour, holding that the Republic of Zimbabwe was in breach of its obligations under the SADC Treaty. The Tribunal directed the Zimbabwean government to take all necessary measures to protect the possession, occupation and ownership of the lands of those applicants who had not yet been evicted from their lands, and to pay fair compensation to those who had already been evicted. To date, Zimbabwe has failed to adhere to the judgment; and, instead of taking steps against Zimbabwe for its defiance, the SADC Summit of Heads of State and Government chose instead to dissolve the Tribunal and review its mandate. In so doing, the SADC Summit undermined the regional court's judicial authority and affronted the rule of law, the explicit division of powers created under the SADC Treaty.

It is noteworthy in this context that, in March 2012, the African Commission on Human and People's Rights decided to register and consider a complaint about the dissolution of the SADC Tribunal submitted to it on behalf of Zimbabwean farmers Luke Tembani and Ben Freeth. The claimants requested the African Commission to refer their communication to the African Court of Justice so that it could order the SADC Summit and its member states to reactivate, with immediate effect, the Tribunal; to reappoint the Tribunal's judges; and to give the Tribunal the funding it needed to get on with its work.

I. The EAC-COMESA-SADC Tripartite Initiative

In October 2008 the leaders of the East African Community (EAC), the Common Market for Eastern and Southern Africa (COMESA) and SADC held the first COMESA-EAC-SADC Tripartite Summit of Heads of State and Government. The First Communiqué¹¹³ was signed, in which the participants agreed to deepen the cooperation between the three African Regional Economic Communities (RECs). The vision is the creation of a single market. To achieve this goal the Tripartite Summit agreed on a programme

112 *Mike Campbell & Another (PVT) Limited v The Republic of Zimbabwe*, SADC (T) 2/2007.

113 See COMESA-EAC-SADC (2008).

of harmonisation of trading arrangements amongst the three RECs, free movement of business persons, joint implementation of inter-regional infrastructure programmes, as well as institutional arrangements on the basis of which the three RECs would foster cooperation. The development of the merger will be based on three pillars, namely market integration based on the Tripartite Free Trade Area; infrastructure development to enhance connectivity and reduce costs of doing business; and industrial development to address the productive capacity constraints.¹¹⁴ If successful, a single market will integrate “26 Countries with a combined population of nearly 600 million people and a total Gross Domestic Product (GDP) approximately US \$1,0 trillion”.¹¹⁵ Today’s Tripartite Initiative members represent more than half of the AU population and GDP.

The establishment of a Tripartite Free Trade Area is envisaged by 2016. The negotiations are expected to take place in two phases: in the first phase, trade in goods and free movement of business people will be addressed; in the second phase, trade in services, intellectual property rights, competition policy, trade development and competitiveness will be discussed. The outcomes of both phases have greatest significance for the environment in the single market and it will be seen whether the Tripartite Initiative will also bring prosperity to the people that have so far been left behind in sub-Saharan Africa. Transforming society will require comprehensive legal, political, social and economic reforms and development initiatives, such as investing more in education, public services and infrastructure, enhancing participation in trade and protecting the environment for present and future generations. Moreover, it will be seen whether the Tripartite Initiative will push the regional integration agenda to empower the poor and reduce pressures such as underdevelopment, unemployment, environmental neglect, health emergencies, and strife.

The approach of the 2010 draft Agreement Establishing the COMESA, EAC and SADC Tripartite Free Trade Area¹¹⁶ to protect the environment is congruent to that followed by the WTO. Environmental interests are considered within the system of general exceptions. Article 40 of the draft agreement provides for a number of general exceptions to the basic principle

114 See COMESA-EAC-SADC (2011).

115 (*ibid*).

116 Text available http://www.tralac.org/wp-content/blogs.dir/12/files/2011/uploads/Draft_Tripartite_FTA_Agreement_Revised_Dec_2010.pdf, last accessed 28 April 2013.

of non-discrimination to allow countries in certain circumstances to take account of economic and/or noneconomic interests and values that compete with free trade. Amongst others, these exceptions justify measures necessary to protect human, animal or plant life or health, as well as measures relating to the conservation of exhaustible natural resources, provided that “such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade”.

With regard to climate change, EAC, COMESA and SADC have initiated discussions towards the establishment of the COMESA-EAC-SADC Tripartite Climate Change Programme to facilitate their long-term vision of working together.¹¹⁷ In December 2011, in the course of the COP17 United Nations Climate Change Conference in Durban, South Africa, the EAC, COMESA and SADC launched a joint five-year Programme on Climate Change Adaptation and Mitigation.¹¹⁸ In order to enhance economic and social resilience, the programme aims to address the impacts of climate change in the region through successful adaptation and mitigation actions and to harmonise existing climate change programmes.

Key issues of the programme¹¹⁹ include the increase of investments in climate-resilient and carbon-efficient agriculture and its linkages to forestry, land use and energy practices, and vulnerability assessment and disaster risk reduction, amongst others.

J. Conclusion

Africa as a continent is considered to be one of the most vulnerable continents to climate variability and change because of multiple stresses and low adaptive capacity. It is probably fair to say that this also applies to the SADC

117 This was announced by the EAC Deputy Secretary General, Productive and Social Sector, Mr Jean Claude Nsengiyumwa, at the 4th Special Africa Ministerial Conference on Environment (AMCEN), held in Bamako, Mali on 15–16 September 2011. See <http://www.inamibia.co.na/news-and-weather/15-africa/2528-comesa-eac-sadc-tripartite-climate-change-programme.html>, last accessed 8 July 2012.

118 See <http://www.eac.int/about-eac/eacnews/878-tripartite-climate-change-initiative.html>, last accessed 20 August 2012.

119 The programme has received \$20 million funding from the Royal Government of Norway, the European Union Commission and UK Department of International Development (DfID).

region. It is beyond doubt that the direct and indirect impacts of climate change constitute a risk to various aspects of human security in the SADC. The impacts of global warming on the agricultural sector are probably of a most direct and profound nature. Water scarcity has a direct impact on many economic development initiatives in the agricultural sector – which is still one of the most important sectors in the economies of the SADC. Climate change has economic impacts on crop and livestock farming systems: warmer and drier climates adversely affect net farm revenues translating into a worsening food security situation in the region.

Increasing temperatures and declining precipitation resulting from climate change are likely to reduce yields for primary crops in the next two decades – changes which will have a substantial impact on food security, although the extent and nature thereof are still uncertain. Periods of droughts and floods will have an impact on food availability and food access. The impacts of climate change, such as sea-level rise, droughts, heat waves, floods and rainfall variation, could push even more people into malnutrition and increase the number of people facing water scarcity.

Increased environmental migration due to the effects of climate change is considered a new phenomenon, unprecedented in its scale and scope, but closely related to the concept of human security. Besides low-lying islands, coastal and deltaic regions are expected to be affected by climate-change-induced migration. This in turn is expected to trigger serious repercussions socially, economically and politically. In this sense, it is worth examining further the implications that such displacement may have for international trade and regional integration.¹²⁰

Climate change and human security are most relevant for regional integration in the SADC. Regional cooperation has the potential and the responsibility to contribute more to climate change mitigation and adaption and to enhance human development and poverty reduction in all countries of the region. Although the primary objective of RECs like SADC might be to liberalise intraregional trade, this cannot be done without addressing the diverse aspects of climate change. That this aspect is increasingly being realised is reflected by numerous statements and speeches of SADC officials in the run-up to and during the recent United Nations Climate Change Conferences, as well as by the last Communiqué of the SADC Summit. Within the legal and policy framework, however, a more sustained commitment

120 Leal-Arcas (2012).

with regard to climate change is needed so as to promote a more person-based process of regional integration.

Although some programmes to combat climate change are being initiated on SADC level, for example in the forestry sector, these may be insufficient with regard to future changes in climate. The SADC legal framework provides for a broad bandwidth of provisions with high relevance for environmental protection in general. With regard to climate change, in particular, a clear and consolidated climate change agenda addressing pressing issues such as cross-border migration is still lacking, however. The various SADC protocols eventually offer some foundations; however, the lack of financial and human resources seems to hamper effective implementation, not to mention the current lack of judicial enforcement due to the suspension of SADC's only judicial body, the SADC Tribunal.

It is therefore all the more commendable that on the level of the Tripartite Initiative between the EAC, COMESA and SADC, activities focusing on climate change adaptation and mitigation seem to have come increasingly to the fore. These activities will hopefully soon contribute to the attainment of more human security and regional integration in the wider region.

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**PART IV:
CLIMATE CHANGE, THE LAW OF THE
SEA AND SEA-LEVEL RISE**

Guifang (Julia) Xue

Abstract

As one of the most pressing issues confronting human society, climate change has brought immense challenges to almost all aspects of our lives. This is also the case with the world's oceans. In responding to its adverse impacts, the international community has faced legal, political, and scientific challenges. This also applies to the law of the sea regime represented by the United Nations Convention on the Law of the Sea (UNCLOS).

This article explores from the law of the sea perspective climate change impacts on the marine ecosystem and biodiversity in general and the challenges of accelerating rise in sea levels, in particular to baselines and maritime boundaries, and low lying states such as the Small Island Developing States (SIDS). It investigates possible responses with particular reference to UNCLOS in addressing the damages and assessing the extent to which potential means and mechanisms may be available to protect the affected states.

Specifically, the article examines what damages climate change as an imminent threat will cause to marine ecosystems and states' rights to maritime zones, and the submergence of low lying SIDS. This is followed by an analysis on whether and how the UNCLOS provisions pertaining to the protection and preservation of the marine environment, coupled with those relating to compulsory dispute settlement, may be of use in combating the climate crisis. The paper also touches upon whether a particular approach, such as climate litigation, could act against the projected *worst case* scenario to protect the affected states, and the challenges to such a course of action.

A. Introduction

The world's oceans cover more than 70% of the planet and contain a variety of natural resources vital to nearly every nation.¹ However, since the 1980s, global warming and the rise in sea levels have brought about significant negative consequences to the health of the ocean as a result of various forms of natural disasters and an increase of extreme events.² The low-lying coastal and islands states, particularly the SIDS, are likely to face some of the earliest and most severe climate change impacts over the course of this century with immense environmental, social and economic implications.³ These are recognised not only as challenges to the ecological system, but also as a “threat multiplier” of economic and social instabilities to sustainable development of humankind.⁴

As projected temperature increase accelerated, the scale of sea level rise and adverse threat to the world oceans has emerged as a planetary crisis going beyond environmental concerns. The climate change and its adverse impact, together with the search for measures to tackle such an overwhelming challenge have moved up to the top of the agenda amongst civil society, business and government, and cast strong influence to every individual state. There is an urgent need and mounting pressures for strong and focused global action to mitigate the negative climate effects. Unfortunately, it is a frus-

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- 1 The oceans comprise a complex, dynamic and vast component of the Earth's ecological system, second in size only to the global atmosphere. The oceans are a major provider of ecosystem services, food, mineral and other resources, and a major medium for global transportation and communication. For information on the importance of oceans and marine resources, see “Ocean Resources”: <http://marinebio.org/ocean/s/ocean-resources.asp>, last accessed 03 May 2013.
 - 2 In 2007, the Intergovernmental Panel on Climate Change (IPCC), established by the United Nations Environment Programme (UNEP), issued its Fourth Assessment Report of more than 3,000 pages. The most important conclusion of this report is that global warming is evident and that its highly probable cause is a greenhouse effect triggered by increasing concentration levels of greenhouse gases. In 2009, UNEP Climate Change Science Compendium reaffirms the strong evidence outlined in the 4th Assessment Report, and shows that climate change is accelerating at a much faster pace than previously predicted by scientists. For the IPCC reports, see http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml#1, last accessed 03 May 2013.
 - 3 The United Nations (UN) defines *small island states* as islands with less than 10,000 square kilometers in land mass and with less than 500,000 inhabitants. For details, see <http://aosis.org/>, last accessed 03 May 2013.
 - 4 Kim (2010:101).

trating fact that the United Nations Framework Convention on Climate Change (UNFCCC)⁵ and its associated Kyoto Protocol,⁶ the current centre-pieces for multilateral action against climate change, are not capable of inducing significant participation and compliance mechanisms in curbing the growing concentrations of greenhouse gas (GHG) emissions causing the disaster.⁷ The international community has encountered enormous legal and political challenges in searching for means and mechanisms to protect the affected states. Against this background, the article examines how the real and potential impacts of climate change have affected the oceanic systems and the low lying states as SIDS, explore the viabilities of the UNCLOS as the ‘Constitution for the Ocean’ in implying a collective duty on the part of signatory states to implement strategies to combat climate change, and assess the extent to which possible cause of action may be sought for from the UNCLOS regimes to protect the affected states.⁸

As the primary instrument governing the oceans and the most comprehensive multilateral treaty ever concluded, the UNCLOS, adopted in 1982 and entered into force in 1994, comprises various norms of customary international law and legal rules pertaining to the oceans and applicable to relations between states.⁹ UNCLOS has 164 ratifications plus the European

5 The UNFCCC was adopted at the United Nations Conference on Environment and Development (the first *Earth Summit*) in Rio de Janeiro, Brazil, on 5 May 1992. It was opened for signature on 4 June 1992 and entered into force on 21 March 1994. Currently, it has 195 Parties. It provides a definition on climate change as: “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.” For ratifications, see http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php, last accessed 03 May 2013.

6 The Kyoto Protocol to the UNFCCC was adopted on 11 December 1997, entered into force on 16 February 2005, and has 191 Parties. For ratifications, see http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php, last accessed 03 May 2013.

7 Burns (2003).

8 The text of UNCLOS and relevant implementation agreements are available at <http://www.un.org/Depts/los>, last accessed 03 May 2013.

9 It is based on the four Geneva Conventions on the Law of the Sea adopted in 1958: Convention on the Territorial Sea and the Contiguous Zone; Convention on the High Seas; Convention on Fishing and Conservation of the Living Resources of the High Seas; and Convention on the Continental Shelf. They codified the customary international law. UNCLOS draws together the four conventions and made it the *old* law of the sea in a single unified treaty. States that have not acceded to UNCLOS may still be bound by the provisions of the four 1958 Geneva Conventions and the norms

Union as of 7 November 2012,¹⁰ which made it almost universally accepted.¹¹ Containing regimes on the exploration and exploitation of marine resources as well as provisions on the protection and preservation of the marine environment, the UNCLOS incorporates the desires and aspirations of the international community into a framework and makes it one set of rules for all states with greater potential than anticipated. Its framework in controlling pollution to the marine environment and mechanism for compulsory dispute settlement may be applicable to deal with the climate change crisis and to protect affected states.

B. Possible Effects of Climate Change on Marine Ecosystems and Environmental Implications

Climate change is typically discussed in global terms, yet its effects do not vary dramatically among different researching areas.¹² Compelling evidence from the current literature suggests that ecosystems are responding to temperature changes and increased carbon dioxide (CO₂) levels with significant impact on natural and coastal resources and national security.¹³ Recent research has strengthened the findings that climate change rapidly transforms the world's oceans by increasing the temperature and acidity of seawater, and alters atmospheric and oceanic circulation.¹⁴ Much literature has been published on both the predicted impacts and responses to it in terms of mitigation and adaptation.¹⁵ Predictions based on current scientific research and climate trends suggest an enormous challenge in two respects: continental glaciers will continue to melt, and sea levels will rise to one meter by the end of this century under "business as usual" scenarios.¹⁶ Thus, it is a settled fact that sea levels have been rising at an accelerating rate and are to rise

of customary international law. For details on UNCLOS and its related institutions, see http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm, last accessed 03 May 2013.

10 For ratifications, see http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm#, last accessed 03 May 2013.

11 Koh (1982).

12 IPCC (2007e).

13 Elliott & Caballero-Anthony (2012:33).

14 Lubchenco (2008).

15 IPCC (2007d).

16 IPCC (2007e).

substantially in subsequent decades as a consequence of global warming regardless of any mitigation measures adopted. The oceans and marine ecosystems are under threat.¹⁷

I. Deteriorated Environment and Worsening Ecosystems

Climate change is undoubtedly the most serious environmental crisis facing the world today, and its impacts take many forms. The biggest existing one has been the ultimate threat of total biodiversity loss through global extinction due to a lack of ability of ecosystems and species to adapt to the rapid changes.¹⁸ This is because ecosystems, the biodiversity and services they support, are intrinsically dependent on climate.¹⁹ Temperature alteration and ocean acidification in magnitude and frequency will accelerate the potential impacts on biodiversity occurring in concert with other established stressors.²⁰

Plenty of scientific attention has looked at the physical impact and potential danger of ocean acidification on marine ecosystems. The observation data showed that coastal environment and marine ecosystems are intimately linked to climate and are vulnerable to increasing coastal populations, habitat loss, and anthropogenic pollution.²¹ With the rise in sea levels, coastal ecosystems, including tidal zones, estuaries and wetlands may migrate further inland resulting in habitat loss and fragmentation, invasive species, environmental contamination, and the species that utilise them will all experience impacts.²² Thus, acidification and temperature alteration are worsening the problems already occurring in the ecosystems, and directly affect the pattern of marine biodiversity. Extreme events, increasing in frequency and

17 More information on the importance of oceans and marine resources may be found online from Ocean Resources, <http://marinebio.org/oceans/ocean-resources.asp>, last accessed 03 May 2013.

18 As a planetary crisis, climate change and its catastrophic consequences result in not only rising sea levels, droughts and famine, but also the loss of up to a third of the world's plant and animal species. See Shah (2012).

19 Costanza et al. (1997).

20 Doney et al. (2012).

21 (*ibid*:13).

22 Staudinger et al. (2012:296).

intensity, put the ocean ecosystems under new combinations of stress, being described as “multiple jeopardy”.²³

II. Depleted Resources and Damaged Habitat

Oceans generate considerable economic wealth through fisheries, aquaculture, tourism and mining, and marine ecosystems provide irreplaceable services including coastal defence, oxygen production, nutrient recycling and climate regulation.²⁴ Fish are a precious natural resource of enormous ecological, social and economic value, and in many parts of the world, millions of people make their living from fishing, and for most of them fishing goes far beyond being just a source of income, it is a way of life.²⁵ Fish contribute to at least 50% of total animal protein intake in some SIDS.²⁶ Widespread physical changes to the ocean, including rapid warming sea waters and reduced calcification in ocean plankton and reef corals could result in a substantial decline in fisheries productivity in some regions, threaten coastal systems of low-lying estuaries and tidal flats, and impact the biological distribution of marine mammals and seabirds of both tropical and temperate species.²⁷

As “oasis in a marine desert” and “rainforests of the seas”, coral reefs cover an area of over 280,000 km² and provide home and shelter to over 25% of ocean fish and up to two million marine species, and a nursery for the juvenile forms of many marine creatures.²⁸ Coral reefs also provide numerous ecosystem services to benefit environment and humans, such as assisting in recycling the nutrients, protecting shores from the impact of waves and storms, serving as a vital input of food into the tropical/sub-tropical marine food-chain, and serving humans in the form of medicine and economic benefits to local communities from tourism.²⁹ Goods and services de-

23 Hofmann et al. (2010).

24 Crutzen & Stoermer (2000).

25 See WWF (2009:6).

26 In North and Central America 7.6% of animal protein is obtained from fish. In Europe fish supplies 11% of the protein needs, in Africa 19%, and in Asia 21%. For details, see FAO(2011) and <http://www.consvalmap.org>, last accessed 03 May 2013.

27 WBGU (2006:123).

28 Painting (2011).

29 Climate change has affected South China Sea Coral. See South China Sea Coral declined by at least 80% over the past 30 years, Hughes et al. (2012).

rived from coral reefs are roughly estimated to be between \$172 to \$375 billion dollars per year.³⁰

Coral reefs have extremely narrow temperature tolerances between 25-29°C, with some species in Pacific Islands currently living near their threshold of thermal tolerance. Rising ocean temperatures and increasing ocean acidification have negatively affected coral reefs in many parts of the world, to name a few, the Pacific and Indian Oceans, the Red Sea and Caribbean Sea, leading to the loss of 50% of the subsistence and artisanal fisheries owing to coral bleaching.³¹ Global threats to coral reefs have been increasing in the context of wider environmental degradation, so that the value of coral reefs may be even greater because they are integral to the well-being of the oceans, and loss of coral reefs may result in decreased net productivity and stunted growth in certain species.³² Rising sea levels will destroy vast areas of mangrove trees on the world's tropical coastlines and wipe out critical beach habitats (for sea turtles) that could adversely affect many species more directly.³³

III. Marine Geo-engineering Projects: Buried Troubles

One of the most pressing issues on the climate policy agenda is reducing CO₂ emissions. As an attempt to mitigate global warming, some projects have been proposed or are already being implemented worldwide that take the ocean as a great absorber and also a receptor of man-made CO₂ emissions.³⁴ Such projects, known as marine geo-engineering projects including carbon capture and storage (CCS) and ocean fertilisation (OF) have attracted great international attention.³⁵

CCS, also known as carbon capture and sequestration, is the process of capturing waste CO₂ from large point sources, transporting it to a storage site, and depositing it where it will not enter the atmosphere, normally an underground geological formation, as a potential means of mitigating global

30 For the value oceans provide, see <http://www.consvalmap.org>, last accessed 03 May 2013.

31 Andersson (2007).

32 Conservation International (2008:1-7).

33 Gilman et al. (2006).

34 IPCC (2005:77-88).

35 See Nolon (2012:204).

warming and ocean acidification.³⁶ OF has been suggested as a simple, quick, effective and environmentally friendly fix to the world's CO₂ emissions problems, but different views exist including that of the highly regarded IPCC which considers it as "speculative and unproven, and with risks of unknown side effects."³⁷

The expected outcome and potential impacts of CCS and OF have been hotly debated even regarded as buried troubles.³⁸ Concerns have been expressed over the potential risks of catastrophic results and the lack of international regulations in place to clarify allocation of environmental liability.³⁹ Questions are also asked about whether, how, and under what conditions, are they consistent with the law of the sea and other international conventions concerning protection of the marine environment and biological diversity?⁴⁰ To what extent humankind is permitted, as the law stands, to interfere with the marine ecosystem to mitigate the impacts of climate change? What have been or should be done to regulate such activities by international law?

IV. Environmental Implications: Ocean as the Last Resort

Climate change has reached us with many implications, from social, ecological, economic, to legal and environmental. The environmental implications are obvious and dreadful, particularly based on the adverse impact of global warming on marine living resources and detrimental effects of ocean acidification on marine ecosystem and biodiversity, as the ocean is our last resort for survival and existence.⁴¹ From a human perspective, the accelerating biodiversity loss risks human security, as there might be a major change

36 For discussions, see Rayfuse (2008).

37 See IPCC (2007c:15). See also Freestone & Rayfuse (2008).

38 Globally, 75 CCS projects are at various levels of development. For details, see Global Carbon Capture Storage (CCS) Institute (2012). For discussions, see Purdy (2006).

39 The relevant body of international law relating to CCS includes the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (the 1972 London Convention) and its 1996 Protocol. For international regulation development of CCS and OF, see <http://www.globalccsinstitute.com/>; and <http://www.ccsnetwork.eu/>, last accessed 03 May 2013.

40 For different views, see Purdy (2006); Nolon (2012); Ingelson et al. (2010).

41 See Zimmer (2011).

in the food chain, water sources and other resources we rely on.⁴² Edward O. Wilson believes that the loss of biodiversity is killing ourselves and the rest of life.⁴³ Mary Wood observes the evolution of international law and comments that “[h]umanity is violating nature’s laws not only at the level of individual species and ecosystems, but at the level of atmospheric functioning and ocean health – a truly global level.”⁴⁴ Indeed, the rapidly rising GHG concentrations are driving ocean systems toward conditions not seen for millions of years, with associated risks of fundamental and irreversible ecological transformation.⁴⁵

Changes in biological function in the ocean caused by anthropogenic change go far beyond death, extinctions and habitat loss, as fundamental processes are being altered.⁴⁶ The domino effect of the horrific path towards mass extinction of marine biodiversity and ecosystems is already showing negative impacts under current levels of climate change, and more frequent extreme weather events can be expected to have significant impacts on biodiversity.⁴⁷ In addition, the past half-century has seen an explosive growth in the size and number of marine dead zones, areas too low in dissolved oxygen to support life, and it is no coincidence that dead zones occur down-river of places where human population density is high.⁴⁸

The IPCC suggested that in the foreseeable future, the disastrous consequences of biodiversity loss are likely to be significant and many types of ecosystems will be altered or destroyed by the combination of global warming and conventional threats such as habitat destruction and pollution.⁴⁹ In the absence of stringent mitigation measures by the global community, climate change, as the keystone environmental issue of this generation and future ones, appears inevitable to continue apace. The existing biodiversity conservation strategies are of no effect under its mounting pressure. Without strategic action and updated law and policy, many of the global marine ecosystems will collapse. Fish stocks and coral reefs will only retain their

42 Shah (2012).

43 Wilson (2010).

44 Wood (2010:177).

45 For details, see Millennium Ecosystem Assessment, Findings (2005), available at <http://www.millenniumassessment.org/documents/document.359.aspx.ppt>, last accessed 02 May 2013.

46 Hoegh-Guldberg (2011).

47 Secretariat of the Convention on Biological Diversity (2010:56).

48 Diaz, & Rosenberg (2008).

49 IPCC (2007a:72–73).

productivity and diversity if sustainable development is ensured world-wide.⁵⁰ States need to recognise their interests in marine ecosystems, understand the importance and critical state of biodiversity, and address the problems of habitat degradation with concrete actions.

C. Possible Effects of Sea Level Rise on Baselines and Legal Implications

Historically, states had jurisdiction over a narrow strip of water adjacent to their coastlines and the remainder was regarded as *the high seas* that were free and open to all while belonging to no one.⁵¹ As new technologies made it possible to reach farther and deeper into the ocean to catch fish and to extract other resources, and as pollution of the oceans increased, states started a journey in establishing a legal framework to govern activities at seas.⁵² These efforts eventually led to the conclusion of the UNCLOS in 1982.⁵³ The most creative part of the UNCLOS is the establishment of various maritime zones by distance criteria measured from baselines. However, the rise in sea levels may bring serious challenges to this 'Zonal Approach', as it affects baselines systems from many perspectives, in particular, a state's entitlement to maritime zones and resources therein, state relations due to maritime boundary delimitation, and territory loss due to submergence of base points. This section focuses on the sea level rise effects on baselines and legal implications to the UNCLOS regime.

50 WBGU (2006).

51 For general information on the development of the law of the sea, see Churchill & Lowe (1999).

52 (*ibid.*:12).

53 Details on law of the sea negotiation history and relevant documents are available at http://www.un.org/Depts/los/doalos_publications/doalos_publications.htm, last accessed 03 May 2013. See also Charney (1977).

I. States' Entitlement to Maritime Zones and Resources

UNCLOS divides the ocean into different types of zones measured from baselines.⁵⁴ The territorial sea, immediately adjacent internal waters,⁵⁵ with a breadth of 12 nautical miles (nm) from the baseline, is the zone which represents the seaward limit of the coastal state's sovereignty and concerns its airspace, sea bed, and subsoil.⁵⁶ The contiguous zone is a belt of sea contiguous to the territorial sea stretching for 24 nm from the baseline, in which the coastal state exercises jurisdictional powers in relation to its customs, fiscal, sanitary and immigration laws and regulations.⁵⁷ The exclusive economic zone (EEZ), adjacent to the territorial sea, is less than 200 nm.⁵⁸ The coastal state has sovereign rights in respect to environmental protection, scientific research, exploration and exploitation of natural resources.⁵⁹ The continental shelf constitutes the submerged prolongation of the coastal state's land territory and stretches for 200 nm from the baselines when the outer edge of the continental margin is less, or up to 350 nm (or 100 nm from the 2,500 meter isobaths) if it is wider.⁶⁰ The coastal state has sovereign rights over this area in respect to the exploration and exploitation of natural resources.⁶¹ The high seas are located beyond the external limit of the EEZ at a maximum of 200 nm from the baselines, and are not subject to the sovereignty of any state.⁶² Based on the UNCLOS regime, baselines serve a vital function in establishing literally all maritime zones and boundaries of a state.⁶³

54 UNCLOS, Article 5 specifies that the normal baseline is the low-water line along the coast as marked on large-scale charts officially recognised by the coastal state.

55 The internal waters locate on the landward side of baselines and are subject to full sovereignty of the coastal state. See UNCLOS, Articles 2(1)(2) and 8(1).

56 UNCLOS, Articles 2, 3 and 4. Foreign ships only have a right of innocent passage in the territorial sea and are bound to respect the national legislation of the coastal state on the regulation of maritime traffic, fiscal, immigration and environmental protection, marine scientific research, etc. See UNCLOS, Articles 17–22.

57 UNCLOS, Article 33.

58 UNCLOS, Article 57.

59 The other states have the freedom to overfly, navigate, and lay cables and pipelines on it. UNCLOS, Articles 56 and 58(1).

60 UNCLOS, Article 76.

61 Other states benefit from the freedom of the high seas on the continental shelf. See UNCLOS, Articles 56(1a) and 77(1).

62 UNCLOS, Article 86.

63 UNCLOS, Articles 57, 76(1) and (6).

When drawing the baselines, two situations need to be considered regarding which type of baseline is employed. The normal baseline, specified in Article 5, could be the low-water line following the natural configuration of the coast, whereas the straight baseline is drawn across coastal sections “joining appropriate points” on land following the configuration and curvatures of the coastline.⁶⁴ Thus, the juridical boundary between the land and the sea and of the territorial sea and the other zones will be parallel to the coast without extending the territorial sea unduly.⁶⁵ An island, if considered part of the coastal configuration, may provide a base point, in particular when a coast is made up of a cluster of fringing islands.⁶⁶

Based on the UNCLOS regime setting, sea level rise could substantially affect baselines and base points for measuring maritime zones. A shift in baseline could have profound implications on the greatest extent of a state’s entitlement to maritime zones and its economic and resources interests (fishing, sea-bed mining, etc.). The rising sea levels could change coastal formations, such as islands, and make the actual low-water lines and base points normally shift landward (*ambulatory*).⁶⁷ The outer limits of the territorial sea, contiguous zone, EEZ and portion of continental shelf claimed on the basis of distance from baselines also shift landward. Questions may arise if coastal features are altered or disappear; the seaward extent of the claims could decrease greatly along with the recessions.

As coastal states all have divergent interests to maritime zones, receding coastlines may lead to emerging issues regarding coastal states’ rights to marine resources in their maritime zones, whether living and non-living. UNCLOS Article 5 provides neither safeguards against sea level rise, nor provisions to specifically address the matter of determination of the normal baseline. In the context of climate change and the expected large-scale melting of ice,⁶⁸ a state would be partly deprived of the benefits of a territorial sea, and the idea that “it is the land which confers upon the coastal State a

64 UNCLOS, Article 7. A state may employ the method of straight baselines only in localities where the coastline is deeply indented and cut into, or if there is a fringe of islands along the coast in its immediate vicinity, across mouths of rivers (Article 9) and bays (Article 10). For discussions, see Scovazzi (2008–:para. 2).

65 United Nations Office for Oceans Affairs and the Law of the Sea (1989:para. 39).

66 UNCLOS, Article 7(3).

67 Attenhofer (2010:2).

68 See Vaughan & Spouge (2002).

right to the waters off its coast” is challenged.⁶⁹ This could impose a significant impact on the external limits of the maritime zones, particularly against low-lying coastal areas. As maritime zones recede, coastal states may in the worst of cases suffer from the loss of jurisdictions regarding the border of maritime zones and rights to essential marine resources, except for the maximum extent of outer continental shelf area which has to be established on the basis of the Commission on the Limits of the Continental Shelf (CLCS) recommendations.⁷⁰

Meanwhile, based on Article 76(9) of the UNCLOS, the outer limits of a continental shelf should be permanently determined by the CLCS. Article 7 provides that where, because of the presence of a delta, the coastline is highly variable, the appropriate points may be selected as a baseline. It also gives latitude for a coastal state to change the baseline to the extent that the change is made under the UNCLOS. There are no provisions permanently fixing the outer limits of the EEZ or even territorial seas. This may indicate that the legal and physical boundaries of the EEZ and territorial sea that are not touched upon by the UNCLOS are of a temporary nature.⁷¹

II. State Relations and Boundary Delimitation

The immediate importance of baselines is even more evident in maritime delimitation between adjacent and opposite States. With the current pace of sea level rise, many coastal states may witness a change in existing coastlines or submergence of base points. The receding or advancing coastlines and complete disappearance of low-lying islands/rocks may spark potential problems on maritime boundaries signifying extensive implications for the law of the sea and state relations.⁷²

69 The principle “the land dominates the sea” (North Sea Continental Shelf Cases, para. 96).

70 A unilateral delimitation of the outer continental shelf extends beyond 200 nm requires the submission of a claim to the CLCS under Article 76(8) for geological factor consideration. The CLCS, set up under Annex II of UNCLOS, can recommend the final and binding outer limits of the shelf in absence of overlapping claims or consent of the overlapping states has been given. See UNCLOS, Article 76 (4–6, 8, and 10).

71 Roach & Smith (1994:67).

72 For a fuller account, see Caron (2008:17) and (1990).

With the looming unprecedented rise of sea-levels, the settlement of maritime delimitation disputes may gain a new incentive. It should be noted that the rules on straight baselines are not affected by the provision in Article 121(3) that rocks which cannot sustain human habitation or economic life of their own shall have no EEZ or continental shelf. The interesting question of distinction between rock and island may relate to economic interests of coastal states. Apart from oil and gas, there may also exist a genuine and remarkable interest in the natural resource of fisheries, which may be relevant to the drawing of baselines.⁷³

Since baselines may become a more sensitive issue and states may be advised to move toward fixing ocean boundaries on the basis of presently accepted baselines, an important issue pertaining to this situation is whether maritime boundaries may be subject to continual modification depending on coastline changes. The consideration of baselines from which the outer limit is measured is a legal matter, and can be established unilaterally, however, the delimitation of maritime boundary has always been an issue of international relevance, as it may affect the neighbouring states' rights and interests.

Guidance on maritime delimitation for the new challenges needs to be provided in the context of rising sea levels. In the process of negotiating boundaries, states should bear in mind the present law on maritime delimitation without regard to the migrating baselines. States might contest the maritime boundaries between or among themselves, even the recommendations of the CLCS on the basis of disputed unilateral baselines.⁷⁴ Also, a unilateral delimitation of the continental shelf beyond 200 nm can be a reduction of the Area that is reserved as "common heritage" for mankind, and could be contentious owing to rich natural resources on the seabed and in the subsoil.⁷⁵

73 Churchill (2008—:para. 1).

74 Globally, over 400 bilateral boundaries need to be delimited, only less than one third has been settled. For submissions of the outer limit of continental shelf, see http://www.un.org/Depts/los/clcs_new/clcs_home.htm, last accessed 03 May 2013.

75 The regime regarding *Area* is set forth in Part XI of UNCLOS. Appropriation by any state of any part of the Area is explicitly prohibited and no such claim or exercise of sovereignty or sovereign rights shall be recognised. See UNCLOS, Article 137.

III. Territorial Entitlement and Uncertain Status

As defined in the UNCLOS, all maritime zones are measured from a baseline. Accordingly, any movement of such baseline will lead to a change in maritime boundaries. If a base point such as an exposed rock disappears, it may be claimed that the boundary based on such a point has moved or disappeared. The UNCLOS does not explicitly stipulate that the boundary should be moved together with a base point. Facing unprecedented changes on the scale of coastline and maritime boundaries,⁷⁶ it is necessary to consider different submerging scenarios of an island or rock belonging to a state and critical effects occurring to the types of baselines regarding which an issue may be raised owing to the rising sea level while considering legal implications and possible solutions.

The types of baselines regarding which an issue may be raised owing to the rising sea level include low-tide elevations, fringing reefs, islands, and river banks. Under Article 13 of the UNCLOS, a low-tide elevation may be used as the baseline. However, if such low-tide elevation is submerged permanently by rising sea level, the state concerned may lose the territorial seas accorded by such base point.⁷⁷ At the same time, “[a]n island is a naturally formed area of land, surrounded by water, which is above water at high tide”.⁷⁸ The provisions differ only with regard to the dry or submerged status at high tide. Low-tide elevations therefore “literally do not rise to the status of islands”.⁷⁹ According to Article 121 of the UNCLOS, an island is entitled to the territorial sea, contiguous zone, continental shelf, as well as a 200 nm EEZ. Rising sea levels may submerge an island in part or entirely. Where an island is no longer regarded as such due to its submerged status at high-tide, it will only be considered for measuring the maritime entitlements, if it lies within the territorial sea.⁸⁰ Where, however, a low-tide elevation (or former island) lies at a distance exceeding the breadth of the territorial sea from the mainland or a ‘real’ island, it has no territorial sea of its own.⁸¹

76 Kim (2010:101).

77 UNCLOS, Article 13(1).

78 UNCLOS, Article 121(1).

79 Roach & Smith (1994:73).

80 The court in Qatar/Bahrain held that “there [is no] doubt that a coastal State has sovereignty over low-tide elevations which are situated within its territorial sea, since it has sovereignty over the territorial sea itself, including its sea-bed and subsoil” (para. 204).

81 UNCLOS, Article 13(2).

With the rising sea levels, the nature of some insular features will invariably change from island to low-tide elevation, which could indicate massive losses to resource rich maritime zones.⁸² Under such circumstances, it may be the case that any affected island state is deprived of the right to use a part of the island for expansion of its EEZ. The situation is unsatisfactory where former islands, lying outside the territorial sea, once had the sovereignty of a state and accordingly could be used to generate a territorial sea of their own.⁸³ The question thus arises if the concepts of sovereignty and appropriation should apply to low-tide elevations which had once been islands.

In the case of islands surrounded by reefs, the baseline for measuring the breadth of the territorial seas is the seaward low-water line of the fringing reefs. Accordingly, a rise in sea level may change the scope of the territorial sea of such islands. The entitlement to maritime zones beyond the territorial sea does not apply if an insular feature is not an island in the sense of paragraph 2 but a rock in the sense of paragraph 3 of UNCLOS Article 121. Rocks which cannot sustain human habitation or economic life of their own shall have no EEZ or continental shelf.⁸⁴ These criteria have been debated for lack of clarity in distinguishing rocks from islands.⁸⁵ Being mixed with the sea level rise, the island versus rocks criteria will almost inevitably be complicated and causing more confusion in state practice about their legal status and entitlement.⁸⁶

With respect to river banks, UNCLOS Article 9 provides that if a river flows directly into the sea, the baseline shall be a straight line across the mouth of the river between points on the low-water line of its banks. However, river banks are susceptible to constant erosion and sedimentation, which may subsequently cause changes in the maritime zone determined on the basis of river banks. It is getting more important and vital to make clear distinction between islands, low-tide elevations or even reefs as it may become particularly contentious in the event that sea levels should rise rapidly.

82 (ibid.).

83 UNCLOS, Article 13(1).

84 UNCLOS, Article 121(3).

85 The ability of rocks to sustain human habitation or economic life of their own may be altered in the course of economic development, possibly fuelled by technological advancement. Many rocks thus have a potential capacity to host at least some human population or produce some economic activity. See Dipla (2008–:para. 8).

86 For a discussion on this, see Xue (2011).

IV. Legal Implications: Solutions to Resolve Potential Conflicts

The temporary nature and legal uncertainty of maritime boundaries are not desirable, since they have the potential to intensify existing conflicts over marine resources or trigger new ones. This problem may appear not so significant compared to the humanitarian challenge but it is of undeniable importance since it brings in its wake a whole series of geopolitical and economic consequences, especially in the current context where natural resources are becoming increasingly rare. They could pose a threat to world peace if they are not wisely negotiated and carefully managed.

With the ambulatory nature of baselines, numerous legal issues are raised, among which, determining the extent of rising sea levels on baselines and boundary delimitation are the core ones. In order to prevent such dispute, some scholars suggested a change of great importance as the formulation of strict procedures to officially modify a maritime boundary and to guarantee firm expectations of interests to all states concerning a maritime boundary.⁸⁷ It is worth mentioning that the drawing of baselines is necessarily a unilateral action, however, the validity of the delimitation with regard to other states depends on international law.⁸⁸ As the states concerned take different stances, it is advisable to settle maritime boundary delimitation on a permanent basis with defined geographical coordinates by bilateral agreements.⁸⁹

Proposals are also made for the affected states to fix or freeze presently accepted baselines and/or outer limits of maritime zones where appropriate.⁹⁰ A coastal state may announce the baselines established in accordance with the UNCLOS as permanent once it has deposited the geographical coordinates with the UN on an adequate scale with due publicity, notwithstanding subsequent changes in geographical features of coasts or islands due to sea level rise. The reality is that the totally submerged islands (disappeared) may cease to generate any maritime zones, and the partial submerged ones may become rocks that are not entitled to an EEZ or continental shelf. More importantly, only states can claim maritime zones, therefore

87 Caron (2008).

88 Kwiatkowska (2007:944).

89 According to UNCLOS, Articles 5 and 16(1), to declare baselines by recourse to geographical coordinates may require amendment of domestic legislation.

90 Such proposals include fixing of baselines by Caron (2008), fixing of outer limits by Soons (1990), Freestone & Pethick (1994).

when a state ceases to exist, maritime zones cease and may revert to global commons or to other states.

To avoid uncertainty and possible conflicts under the situation of constant rising sea levels, it may be necessary to promote the adoption of universal rules by means of a multilateral agreement or an international organisation to protect the affected baselines drawn in accordance with UNCLOS to make it permanent from the time they are publicly declared.⁹¹ Although this is deemed to be very difficult, it is a task of legal scholarship to aid societal adaptation to global climate change by identifying and addressing legal challenges.⁹²

D. Possible Effects of Sea Level Rise on Low Lying States and Legal Remedies

While the unfolding, collectively-induced climate crisis is having significant impacts on the world's oceans and marine ecosystems, humankind is also to subject to its associated environmental damages and severe consequences.⁹³ Indeed, its global nature and capacity to hinder sustainable development is reflected from the most striking examples of its human impact on low lying states, typically the SIDS who are already poor and vulnerable with the weakest capability to bear the profound challenges and additional burdens.⁹⁴

I. De-territorialised States and Climate Exiles

The effects of rises in sea level and the threats this poses for low lying coastal states have been the subject of extensive study and commentary since the 1980s. More than half of the world's population lives in coastal areas, and the accelerating sea level rise imposes serious adverse human impacts in a

91 This may be done to be based on the procedural mechanisms to develop customary international law, draft a Protocol to UNFCCC, formal amendment of UNCLOS, or UNGA Resolution (PART XI approach).

92 Caron (2008).

93 Pernetta (1992).

94 For more information on this account, see Small Island Developing States Network at <http://www.sidsnet.org/>; for Environmental Vulnerability Index, see <http://www.vulnerabilityindex.net>, last accessed 03 May 2013.

variety of ways.⁹⁵ As the effects of climate change intensify, the coastal and island communities of the low-lying Pacific SIDS are especially endangered.⁹⁶ They may lose not only their homes, but their entire nations, and will be forced to leave their homes within the next half-century.⁹⁷ In the worst scenario, some extremely vulnerable SIDS such as Maldives, Tuvalu, Marshall Islands and Kiribati⁹⁸ will suffer from partial or total loss of submerged territory and become the victims of climate change as de-territorialised states and climate exiles.⁹⁹

Although there is no comprehensive review of present and projected climate change impacts on the SIDS as a whole, there is no great gap and difference about the influence of climate risk on SIDS.¹⁰⁰ The SIDS, comprising 52 small countries and territories in the tropics and low-latitude subtropics, are the least responsible for GHG emissions, yet are likely to suffer

95 Burns (2001).

96 A rise in sea level of only one meter would allegedly destroy a large portion of Bangladesh, 75% of the low-lying islands in Vanuatu and 80% of the Majuro Atoll of the Marshall Islands, and inundate residential areas for half of the public. Ghina (2003a) and (2003b:7).

97 Park (2011).

98 Tuvalu, a small island state in the South Pacific Ocean with an average altitude of less than 3 meters, risks being wiped off the map in the next decades. Kiribati is seriously contemplating moving their inhabitants on to floating islands constructed on the model of giant oil platforms. Tuvalu and three other small Pacific island nations (Fiji, Kiribati, and Nauru) have contemplated a lawsuit, as evidenced by their declarations upon signing the UNFCCC in 1992 that preserved its right to seek legal redress for damages allegedly suffered as a result of climate change. See <http://www.aosis.org>, last accessed 03 May 2013 for more information and the full Declaration.

99 Under international law, refugees are strictly considered to be those who have been forced to flee their homes countries as a result of war or persecution and have the possibility of return when things get better in the future. They seek asylum under the condition that they cannot obtain protection from their own state; often their own state is responsible for their vulnerable situation. But when a person's home, land or indeed entire country is wiped out by a phenomenon such as rising seas there is no hope or chance that the person will ever be able to return home. Such individuals will therefore essentially have become 'climate exiles' who will have no legal status and few options other than to become permanent boat people unless the international community develops early strategies to address their legal needs. For discussions, see Kelman, & West (2009); Kelman (2011); Dore (2005:1168).

100 Lewis (1999).

the worst effects, and be disproportionately burdened by climate change.¹⁰¹ They are ecologically fragile and vulnerable owing to their small size, limited resources, geographic dispersion that put them in a disadvantaged position in sustainable development.¹⁰² Many residents or settlements of such states suffer from extreme weather events like storm surges and other hazards, of increased frequency and intensity.¹⁰³

Of course, they are not the only small island nations that suffer damages from climate damages, many other states are suffering from sea level rise which is causing adverse impacts.¹⁰⁴ From coral atolls in the Pacific Ocean to low-lying coastal states to landlocked Himalayan nations, scores of such states are positioned as climate change victims.¹⁰⁵ In Bangladesh alone, people migrating in response to climate change could outnumber all current refugees worldwide.¹⁰⁶

II. The Statehood Dilemma and Compensation Challenges

In the light of wide-ranging effects of current global warming and sea level rise, two broad policy responses have been adopted in addressing the negative impacts. One is *mitigation*, which searches for actions aimed at slowing down climate change by reducing net GHG emissions, the other is *adaptation*, which seeks for actions taken in response to, or in anticipation of, projected or actual changes in climate.¹⁰⁷ While scientists, managers and resource users work actively to design adaptation strategies that reduce the vulnerability of marine species, systems and industries to climate change, legal scholars have been trying to search for means of possibilities to legally

101 A List of Small Island Developing States (UN and Non UN Members) is available at <http://www.un.org/special-rep/ohrlls/sid/list.htm>, last accessed 03 May 2013; Ghina (2003a).

102 Lewis (1990). See also Wisner et al. (2004).

103 IPCC (2007b:18).

104 The Alliance of Small Island States, an intergovernmental body established in 1990 to address global warming and negotiate within the UN system, has 37 members, 36 of which are UNCLOS states parties.

105 Voccia (2012).

106 Based on an estimate that includes anyone who was foreign-born in their current country of residence, migrants worldwide make up about 175 million people. See Hinrichsen (1998); Lewsey & Kruse (2004).

107 Dang et al. (2003).

maintain the statehood and maritime entitlement of the affected states in the event of inundation.¹⁰⁸

Questions have been raised about who will bear the costs of adaptation measures of the affected states and who has to pay for the damages and compensate the climate exiles for their loss of homelands and property, the damage to their health and life?¹⁰⁹ How can these states be better protected through the path of international legal remedies with regard to states' responsibilities and environmental liability? However, current international law does not adequately address the statehood dilemma and continued maintenance of their entitlements in the context of sea level rise. The cross-cutting issues of climate exiles link to many areas of key interests of those dislocated people, including development, national security, and human, indigenous, and cultural rights.

The emerging issues relating to the statehood dilemma and climate exiles are particularly pressing in the context of vulnerable SIDS whose very existence is threatened. In an attempt to build pressure to force states to take action on climate change, a widespread consensus on the need for international legal protection of climate migrants has emerged by turning to the courts as a means and strategy to bringing about major change and promote greater action to address the adverse impacts,¹¹⁰ and to seek to hold those responsible for GHG emissions accountable for the impacts of their past and future actions.¹¹¹

To rescue their 'disappearing' territory and statehood, the SIDS have also been trying to seek assistance from international law for adaptation, stability,

108 1994 Report of the Global Conference on the Sustainable Development of Small Island Developing States. Document A/CONF.167/9 (October, 1994) from the Global Conference on the Sustainable Development of Small Island Developing States, Bridgetown, UN, 25 April – 6 May 1994.

109 Legal issues have been raised and suggested concept recognition of new category of state as de-territorialised state in international law. For details, see Rayfuse (2010).

110 Climate litigation is a relatively new phenomenon, but recent decisions in Australia ruling in favour of the arguments of environmental applicants suggest that it is a trend that will only continue to grow in the coming years. See Peel (2007:103).

111 According to Vicuña (1998:280), "responsibility and liability for environmental damage should not always be regarded as a negative sanction, but rather...as a positive inducement to prevention, restoration or compensation as the case may be."

and a future,¹¹² whereas, the issue regarding to international legal remedies for the affected states has been hotly debated. Views are divided regarding whether international law offers a possibility for states injured by climate change-related impacts to claim, and be awarded, compensation for the damage suffered, and to what extent the GHG emitting states are responsible to compensate the injured states.¹¹³

The literature reveals regretfully that international attempts to hold emitters accountable have not been successful. Tuvalu's threat to sue the United States and Australia at the International Court of Justice, and the Inuit's petition to the Inter-American Commission on Human Rights were both hampered by procedural and substantive legal issues.¹¹⁴ This indicates the need for a holistic and proactive approach along? the progress to enhance the linkages between climate damages and legal remedy for the affected states to find a solution to protect states as SIDS for their loss in statehood and maritime zones.¹¹⁵

112 A group of SIDS, headed by Palau, asked the UN General Assembly to seek an advisory opinion from the International Court of Justice on the legal responsibilities of nations whose corporations cause international harm through contributing to climate change. See International: Palau to seek ICJ Advisory Opinion, available at <http://www.climatelaw.org/cases/country/intl/icj/palau>, last accessed 03 May 2013. UN Department of Public Information, Advisory opinion on climate change, 03 February 2012, at http://www.un.org/News/briefings/docs/2012/120203_ICJ.doc.htm.

113 Vicuña (1998).

114 Weinbaum (2011) holds the view that tort law and human rights-based litigation may not be the most effective approach to meet the immediate needs of SIDS' facing the dire consequences as climate victims.

115 For the first time, nations agreed at the UN climate conference in Qatar that "developing nations that are particularly vulnerable to the adverse effects of climate change" and might have a right to redress from major polluting nations for any resulting "loss and damage." The IPCC directed its staff to begin research on how to ensure that redress. The new diplomatic language about "loss and damage" adopted in Qatar signifies that there has been a potential breach of the UNFCCC agreement. And that breach can only intensify the demand for the responsibilities of states to be defined in law. The latest action taken in Qatar suggests nations now concede that damaging impacts of climate change are inescapable.

III. Legal Remedies and Litigation Strategy

Customary international law has a fundamental principle that states may do each other no harm.¹¹⁶ A state violates this rule if an activity under its control does damage to another state, and if it is done on purpose or due to carelessness. Impacts of climate change fall under this rule, as reinforced by many declarations and treaties including the UNFCCC and Kyoto Protocol.¹¹⁷ Given the failure of the world's major greenhouse gas emitting nations to meaningfully address climate change domestically or through international regimes, there is a rise in plans for litigation worldwide for consequences of global warming and sea level rise.¹¹⁸

The vision of litigation may help to deepen the commitment of states to confront this pressing issue as an important mechanism for raising public, political and commercial awareness. Equally great is the possibility that litigation could be an alternative for many states that may bear the brunt of climate impacts during this century and beyond, and its significance extends beyond the court room.¹¹⁹ On the other hand, as a common challenge to all litigation is establishing legal causation, litigation of this kind is complex due to the nature of the science and the facts of climate change, and it involves interrelated legal and scientific issues and touches upon many different aspects of international and domestic law. Climate change law and policy regarding state responsibility under UNFCCC and Kyoto Protocol,¹²⁰ as currently organised, are being constructed at the intersection of several areas of law, including international law, environmental law, energy law, and business law, and are ill-equipped to deal with an inherently cross-

116 The *no harm rule* is a rule of customary international law that declares a state has a duty to prevent, reduce and control the risk of environmental harm to other states. The rule has been applied in many cases and is included in international agreements, such as the Declaration of the United Nations Conference on the Human Environment. See Schwarte (2012).

117 For discussions on this, see Brownlie (1983); Churchill & Freestone (1991); Freestone & Hey (1996); Yamin & Depledge (2004).

118 United Nations Economic and Social Council (2011); United Nations General Assembly (1994); Report of the International Meeting to Review the Implementation of the Program of Action for the Sustainable Development of Small Island Developing States. A/CONF.207/11, Port Louis, Mauritius, 2005.

119 Wiggins (2007).

120 McAdam (2009).

cutting issue like climate change and litigation.¹²¹ It is likely to be challenging to establish that the emissions of a single defendant are significant enough to be regarded as having caused the damage suffered, and may have to take a while before climate change actions are instituted.

At the mention of environmental liability, the *polluter pays principle* does play a crucial role,¹²² but the difficulty may lie in the fact that compensation for the harm done depends on many parameters, such as emission scenarios, climate change impacts and its accounting. For example, coral reefs face many other threats that may also contribute to their degradation, including disease, predators, and pollution. Thus, it may be difficult to attribute damages solely, or even substantially, to the degradation of reefs. It would be difficult for the small and vulnerable states to provide evidence for such links. Likewise when a party facing such an action in dealing with GHG emission responsibility for marine damages to the emissions of any individual country, it might have to argue that all other responsible parties must be brought into the dispute.¹²³ Given the difficulties to make a successful claim, the most crucial issues are from when countries can be held responsible and which emissions are acceptable and which careless.¹²⁴ The effectiveness of this strategy for achieving climate goals is further limited by the time and expense of litigating, the restrictions inherent in environmental law, administrative challenges, and the possibility that judicial decisions may be overruled by the legislature.¹²⁵

Nevertheless, this does not mean that there are no means available to serve as legal remedies for the states affected. There is a long standing body of international instruments concerning damage caused by nuclear activities, as well as in the field of oil pollution at sea.¹²⁶ More recent instruments deal with damage caused by maritime transport of hazardous and noxious substances.¹²⁷ Operational procedures of these actions will lend strength to the

121 The traditional ways in which law and policy have been divided into fields of inquiry and operation, such as human rights, trade, development and so on, do not reflect the messy, complex interconnectedness of the issue. Dernbach & Kakade (2008).

122 Ingelson et al. (2010:456).

123 See Draft Articles on Responsibility of States for International Wrongful Acts (Article 47). International Law Commission, 2001, available at http://www.un.org/la/w/ilc/texts/State_responsibility/responsibilityfra.htm, last accessed 03 May 2013.

124 Myles (2003:892).

125 Bach & Brown (2009); Tol & Verheyen (2004:1111).

126 Basse (2009:36).

127 (*ibid.*).

formation of climate litigation. With the rising tide of international climate litigation, the business as usual mentality and environmental unresponsiveness will soon become a thing of the past. The possibility of a small island state, or another injured party, bringing a liability claim against states responsible for climate change will no longer be a topic for fiction or a theoretical prospect. What remains is to muster the political will necessary to turn potential solutions into reality.

E. The UNCLOS Regime and Protection of Affected States

Facing the critical changes occurring in the oceans and disappearing low lying states, how to address the climate change damages and find practical solutions to support the affected states, has become arguably the most pressing legal, environmental, political, economic, social and ethical issue of our time.¹²⁸ This section looks into the UNCLOS regime in controlling pollution of marine environment and settling disputes with special attention to its potential in protecting the affected states.

I. "Pollution" Definition and GHG Inclusion

The UNCLOS, comprising 320 Articles and nine annexes, establishes a comprehensive framework for the world's oceans governing all aspects of ocean matters, particularly on how the living resources of the oceans are managed and marine pollution is regulated so as to protect coastal states' vital economic and environmental interests. Concerning the "Protection and Preservation of the Marine Environment", a regime is set forth in Part XII with obligations being emphasised to prevent, reduce and control pollution literally from all sources, i.e. land-based sources, from sea-bed activities, from activities in the Area, by dumping, from vessels, and from or through the atmosphere.¹²⁹ UNCLOS sets up rules of jurisdiction that clarify where and how states parties adopt domestic laws and regulations, international environmental standards and other measures to control pollution for the

128 Wiggins (2007).

129 UNCLOS, Articles 207 to 212.

health of the oceans and the living resources, and that must be no less effective than the “global rules and standards”.¹³⁰

As one of the most important instruments and widely ratified multilateral treaties, its provisions on environmental protection by themselves would constitute a critically important environmental treaty to protect the physical health of the ocean, also the living resources therein. This is reflected from how the term is defined on “pollution of the marine environment” to mean¹³¹

the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.

There is no direct reference to climate change in this definition, no indication in forming a basis for ocean damage compensation. Nevertheless, it makes clear that any “substances or energy” introduced by human activities, either directly or indirectly, into the marine environment resulting in “deleterious effects as harm to living resources and marine life” constitute the pollution of the marine environment. Through this expansive definition, GHG emissions from or through the atmosphere appear to be pollution covered under its regime.¹³²

As discussed earlier, evidenced from scientific findings, the accumulation of CO₂ has resulted in the temperatures and acidification increase of sea waters that has caused damage to marine living resources such as corals and the habitat. The rising sea levels have also brought negative consequences to the livelihood and very existence of low lying states. These manifestations

130 UNCLOS, Article 210.

131 UNCLOS, Part 1, Article 1(4).

132 This may find support from the United States Environmental Protection Agency (EPA) action in regulating GHG under the Clean Air Act from mobile and stationary sources of air pollution in 2011. See *Massachusetts v EPA*, 127 S. Ct. 1438 – Supreme Court 2007: 127 S. Ct. 1438 (2007), *Massachusetts et al., Petitioners, v Environmental Protection Agency et al.* No. 05-1120. Supreme Court of United States. Argued 29 November 2006. Decided 02 April 2007. For actions taken by the EPA to regulate GHG, and steps planned to complete emissions rules, see Environmental and Energy Study Institute. Fact Sheet: Timeline of EPA Action on Greenhouse Gases, available at http://www.eesi.org/epa_ghg_timeline_070711 last accessed 03 May 2013.

may give rise to actions under the UNCLOS.¹³³ Similarly, UNCLOS makes no direct mention of the impermissibility of geo-engineering measures in general or CCS and OF in particular, its definition would prohibit such activities because of their potential risks of deleterious effects to the marine environment.¹³⁴

Such an expansive definition was said to have originated from a series of drafts and proposals embodying a comprehensive approach and reflecting principles adopted in the 1970s by the international community including the UN Conference on the Human Environment (the Stockholm Conference)¹³⁵ and “the consensus that pollution from all sources should be dealt with, in relation to a broad, indeed all embracing, concept of ‘marine environment.’”¹³⁶ The concept is consolidated by concrete efforts through 46 Articles of Part XII and relevant provisions of other parts prescribing specific duties for states to protect and preserve the marine environment.¹³⁷

II. Marine Environmental Protection and GHG Emission Reduction

Articles 192–237 in Part XII of the UNCLOS set out rights and duties of states in controlling pollution with appropriate care and formulates a comprehensive set of regime marine environmental protection.¹³⁸ Under the UNCLOS, states are required to undertake all measures necessary “to prevent, reduce and control pollution of the marine environment from any source,”¹³⁹ including “the release of toxic, harmful or noxious substances, especially those that are persistent¹⁴⁰... from land-based sources, [or] from

133 Burns (2006).

134 See Duhaime Legal Dictionary on *Pollution*, available at <http://www.duhaime.org/LegalDictionary/P/Pollution.aspx>, last accessed 03 May 2013.

135 The Stockholm Declaration came out of the 1972 Stockholm Conference on the Human Environment, often considered the progenitor of the modern environmental movement. Principle 21 of the Declaration is most apposite. For details, see <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=97&articleid=1503>, last accessed 03 May 2013.

136 See Nordquest et al. (1991:55).

137 UN Secretary General, *Law of the Sea: Protection and Preservation of the Marine Environment*, UN Doc. A/44/461, 1989, para. 30.

138 Hafetz (2000:596).

139 UNCLOS, Article 194(1).

140 UNCLOS, Article 194(3).

or through the atmosphere....”¹⁴¹ UNCLOS is significant in adopting a different approach to the classification of the various pollution sources that should be regulated by international rules and national legislation to prevent, reduce and control pollution of the marine environment. It is a departure from previous international regulations of this kind.¹⁴²

Among the listed sources of pollution, pollution from or via the atmosphere is specifically dealt with in Article 212 and other places in Part XII of the UNCLOS where states are required to adopt laws and regulations applicable to the air space under their sovereignty and to vessels flying their flag or vessels or aircraft of their registry, taking into account internationally agreed rules, standards and recommended practices and procedures to prevent, reduce and control pollution from or through the atmosphere.¹⁴³ In addition to fulfil their duty to protect and preserve the marine environment, states are further required to ensure that activities under their jurisdiction are conducted in a manner that does not cause pollution damage to other states and their environment.¹⁴⁴ It emphasises that all necessary measures need to be taken to ensure transboundary harm should be avoided.¹⁴⁵ This provision is particularly relevant to GHG emissions. Collectively with the *pollution* definition, it implicitly prohibits any “substances and energy” that may cause pollution to the atmosphere including unlimited emissions of GHG. In this regard, the UNFCCC and Kyoto Protocol also provide a framework as the most important obligation for substantive international action in reducing the GHG emissions and potential climate damages to the oceans.

Moreover, Article 197 of the UNCLOS requires parties to cooperate through competent international organisations to formulate rules, standards, and practices to protect and preserve the marine environment.¹⁴⁶ Parties are

141 UNCLOS, Article 194(3)(a). See also Article 212.

142 Such as the International Convention on Pollution of the Sea 1954 by Oil and MARPOL 73/78 which concerned only operational/accidental discharges of vessel-sourced.

143 UNCLOS, Articles 207, 208, 209, 210, 211, and 212(1).

144 UNCLOS, Article 193.

145 UNCLOS, Article 194(2).

146 The International Maritime Organisation (IMO) is one of such competent international organisations, a specialised agency of the UN responsible for measures to improve the safety and security of international shipping and to prevent marine pollution from ships. It also is involved in legal matters, including liability and compensation issues and the facilitation of international maritime traffic. Marine environment protection is one of its strong focuses. It develops global regulations,

also obligated under Article 204 to act directly or through competent international organisations to monitor the risks or effects of pollution of the marine environment, and to keep under surveillance the effects of any activities which they permit or in which they engage in order to determine whether these activities are likely to pollute the marine environment. As a reflection of UNCLOS “as strict as possible approach”, this requirement has also been adopted in recent decades by the international community in the form of the *precautionary principle* with implications to states that produce GHG emissions.¹⁴⁷ In the same fashion, Article 212 is also pertinent where it requires parties to act through competent international organisations or diplomatic conferences to establish measures to prevent, reduce, and control pollution. The UNFCCC should clearly be analysed as such “competent organisation” to address climate change given the fact that it has been ratified by 195 parties, including all of the world’s major GHG emitting states.¹⁴⁸ The obligations under UNFCCC should be recognised as “international mechanisms to control pollution” under Article 212 of UNCLOS, since its overarching purpose is to control GHG emissions so as to “prevent dangerous anthropogenic interference with the climate system.”¹⁴⁹

It is noteworthy that whilst some UNCLOS provisions set regulatory standards for the protection and preservation of the marine environment, Articles such as 213–222 and 235 are rules for those standards to be enforced. In particular, Article 235 explicitly deals with state responsibility and liability for the fulfilment of their international obligations concerning the protection and preservation of the marine environment. Under Article 235, state responsibility is triggered when it fails to fulfil the responsibilities provided by the UNCLOS, and states need to ensure available recourse for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment. With the objective of assuring prompt and adequate compensation, states are to cooperate in the implementation of existing international law and to further develop international law relating to responsibility and liability for the assessment of and compensation for

adopts treaties and guidelines at the intergovernmental level, and member governments are responsible for implementing and enforcing the adopted regulatory framework. For details, see <http://www.imo.org>, last accessed 03 May 2013.

147 For general discussions, see Freestone & Hey (1996).

148 See http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php.

149 UNFCCC, Article 2.

damage and the settlement of related disputes, and develop criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds.¹⁵⁰

This imposes a very stringent standard of care in mandating states' obligations and liabilities as juridical persons in accordance with international law.¹⁵¹ It also secures the linkage between Article 235 and the UNFCCC regime. The latter is clearly an international obligation that can contribute to the protection and preservation of the marine environment by reducing GHG emissions. Indeed, the UNFCCC specifically acknowledges the potential impacts of climate change on natural ecosystems,¹⁵² and the need for special regard of countries with fragile ecosystems.¹⁵³ Article 304 also affirms that a state is responsible and liable for damage to the marine environment.

Another such linkage rests between UNCLOS and other environmental treaties represented by the 1972 London Convention and its 1996 Protocol, which substantially increases the viability of UNCLOS to reduce GHG damages to the marine environment.¹⁵⁴ One of the important consequences lies in the fact that parties to either UNCLOS or the London Convention/Protocol are obligated to the "global rules and standards" referenced by Article 210 that provides the foundation for regulation of dumping activities including CCS and OF types of marine geo-engineering projects.

Under Article 210 (6) of the UNCLOS, the national laws, regulations and measures of a state shall be no less effective in preventing, reducing and controlling pollution than the global rules and standards, which implicitly

150 UNCLOS, Article 235(3).

151 UNCLOS, Article 235.

152 UNCLOS, Preamble.

153 UNCLOS, Article 2(8g).

154 UNEP lists over 500 agreements between or among states that deal with environmental issues out of 40,000 total international agreements, see <http://unfccc.int/documentation/documents/items/3595.php>. International agreements to protect the marine environment include: International Convention for the Prevention of Pollution of Ships (MARPOL 72/78 adopted in 1973 and updated with a 1978 Protocol); Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (the "London Convention 1972"); the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal; Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, 1995; and Long Range Transport of Atmospheric Pollutants. For details, see <http://www.unep.org/>; <http://www.imo.org/>, last accessed 03 May 2013; and Freestone & Hey (1996).

refers to those set under the London Convention/Protocol. It enhances the compatibility and consistency of London Convention/Protocol with UNCLOS, and successful implementation of any of them will contribute to the effectiveness of UNCLOS. In case of potential boundaries, they should be clarified in the interest of harmonised and effective operation of these agreements.

Another characteristic linkage is imbedded in the UNCLOS itself regarding two interrelated goals: environmental protection and conservation of marine living resources. Needless to say, they both have distinctive implications to the effects of sea level rise. The UNCLOS Preamble provides that under the general consensus, parties agreed to establish “a legal order for the seas and oceans which will facilitate ... the conservation of their living resources, and ... protection and preservation of the marine environment”.¹⁵⁵ Based on this consensus, the conservation and protection of marine living resources are the ultimate goal of environment protection.

For this purpose, UNCLOS devotes the whole of Part V to marine resources where parties are allowed by Article 56 to establish an EEZ up to 200 nm from the territorial sea baselines to exercise, inter alia “sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living....”¹⁵⁶ This predominantly refers to the right to exclusively harvest the living resources in the EEZ, and to impose conservation measures for the resources and fishing operations conducted in the EEZ.¹⁵⁷ While Article 62 provides that coastal states have certain conservation and restoration obligations towards marine living resources, Article 61 reminds parties to balance their interests between environmental protection and economic development.¹⁵⁸ By so doing, the UNCLOS tries to strive for a balance between the sovereign right of States to exploit their natural resources and their obligations to protect and preserve the marine environment in their EEZs.¹⁵⁹ This is echoed in Part XII by requiring states to take measures to protect and preserve “rare or fragile

155 UNCLOS, Preamble, Para. 5.

156 UNCLOS, Article 56(1a).

157 UNCLOS, Articles 56(1a), 61, and 62.

158 The two relevant environmental and economic factors listed in order are the “economic needs of coastal fishing communities and the special requirements of developing States” and “the interdependence of stocks and any generally recommended international minimum standards.” UNCLOS, Article 61.

159 See also UNCLOS Articles 193, 192.

ecosystems” and “the habitat of depleted, threatened or endangered species and other forms of marine life.”¹⁶⁰ Based on this regime setting, the projected increases in seawater temperature with many adverse impacts oceanic system give rise to claims under the UNCLOS.

III. Compulsory Dispute Settlement and Climate Litigation

As a multilateral instrument of near global adherence concerned with, *inter alia*, the prevention, reduction and control of marine pollution, the UNCLOS establishes its own adjudicatory system to provide for binding resolution of conflicts that arise under its provisions.¹⁶¹ In cases where disputes related to the interpretation or application of provision arise and cannot be settled through an exchange of views or conciliation, Part XV provides compulsory adjudication procedures that entail binding decisions for such disputes.¹⁶²

Through Annex VI, UNCLOS designated an International Tribunal for the Law of the Sea (ITLOS) to act as its judicial guardian.¹⁶³ In addition to the ITLOS, UNCLOS provides channels for special international arbitral panels for disputes falling into several specialised categories covering fisheries, marine scientific research, protection and preservation of the marine environment, and navigation-related pollution from vessels and by dumping.¹⁶⁴ States may choose to declare their choice of forum when ratifying/acceding to the UNCLOS, but in cases where they have not, or parties to a dispute have not accepted the same procedure for dispute settlement, the dispute may only be submitted to binding arbitration unless the parties agree otherwise.¹⁶⁵

As maintaining linkages to other global treaties on pollution control, UNCLOS also reserves the availability of other international judicial institutions

160 UNCLOS, Article 194(5).

161 Legal scholars proposed various forums for initiating a lawsuit against the United States, including UNCLOS’s compulsory dispute resolution mechanisms. Strauss (2003:8).

162 UNCLOS, Articles 279–285.

163 The Tribunal commenced its work in Hamburg in 1996 and is composed of 21 judges representing the legal systems of the Convention’s Parties (Articles 1, 2, and 4).

164 UNCLOS Annex VIII, Article 1.

165 UNCLOS Article 287(3–5).

responsible for safeguarding the compliance of international laws.¹⁶⁶ The parties to UNCLOS are free to choose whether to submit disputes concerning the interpretation and application of UNCLOS to ITLOS, or whether to apply to an arbitral panel, such as the International Court of Justice (ICJ) in The Hague or another arbitral tribunal.¹⁶⁷

With the compulsory dispute settlement mechanism, chances for UNCLOS parties to take actions against the GHG emitting states for their losses greatly increased. Moreover, one of its implementation agreements, the UN Straddling Fish Stocks Agreement¹⁶⁸ signifying an important development of UNCLOS regime relating to conservation of living resources, can also serve as a dispute resolution mechanism and a means to liability. This agreement is not explicitly intended to deal with the problem of global warming; it does, however, incorporate the system of UNCLOS binding dispute resolution, and provides a framework for protecting certain species of fish, and to the extent that GHG emissions can be shown to endanger such fish, its protective environmental provisions could potentially be liberally interpreted to cover global warming.

Such a mechanism may also be capable of fixing some loopholes of UNFCCC provisions. For example, the non-mandatory language is typical in calling on Annex I Parties¹⁶⁹ to reduce their GHG emissions back to 1990 levels by 2000;¹⁷⁰ the scope of the obligations of the parties to the UNFCCC cannot be established and connected directly to Articles 197, 212, and 235 of UNCLOS. Nonetheless, interpretation of the nature of this obligation must be

166 For a list of cases ITLOS processed, see <http://www.itlos.org/index.php?id=35&L=1AND1%3D1>, last accessed 03 May 2013. For discussions on this account, see Schwarte (2004:423f.).

167 UNCLOS, Article 287(1).

168 The full name is: the United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. It was adopted on 4 August 1995 and entered into force on 11 December 2001. As of 7 November 2012, it had 80 ratifications. For further information on this agreement, see, http://www.un.org/Depts/los/convention_agreements/convention_overview_fish_stocks.htm, last accessed 03 May 2013.

169 Under the UNFCCC, Annex I Parties “include the industrialized countries that were members of the OECD (Organization for Economic Co-operation and Development) in 1992, plus countries with economies in transition, see UNFCCC, “Parties and Observers”, see http://unfccc.int/parties_and_observers/items/2704.php last accessed 03 May 2013.

170 UNFCCC, Article 4(2)(a)(b).

read in light of Article 27 of the Vienna Convention on the Law of Treaties, which requires that treaty obligations must be performed in “good faith.”¹⁷¹ Under this accepted principle of customary international law, unless an Annex I Party to the UNFCCC could demonstrate its efforts in taking substantive measures to reduce its emissions back to 1990 levels within the prescribed time period, it would have to face the accountability that it had failed to make a good faith effort to meet the longer-term objectives of the UNFCCC.

Articles 2 and 4(2) of UNFCCC require Annex I Parties to adopt policies and measures to stabilise GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. This would be relevant to an action under UNCLOS given the potential impacts of climate change on ecosystems, fisheries, and the economic development of vulnerable developing states. A party to UNCLOS could argue that all parties which have not met their obligations under the provisions of the UNFCCC are liable for damages under Articles 235 and 197 of UNCLOS.¹⁷² It should also be possible to make a similar argument under the Kyoto Protocol should some of the Protocol’s Parties fail to meet their obligations. Should foreseeable reality be the standard applied to resolve a climate change action under UNCLOS, parties would probably have no problem establishing that both the language of the UNFCCC and the comprehensive assessment reports of the IPCC have put all states on notice in terms of climate threats, and more specifically, potential impacts on marine environments. These states have failed to comply with Article 213 in regard to internationally accepted standards on carbon emissions, and other universally accepted environmental standards such as the no harm rule as the basis of climate change lawsuits.¹⁷³

With these accompaniments, UNCLOS is competent to form a basis for a cause of action for rising sea levels and changes in ocean acidity, and more importantly to protect affected states. However, the application of this mechanism and relevant legal principles would certainly involve various complex

171 Vienna Convention on the Law of Treaties is in force since 27 January 1980 and has 108 parties (as of 15 December 2008). The Convention has been ratified by all major greenhouse gas emitting nations with the exception of the United States. For more information, see <http://untreaty.un.org/cod/avl/ha/vclt/vclt.html>, last accessed 03 May 2013.

172 All industrialised countries are Parties to the UNFCCC. See *supra*, note 5.

173 Osofsky (2005).

legal and scientific questions pertaining to climate change, for example, the attribution of damages, causation, the standard of proof, striking a balance between sovereign rights to exploit natural resources and protecting the marine environment, possible justifications or whether states can be held jointly and severally liable. The low lying states such as SIDS which suffer from sea level rise causing adverse impacts could bring a lawsuit as claimants, as long as a state is an UNCLOS party and can demonstrate that it has suffered detrimental effects from climate change, and it qualifies as a potential litigant in compulsory dispute resolution tribunals of the UNCLOS.¹⁷⁴ Scores of such states are positioned to initiate climate change lawsuits against the major emitters such as the United States if it accedes to the UNCLOS.

F. Concluding Remarks

Climate change is already having wide-spreading impacts on the world's oceanic systems and biodiversity. Sea level rise has brought about significant challenges to coastal states' rights to their maritime zones and access to their vital resources. Global warming and rises in sea level induced by global warming have detrimental effects on those low lying states and pose serious threats to human welfare and sustainability. Climate change is projected to become a progressively more significant threat in the coming decades. Against this background, this article serves as a starting point for further consideration of important issues raised by climate change and issues relating to legal response to its devastating scenario. With a strong focus on remedies, it may be helpful in developing comprehensive research of the wider implications for issues of international legal liability and a better protected and adaptive society against climate change.

The way in which states handle the oceans will be a decisive test of humankind's ability to steer a sustainable course in the future. The failure of the world's major GHG emitting nations to seriously address climate change has made litigation unavoidable.¹⁷⁵ In seeking for possible responses to the climate damages from the law of the sea perspectives, the article provides

174 The Alliance of Small Island States, an intergovernmental body established in 1990 to address global warming and negotiate within the UN system, has 40 members, 38 of which are UNCLOS states parties. For a list of the members, see <http://aosis.org/members/>, last accessed 03 May 2013.

175 Burns (2006).

key connections and linkages between the UNCLOS regime on marine environmental protection and other international rules and standards in the form of treaties, from pollution definition to GHG emission inclusion, from UNCLOS compulsory dispute settlement to UNFCCC, Kyoto Protocol implementation and emission control. The article demonstrated the justification of GHG as one of many marine pollution sources and its catastrophic consequences to oceanic systems before going on to scrutinise existing international mechanisms as responses and remedies for such disastrous consequences.

UNCLOS creates an extensive framework for taking and enforcing measures against different sources of marine pollution and strongly clarifies state responsibilities for breaching its duties. UNCLOS can serve as an important mechanism and strategy to combat climate change. Although, as with most international treaties, it lacks the executive power of enforcement, UNCLOS may prove to be a primary battle-ground under mounting pressures from climate change, species extinction, overfishing and maritime pollution. Given its broad definition of pollution to the marine environment and the dispute resolution mechanisms, UNCLOS has a remarkable ability to adapt to changing circumstances and great potential to provide means for affected states such as SIDS to seek for remedies for climate damages. As a promising instrument, UNCLOS will continue to develop its normative effect in the ocean domain and play a key role as a mechanism to confront climate change.

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Abstract

Sea level rise has the potential to influence the location of baselines along the coast from which claims to maritime jurisdiction are made. Accordingly, sea level rise may have adverse impacts on the extent of national maritime claims. This article provides a brief discussion of sea level rise before exploring the link between potentially variable baselines and the outer limits to maritime claims. Options to address these challenges are then discussed.

A. Introduction

Among the multiple threats posed by the impacts of climate change on the oceans is sea-level rise. This is likely to be especially problematic if the rise in sea level is significant and critically rapid. Sea-level rise of this nature would inevitably present disastrous threats to numerous coastal states. This is especially the case given that longstanding trends in global population movements from interior and predominantly highland locations to lowland and frequently coastal contexts have led to heavy urbanisation in low-lying coastal areas. Indeed, it has been estimated that a sea-level rise of 1 metre would inundate territory which is presently home to around 60 million people.¹ Moreover, some particularly low-lying coastal areas such as the megadeltas of the world, including those of Vietnam's Mekong and Red Rivers in the Asia-Pacific, are likely to be particularly susceptible to the threat of inundation, as large areas are actually below mean sea level at present sea levels.² For instance, it has been estimated that the aforementioned 1 metre

* This chapter draws heavily on the author's earlier contributions, particularly: Schofield & Arsana (2012); Schofield (2011); Schofield (2009).

1 See, for example, Ananthaswamy (2009:26, 30).

2 Doyle et al. (2010).

rise in sea level could displace more than 7 million inhabitants in the Mekong delta area alone.³ Further, even if not permanently inundated, climate change and sea-level rise are likely to make low-lying coastal areas more vulnerable to periodic flooding as a consequence of an increasing incidence of extreme weather events, leading, for instance, to storm surges occurring on top of an elevated base sea level.⁴ In addition to threats to populated coastal areas, concerns have been raised over the potential impacts of increased salt water intrusion on agricultural land close to the coast, as well as valuable coastal environments and habitats such as wetlands and mangroves, as a consequence of sea-level rise.⁵

Perhaps, inevitably, these threats to land territory and the populations, infrastructure and property associated with the loss of these areas have tended to dominate the concerns of policy makers in this context. There is, however, a further significant potential threat to the spatial extent of coastal states, a threat with respect to offshore rather than territorial spaces, and that is that sea-level rise will lead to the retreat of territorial sea baselines inland, leading to significant reductions in the scope of national claims to maritime jurisdiction. This chapter focuses on the potential threat that sea-level rise poses to national maritime claims and suggests potential options to address the challenges that arise.

B. Sea-Level Rise

While an in-depth discussion of sea-level rise is beyond the scope of this chapter, it is worth observing that there is broad agreement in the scientific community that sea levels are rising and doing so at an increasing rate.⁶ What remains uncertain are the critical issues of the degree to which the sea will rise and how swiftly it will do so. In large part, these uncertainties stem from the multitude of complex factors that may contribute to sea-level rise (and fall) and the interplay between them.

For example, although the melting of glaciers and other grounded ice are well known and potentially very significant contributors to sea-level rise, the extent and speed of their melting remains highly debatable. The possi-

3 UNDP (2011).

4 Gornitz (1995:529).

5 Freestone (1991:119–122).

6 See, generally, Schofield (2011).

bility of the melting of major land-based ice sheets, resulting in massive and abrupt sea-level rise has been described as one of the major climate “wild cards”.⁷ Indeed, even relatively moderate melting of such huge ice sheets as a result of climate change would have profound impacts on global sea level. However, as a consequence of the considerable uncertainty that surrounds the issues of whether and how swiftly land-based ice sheets such as those of Antarctica and Greenland are melting, the Intergovernmental Panel on Climate Change (IPCC) did not factor in this possible loss of ice. This led to its relatively moderate predictions in the *IPCC Fourth Assessment Report* of 2007. Consequently, the IPCC’s estimates of the range of sea-level rise by 2100 of between 0.18 and 0.59 metres above 1990 levels, with a mid-range prediction of 40 centimetres,⁸ have been criticised as being “remarkably conservative” and as being the victim of reaching “lowest common-denominator conclusions”.⁹

It has also been recognised that sea-level rise is a phenomenon that exhibits marked spatial and temporal variability. The diverse range of factors that can influence sea levels across a range of scales tends to lead to significant uncertainties over measurements and the causes of sea-level changes. Sea level varies diurnally, under the influence of the tides, but also seasonally, regionally and inter-annually. Further, intricate atmospheric-oceanic interactions can result in significant regional variations in sea level spanning multiple years. The sea-level rise ‘signal’ has to be set against (and distinguished from) the background of ‘noise’ of tidal cycles and of climatic variations, such as the El Niño Southern Oscillation (ENSO). Sea level is also influenced by deformations of the earth’s crust, for instance through the process of isostatic rebound or uplift already referred to above, as well as vertical displacements associated with tectonic movements. Additionally, anthropogenic activities can also substantially influence sea-level rise, either enhancing sea-level rise, for instance through deforestation promoting run off of water into the oceans, or countering it, for example through the building of dams.¹⁰ Consequently, the IPCC concluded in its Fourth Assessment Report of 2007 that sea-level change is “highly non-uniform spatially”, not-

7 See Walker & King (2008:75–80).

8 IPCC (2007:36–41).

9 McKibben (2007). See also Ananthaswamy (2006:26), who notes that there is a “growing consensus” that the IPCC estimates are “wildly optimistic”.

10 On these factors, see, generally, Schofield (2011).

ing that in some regions rates of rise are several times higher than the global mean rise, while in other regions, sea level is falling.

Although uncertainties persist regarding the scale and rate of sea-level rise, perhaps the critical point in this context is that, even if only relatively moderate sea-level rise were to occur, such limited vertical change would nonetheless be likely to give rise to substantial shifts in the location of the coast horizontally where low-lying, shallow gradient coastlines are under consideration.¹¹ As noted above, major population centres are concentrated on the coast, such that this scenario represents a potentially catastrophic scenario. This is especially the case for developing states with large populations located on low-lying territory, such as on the deltas of the Bramaputra and Mekong Rivers in Bangladesh and Vietnam respectively.

C. Ambulatory Baselines and Shifting Limits

I. Baselines and Claims to Maritime Jurisdiction

The United Nations Convention on the Law of the Sea (LOSC) of 1982 provides the generally accepted legal framework governing maritime jurisdictional claims. The LOSC has gained widespread international recognition and, at the time of writing, 163 states had become parties to it. A key achievement of the LOSC was the agreement on spatial limits to national claims to maritime jurisdiction. Consequently, maritime claims are predominantly defined as extending to a set distance from baselines along the coast.

Measured seawards from its baselines, a coastal state is entitled to claim a series of zones of maritime jurisdiction provided for in accordance with the LOSC. These zones include a territorial sea of 12 nautical miles (nm) (LOSC, Article 3), a contiguous zone out to 24 nm from baselines (or 12 nm from territorial sea limits) (LOSC, Article 33), an exclusive economic zone (EEZ) out to 200 nm from baselines (LOSC, Article 57) and continental shelf rights that may extend up to 350 nm or even further in certain circumstances (LOSC, Article 76).¹²

¹¹ See, for example, Leahy et al. (2001).

¹² The outer limits of the continental shelf where it extends beyond the 200 nm exclusive economic zone (EEZ) limits, unlike the limits of other zones that are based solely on a distance measurement, depend also on the geology and geomorphology of the seabed. That is why determining the outer limit of the continental shelf is a more

Coastal states have multiple options with respect to choice of baselines. These include straight baselines (LOSC, Article 7), lines closing the mouths of rivers (LOSC, Article 9) and the mouths of bays (LOSC, Article 10), as well as baselines related to ports (LOSC, Article 11). Further, a state that qualifies as an archipelagic state according to Article 46 of the LOSC can designate archipelagic baselines “joining the outermost points of the outermost islands and drying reefs of the archipelago” (LOSC, Article 47). However, the predominant type of baselines in use globally comprise “normal” baselines which, in accordance with Article 5 of the LOSC, are coincident with the low water line along the coast as marked on large scale charts. It is also important to note that the various straight-line type baselines outlined above still depend on normal baselines to an extent, as they need to be anchored back to normal baselines.

Irrespective of the type, baselines are vital in defining the outer limits of maritime zones claimed by a coastal state. Landwards of a coastal state’s baselines lie either its land territory, including the inter-tidal foreshore landwards of normal low-water line baselines, or internal waters. Baselines serve as the starting point from which the outer limits of maritime zones are measured. In addition, baselines are critical to the construction of equidistance lines between coastal states in the delimitation of maritime boundaries. In this context it is notable that equidistance lines, the construction of which necessarily depends on the use of baselines, have proved to be the most popular method of delimitation by far.¹³ Further, the approach adopted by international courts and tribunals in recent international cases relating to the delimitation of maritime boundaries has been to define a provisional boundary line based on equidistance, and then to examine any factors that may justify a modification of the provisional line in order to achieve an equitable result.¹⁴

II. Dynamic Coasts

It has long been recognised that parts of the coast are dynamic and can change location and configuration in relatively short periods. Indeed coastlines often

complex task than that for other zones of maritime jurisdiction. Nonetheless, distance measurements from baselines remain critical to this task.

¹³ See, for example, Prescott & Schofield (2005).

¹⁴ (ibid.).

change in a cyclical manner over time (alternately shifting seawards through deposition or accretion of material and then landwards as a result of erosion).¹⁵ Of particular note in the present context is that as the low-water line moves in response to sea-level rise, so the normal baselines and the maritime claims measured from them will shift. This is fundamentally because normal baselines are coincident with the “low-water line along the coast as marked on large scale charts officially recognised by the coastal state” (LOSC, Article 5). The location of normal baselines will therefore tend to move, or ‘ambulate’, over time in accordance with changes in the coast.¹⁶ The long-standing, generally accepted implication of this phenomenon is that as the coast/normal baselines change, so will the maritime jurisdictional limits measured from them. Thus where the baseline advances (for example by the deposition of material along the coast) the outer limits of the maritime claims measured from that baseline will expand seawards. Conversely, where the normal baseline recedes (through coastal erosion) the coastal state may lose maritime areas as their maritime limits are pulled back.

Since normal baselines are represented by the low-water line, sea level is an important issue in the definition of normal baselines. This is a particularly significant issue as normal baselines are the predominant type of baseline worldwide. Moreover, while normal low-water line baselines would seem most obviously susceptible to change due to sea-level rise, as noted above, other types of straight-line type baselines are also potentially threatened by sea-level rise because such baselines need anchoring to the coast, as represented by the low-water line.

Rising sea level will predominantly lead to the retreat inland of the low-water line and thus the normal baseline. This can result in significant knock-on effects on the limits of maritime jurisdictional claims if the base-points on which the limits of such claims depend similarly retreat inland. This threat to the extent of national maritime jurisdictional claims is especially significant for coastal states such as Bangladesh and parts of India in South Asia, as well as Vietnam in Southeast Asia, which have large stretches of low-lying coasts. The maritime claims of states in possession (or even entirely composed) of low elevation islands such as Kiribati, the Marshall Islands and Tuvalu in the Pacific Ocean are also under threat from this phenomenon. Small, remote and low-lying islands can give rise to significant maritime

15 See, for example, Hirst & Robertson (2004). See also, Schofield (2009:408f.).

16 Shalowitz & Reed (2000:185). See also Prescott & Schofield (2005:100–101).

jurisdictional entitlements. However sea-level rise could change the legal status of such insular features. For example, an island that is currently always above the water surface, even during high tide, may eventually disappear during high tide as a consequence of sea-level rise. This could lead to its reclassification from being an island, from which claims to the full range of maritime zones may be made under Article 121(2) of the LOSC, to one of the categories of insular formations from which only restricted maritime claims can be made, such as a rock (LOSC, Article 121(3)) or a low-tide elevation (LTE) (features that are exposed at low tide but are submerged at high tide) (LOSC, Article 13), or even a fully submerged feature that cannot be used to generate maritime claims.

III. Coasts and Zones under Threat

Although, as noted, sea-level rise would seem likely to result in the retreat inland of normal baselines, it is important to recognise the influence of coastal complexity and variability. Accordingly, sea-level rise is likely to result in uneven consequences in terms of impacts on maritime jurisdictional claims.

The gradient of the coast is a particularly important consideration in this context. Where the coastline is relatively steep the impact of sea-level rise will be limited in terms of shifting the location of baselines (and thus the maritime jurisdictional limits derived from them) horizontally. Conversely, where the coastline is gently shelving, even relatively slight changes in sea level vertically can result in significant shifts in the location of the low-water line horizontally, and this in turn can have significant impacts on the spatial extent of national maritime claims.

It is also worth emphasising here that not all of a coastal state's baselines contribute towards the construction of the outer limits of its maritime claims. Maritime limits are commonly constructed through the envelope of arcs method.¹⁷ Consequently only certain base-points along the normal baseline – essentially the outermost points along the baseline such as headlands and offshore islands – will be relevant to the limits of the maritime zones. In contrast, those parts of the baseline that are located on the inner portion of a bay, for example, are unlikely to contribute to the outer limit of maritime

17 Carleton & Schofield (2001:62).

zones. Indeed, the most of the normal baseline is, in fact, irrelevant to the construction of the outer limits to maritime jurisdictional zones.

While large populations occupying low-lying coastal areas on continental coasts are arguably the most at risk from sea-level rise, it is noticeable that the debate on the issue tends to be framed, even dominated, by the concerns of a number of small island states. This focus, especially in the media narrative, may stem from a perception that in contrast to small low-lying island states, continental states have other, higher land to which displaced populations can retreat. Additionally the small island states are well placed readily (and arguably justifiably) to elicit sympathy for their apparent predicament, especially as they can argue convincingly that their contribution to global climate change through the emission of greenhouse gases has been minimal.

Concerns over sea-level rise by, and on behalf of, these states have been in large part prompted by recognition of not only certain states' limited land territory but also of how little of this is elevated above the present sea level. For example the highest point on the territory of the Maldives is only 2.4 m above sea level. The situation is similar in Tuvalu: Enele Sosene Sopoaga, former ambassador and permanent representative of the Mission of Tuvalu to the United Nations, suggested at the 2007 United Nations Framework Conference on Climate Change that sea-level rise was already a "real emergency" for his country.¹⁸ Consequently Tuvalu has been described as being at the "front line of climate change".¹⁹ Analogous concerns also exist for other small relatively low-lying island states.

Moreover, it has been suggested that sea-level rise could ultimately lead to certain low-lying island states being overwhelmed by the waves, and thus losing their status as states. Under international law, codified in the Montevideo Convention on the Rights and Duties of States,²⁰ states should possess a "defined territory" and a "permanent population", as well as a government and the capacity to enter into international relations with other states (Montevideo Convention, Article 1). The first two of these four requirements could be directly affected by sea-level rise. However, this scenario does not appear likely, at least in the near term. For instance, even if sea level were to rise by 1 m, even though the consequences of this would undoubtedly be

18 Leake (2007).

19 Patel (2006).

20 See Montevideo Convention on the Rights and Duties of States, opened for signature 26 December 1933, 165 LNTS 19 (entered into force 26 December 1934), hereafter the Montevideo Convention.

calamitous, no state would be completely inundated as it stands. That said, even relatively slight sea-level rises might have major impacts on island habitability, for example by impacting on the availability of potable water. These concerns have led to the formation of bodies, such as the Alliance of Small Islands States (AoSIS), mandated to address issues concerning the vulnerability of small island states to climate change.²¹

While there has been mounting evidence that the effects of sea-level rise are resoundingly negative, it has been speculated that sea-level rise might yield unlooked for benefits in terms of its impact on contentious territorial and maritime disputes. In particular, multiple territorial and maritime disputes in the Asia-Pacific, especially in the South China Sea and East China Sea, revolve around sovereignty over small, isolated and, critically, low-lying islands. Such disputes, such as that concerning the Spratly Islands group in the South China Sea, which has proved to be a longstanding source of friction among the multiple claimant states. The small insular features at the centre of these disputes may well be threatened with inundation through sea-level rise, potentially removing the key driver for these disputes, the territory at stake.

The prospect of sea-level rise entirely submerging the fundamental focus of dispute, the islands themselves, and thus arguably resolving the conflict, represents an alluring prospect. Alternatively, sea-level rise might have the impact of reducing the disputed insular features to the status of mere rocks or low-tide elevations, thereby significantly curtailing their capacity to generate claims to maritime jurisdiction, and so serving to reduce or narrow the scope of the maritime jurisdictional dimensions of these disputes.

That said, states do not give up sovereignty claims readily. An example of this is the alleged disappearance of a disputed island, called South Talpatty by Bangladesh or New Moore by India, which could be considered an inadvertent benefit of climate change. However this has not proved to be the case, because not only were reports of the island's demise somewhat premature (it has been reported that the island still appears during very, very low-tide conditions, but at least one of the parties to the dispute, Bangladesh, promptly reasserted its sovereignty claim to the feature.²² In respect of other territorial disputes over low-lying islands, it remains to be seen whether or not sea-level rise will yet have a positive impact on longstanding contentious

21 See AoSIS website <http://www.sidsnet.org/>, last accessed 25 April 2013.

22 Wade (2010).

island sovereignty disputes such as that over the Spratly Islands in the South China Sea or will add merely a further layer of confusion and doubt to an already uncertain scenarios.²³

Notwithstanding mounting evidence suggesting threats to islands and coasts due to climate change, counter-arguments do exist. For example there is evidence that coral atolls have proved to be remarkably robust over long periods, including periods when sea levels were considerably higher than they are now. This suggests that some insular features may be able to adapt naturally to climate change and sea-level rise. This is underpinned by observations in and analysis of 27 coral atoll islands in the central Pacific Ocean, which found that the majority (86 per cent) of these features had either remained stable or increased in area over a 20–60 year period despite reported sea-level rise in the central Pacific region.²⁴ Indeed it has been argued that uninterrupted sediment flows are necessary to sustain the island-building processes that maintain the integrity of coral reef islands: “[t]he physical dynamics of sediment supply and transport are critical factors in the context of management of rocky and sedimentary oceanic islands.”²⁵ Accordingly, overpopulation of small islands, coupled with inappropriate land uses are important factors affecting the integrity of coral island ecosystems and thus the continued habitability of such features.

D. Response Options

Either for sea-level rise or land subsidence, it is evident that the current normal baselines are ambulatory, which in turn can shift maritime limits measured from them. However there is also a need to have jurisdictional clarity for better ocean space management and thus fixed maritime limits. Four main response options arise in this context: retreat (and relocation), defence (including efforts designed to protect the coast or stabilise baselines physically), preservation of the position of baselines, and fixing the outer limits of maritime zones.

23 Dupont (2008).

24 Webb & Kench (2010).

25 Kenchington (2009).

I. Retreat

Rather than attempting to protect the coast and stabilise its present location, one alternative would be to, in a sense, accept the inevitable and manage the impacts of rising sea level. This can be achieved through approaches that recognise increased dynamism in the coastal zone and thus provide for coastal development that is responsive rather than resistant to change. In this context “planned retreat” calls for coastal development to be removed or relocated once defined “setbacks” or limits for construction are encroached on through coastal erosion.²⁶

A more extreme retreat scenario envisages the abandonment of entire islands. For example, the Indian island of Lohachara, located in the Sundarbans region where the Ganges and Brahmaputra Rivers empty into the Bay of Bengal and once home to 10,000 people, was in 2006 reported to have been evacuated because of the effects of sea-level rise, although this was apparently done “as a precaution”.²⁷ Similarly, a decision was made in 2005 to relocate the 2,600 inhabitants of the Carteret Islands of Papua New Guinea.²⁸ It can be anticipated that such responses will increasingly come to the fore if predictions regarding substantial and rapid sea-level rise prove to be well founded.

II. Defend

There has been a long history of human effort to protect valuable parts of the coastline and thus, often incidentally, in stabilising portions of the baseline along the coast for maritime jurisdictional purposes. Such efforts tend to involve the building of sea defences such as sea walls, groynes and wave reduction structures. Such efforts are intended to prevent or at least delay natural processes of erosion and abrasion.²⁹

Similarly, reclamation could also be an option for building up vulnerable coastlines. The Republic of Maldives has started projects to build up some of its large islands through reclamation to ensure that it will have more safe

26 Smith et al. (2011).

27 Lean (2006).

28 IOM (2009).

29 Freestone (1991); Schofield (2009).

refuges for its population.³⁰ For small islands physical intervention can serve as a means to protect insular status. The classic case is that of Japan's southernmost territory, the small, isolated insular feature, Okinotorishima, around which Japan has constructed a 360° sea wall, vertically higher than the threatened feature extends above sea level.³¹

The drawbacks of the physical approach described are that it may be environmentally unfriendly and that it is also frequently costly. For instance, the mentioned sea wall built for Okinotorishima cost in excess of US\$200 million in the 1980s.³² This is certainly not a preferred option for less developed states like the Maldives, Tuvalu or other Small Island Developing States (SIDS), which appear likely to suffer most from the impact of sea-level rise. This is particularly the case in the context of long, narrow coral atolls.³³

Physical intervention may also disturb the natural equilibrium of a coast and interrupt sediment flows, leading to serious unintended consequences for the environment in the long term.³⁴ The building of coastal defence structures can also affect ecologies on local and regional scales, for example by affecting the existence of species and thus changing the native assemblages of the surrounding areas.³⁵ It can therefore be concluded that the physical intervention approach to stabilising baselines is generally costly and tends to be environmentally and ecologically unfriendly. In addition, physical interventions such as reclamation may spark legal questions concerning the validity of reclaimed coastlines to be used as baselines. An ecosystem-based and sustainable management approach is therefore strongly advocated.³⁶

III. Preserve

The other option for stabilising baselines is to take a legal approach. This has been suggested as a means whereby states threatened by sea-level rise

30 Morris (2009).

31 See, for example, Prescott & Schofield (2005:84–85).

32 Brown et al. (1991:84–85).

33 Freestone (1991).

34 Kenchington (2009).

35 Airoldi (2005).

36 Kenchington (2009).

might be able to retain their maritime claims.³⁷ Two major alternatives to this are fixing the normal baselines or fixing the maritime limits. The LOSC states that the normal baselines of coastal states are the low-water lines depicted on a nautical chart recognised by the coastal states. The key information in this LOSC article is that “a recognized nautical chart” is the legal document on which the normal baselines of a coastal state are declared. However, there is no clause in the article detailing the required technical specifications of the nautical chart. For example, the article specifies neither the age of the chart in question nor whether it needs to be registered or recognised by an international body.

It has been observed in this context that the coastal state may use any chart in defining its normal baselines as long as the chart is officially recognised by the coastal state itself.³⁸ Arguably, a coastal state could therefore fix its normal baselines by recognising a chart showing such baselines. However, if the baselines were to subsequently move, the coastal state would need to produce different charts officially recognised for different purposes – that is, charts for illustrating baselines as well as those used for navigational purposes. For the latter, a nautical chart has to be regularly revised through surveys to show the most updated coastal environment and important objects, especially those hazardous to navigation.

The potential issue with the use of specific and fixed charts showing baselines is that other states may not necessarily recognise the chart. This can be problematic if two states need to delimit maritime boundaries between them. If one state fails to recognise another state’s chart depicting normal baselines, the progress of the delimitation may be hampered. However, it is not unusual for two states to agree on the use of a particular chart for maritime delimitation, even though the chart may no longer depict the current coastline/baselines. A good example of this practice is the maritime boundary delimitation between Indonesia and Singapore in the Singapore Strait, signed on 10 March 2009.³⁹ Indonesia insisted that Singapore use its normal baselines, as depicted in the original map of 1969, in the delimitation, and Singapore agreed to do so.⁴⁰ To anticipate problems caused by disagreement on the use of fixed baselines depicted by a particular chart, coastal states can voluntarily declare their fixed normal baselines in the same manner as states

37 Soons (1990).

38 Schofield (2009).

39 Republic of Indonesia, Ministry of Foreign Affairs (2009).

40 Republic of Indonesia (2010).

usually declare straight or archipelagic baselines. By doing this, protest and disagreement from other states, usually neighbours, can be anticipated well in advance, before the baselines are used for maritime claims and delimitation.

The instability issue of normal baselines may also be partially overcome by the use of straight baselines. However, as noted above, straight baselines were not originally conceived with the aim of fixing baselines in response to global changes such as sea-level rise. Straight baselines can be used in the context of deltas and unstable coasts (LOSC, Article 7 (2)). It would, however, be likely to be problematic to apply such baselines along an entire coastline as a response to sea-level rise. Further, as noted, while straight baselines predominantly consist of imaginary lines, they still require turning points, which should be points somewhere at the interface of land and water during low tide. Such turning points anchor straight baselines to the coast and therefore cannot themselves 'float' offshore, unattached to any point on land. Accordingly straight baselines still require the use of base-points, the location of which depends on the choice of low-water line, which is characteristically unstable. This implies that the use of straight baselines may fix baselines in a particular location or situation, but not fully resolve the instability issues. Another issue with straight baselines is that states tend to interpret Article 7 of the LOSC liberally in designating straight baselines, since there are some uncertainties and ambiguities therein. Thus the straight baselines may be considered excessive by other states and might be contested as a result.

IV. Fix

Fixing maritime limits may be an alternative to stabilising baselines for dealing with changing baselines due to climate change. This would mean that once maritime limits are set they are permanent in terms of location. Hence it would not matter whether coastlines or baselines shift owing to sea-level rise: maritime limits would stay where they are. Should this be adopted, states will not be disadvantaged if there is significant sea-level rise that shifts baselines closer landwards. However some states may not see this as a good option if, for some reason, their baselines shift further seawards. This is possible, for example, if material is deposited along the coast. Ironically, as noted, this appears to have occurred with reference to some Pacific islands, largely as a result of the accumulation of coral debris, land reclamation and

the deposit of sediment.⁴¹ If coastlines or baselines shift further seawards but maritime limits remain fixed, this would be a less than ideal scenario for the states involved. However, considering the prevailing perception that sea-level rise is accelerating, threats to the location of baselines and thus the scope of maritime claims do still exist. This is especially the case since it is unclear whether or not the natural responses that, for example, coral islands have exhibited in the past in response to sea-level variability will be able to cope with the potentially rapid sea-level rise induced by global climate change. This may make the option of fixing maritime limits more attractive to island states in the Pacific that are vulnerable to climate change.

The limits of a coastal state's maritime jurisdiction can be established in one of three ways. First, maritime claims can be generated to the full extent or distance allowed under international law, in the absence of analogous claims on the part of neighbouring states. Second, where overlapping claims to maritime jurisdiction exist, maritime boundaries may be delimited between neighbouring states. Third, the definition of the outer continental shelf limits involves a submission process to the United Nations Commission on the Limits of the Continental Shelf (CLCS) (see below).

Provided a coastal state does not have any neighbours with an overlapping claim to a particular zone, it can define its maritime limits unilaterally. For example, if a coastal state has no neighbours within 24 nm of its baselines it can unilaterally define its territorial sea limits. With regard to this option, the outer limits of maritime zones are commonly defined using the method of envelope of arcs, outlined previously. The limits of such claims are generally dependent on the baselines from which these maritime claims are measured, thus they may move over time as baselines shift. However, it is worth noting that the use of this method employs only relevant base-points along baselines to generate maritime limits. Depending on the shape or configuration of a coastline and therefore its associated baselines, not every point along baselines will affect the location of maritime limits. In other words, while one part of the baselines may be crucial in constructing maritime limits, other parts may be irrelevant. However, it is generally true that baseline changes can shift maritime limits.

The introduction of 200 nm breadth EEZs, in particular, has had a dramatic effect on the scope of ocean spaces becoming subject to the maritime claims of coastal states. It has been estimated that if every coastal state made

41 Webb & Kench (2010).

national maritime jurisdictional claims out to 200 nm (as is predominantly the case) these claims would encompass 43 million nm² (147 million km²) of maritime space. This amounts to approximately 41 per cent of the area of the oceans or 29 per cent of the earth's surface. The extent of the area subject to jurisdictional claims out to 200 nm is thus approximately equivalent to the area of land territory on the surface of the earth.⁴² The inevitable consequence of this enormous expansion in national claims to maritime space seawards has been a major proliferation in overlapping claims to maritime jurisdiction and thus potential international maritime boundaries. Indeed there is presently no coastal state in existence that can claim a full suite of maritime zones without overlapping claims. For example, to claim a full 200 nm EEZ, a coastal state must be over 400 nm from its nearest maritime neighbour. Thus every coastal state needs to delimit at least one maritime boundary. However, this situation does not affect the way the breadths of maritime zones are theoretically measured from baselines.

Considering the geographical location of coastal states in the world and the configuration of their coasts, overlapping claims of maritime zones among coastal states is inevitable. As such, maritime delimitation is required to produce maritime boundaries. Maritime delimitation among states is therefore another way for coastal states to define the limits of their maritime zones. While the first option is a unilateral process, maritime delimitation is a bilateral or multilateral process.

The process of maritime boundary delimitation between two or more coastal states is governed by the principles and rules of public international law.⁴³ International law explains how maritime boundary delimitations should be established. However maritime boundary delimitation is usually resolved either through negotiation among the affected parties or by submission of the case to a third party. This third party can be arbitrators, mediators, courts or tribunals, such as the International Court of Justice or the International Tribunal for the Law of the Sea.

An overlapping EEZ and continental shelf claim exists where the distance between State A and State B is less than 400 nm but greater than 24 nm. If the distance between the two neighbouring states is less than 24 nm then their territorial seas will overlap. This illustrates that maritime boundary delimitation can be required for territorial sea, EEZ or continental shelf,

42 Prescott & Schofield (2005).

43 (*ibid.*).

depending on the distance between the states in question. In this situation the rules governing maritime boundary delimitation for those different zones are also different. For the territorial sea, for example, it is explicitly stated by the LOSC that “neither of the two opposite or adjacent states is entitled to extend its territorial sea beyond the median line” unless either State involved agrees otherwise or if “historic title or other special circumstances” exist (LOSC, Article 15). A median line or equidistance line can be defined as “a line every point of which is equidistant from the nearest points on the territorial sea baselines of two states.”⁴⁴ However, the LOSC does not specifically mention methods for delimiting EEZ and continental shelf boundaries in case overlapping claims between two or more states are identified. Instead, the relevant provisions of the LOSC only mention that continental shelf and EEZ boundaries between states with opposite or adjacent coast should be established to “achieve an equitable solution” (LOSC, Articles 74 and 83).

One important issue in this context is that once international boundaries are established they tend to stay where they are. Maritime boundaries do not change unless the parties in question agree. The 1969 Vienna Convention on the Law of Treaties states that boundary treaties are excluded from the rule that a party to a treaty may invoke “a fundamental change in circumstances” as grounds for terminating a treaty.⁴⁵ In other words, agreed maritime boundaries are fixed in terms of location, even if the baselines they are constructed from have shifted.

The third option for defining the outer limits of maritime jurisdiction is through submission to a third party. An example in this context is provided by the definition of the outer limits of continental shelf areas located beyond 200 nm from baselines. In order that coastal states may confirm their sovereign rights over areas of continental shelf beyond 200 nm from their baselines, the LOSC provides that such states should make a submission regarding its proposed outer continental shelf limits mainly based on geological and geomorphologic evidence and submit this to the CLCS. The “continental shelf beyond 200 nm from baseline” is commonly termed the *outer* or *extended* continental shelf. Determining the outer limit of the continental shelf where it extends seawards of the 200 nm from baselines in-

44 IHO et al. (2006:18).

45 Vienna Convention on the Law of Treaties, Article 62(2a). In addition, Article 11(a) of the 1978 Vienna Convention on Succession of States in Respect of Treaties provides that a change of states does not affect a boundary established by a treaty.

volves complicated procedures and significant resources. The procedure for the delineation of the outer limits of the continental shelf beyond 200 nm was further specified by the CLCS in its *Scientific and Technical Guidelines*, which were adopted on 13 May 1999.⁴⁶ Once the CLCS has delivered its recommendations to the coastal state that state may declare the outer limits of its outer continental shelf, which are “final and binding” when defined “on the basis of” the CLCS’s recommendations (LOSC, Article 76 (8)). In other words, even though the outer limit of the continental shelf is not definitive in terms of distance from baselines, unlike the outer limits of other zones, the limit is fixed in terms of its location once it has been properly established.

From the three options to set the limits of maritime jurisdiction elaborated upon here, the first generates unfixed maritime limits, while the latter two establish fixed limits. The shifting maritime limits in the first option result from migrating baselines, especially normal baselines. The inherent dynamism of the coast will inevitably lead to alterations in the location of baselines over time, and this in the present circumstances will necessarily lead to changes in the location of the outer limits of maritime claims. This situation is likely to be exacerbated by sea-level rise. In the second and third options, agreed maritime boundaries and outer limits of continental shelf beyond 200 nm are fixed. This highlights a growing desire on the part of threatened coastal states to fix baselines and the limits derived from them. It can be noted that the challenge of global sea-level rise was simply not contemplated during the drafting of the LOSC. The fact that, in accordance with the LOSC, some maritime limits and boundaries should be fixed does, however, suggest that moving towards declaring and fixing maritime limits which are presently susceptible to change represents a plausible and reasonable response to an unanticipated problem.

E. Conclusions

Sea-level rise has significant potential to have highly problematic effects not just in terms of the inundation of land territory, but also with respect to the extent of coastal state claims to maritime space. This chapter has explored

46 The guidelines are available at http://www.un.org/depts/los/clcs_new/documents/Guidelines/CLCS_11.htm, last accessed 25 April 2013.

some of the issues and uncertainties that arise in relation to the phenomenon of sea-level rise. It has also sought to highlight some of the ways in which the impacts of sea-level rise on claims to maritime jurisdiction are likely to be uneven.

A number of options to address this challenge have been outlined. While physical intervention with a view to stabilising or fixing coastlines and baselines, and thus maritime limits, may work in certain circumstances and situations, the legal fixing of either or both baselines and limits may prove a more feasible solution. This can begin from coastal states unilaterally declaring or even depositing their normal baselines or maritime limits, analogous to the deposition of straight (LOSC, Article 16 (20)) or archipelagic (LOSC, Article 47 (9)) baselines. Once declared on an official chart, normal baselines can remain at the same location until the chart is revised. In addition, normal baselines are those identified “on large-scale charts officially recognised by the coastal State” (LOSC, Article 5) and are not necessarily representative of the actual location of coastlines. This supports the idea of fixing normal baselines by preserving charts assigned for the purpose of depicting baselines. Increasing state practice along these lines can be anticipated.

A more radical approach to fixing baselines would be to amend the LOSC. However, this approach seems unlikely because, even though the LOSC contains amendment procedures, they have never been activated. Further, there appears to be scant enthusiasm for a Fourth United Nations Conference on the Law of the Sea. Such discussion could nevertheless potentially take place through consultations in a technical forum, at least initially, such as the Advisory Board on the Law of the Sea (ABLOS).⁴⁷ In line with this idea, a supplementary agreement to the LOSC, such as the fish stocks agreement of 1995,⁴⁸ is conceivable. This precedent could be used as a model in approaching the fixing of baselines and/or maritime limits.

47 Schofield (2009).

48 United Nations (1995) Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, adopted 4 August 1995, in force as from 11 December 2001, Geneva, Switzerland: United Nations, available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N95/274/67/PDF/N9527467.pdf?OpenElement>, last accessed 25 April 2013.

Fixing baselines and/or maritime limits is essentially aimed at preserving the existing rights of coastal states and it can be argued that this is hardly excessive. In addition, this effort is particularly important for small island states which have minimal responsibility for the emergence of the problems related to climate change. The Small Island Developing States (SIDS) have contributed least to the human-induced climate change that is causing sea-level rise, but are affected most by its impacts. It seems only equitable that such states should be able to fix their baselines and maritime limits to preserve their rights over their maritime zones and natural resources to which they are entitled.

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Disappearing States: Harnessing International Law to Preserve Cultures and Society

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Abstract

Climate change poses a particular risk to small island nations with territories lying mostly or entirely only metres above sea level today. If, as scientists believe will happen, rising sea levels force the entire populations of such countries to relocate, several novel legal questions will arise relating to the legal status of the national entities, as well as of their citizens. The basic legal requirements for sovereignty, which include a defined territory and population, may preclude continued recognition in the international world, although *jus cogens* norms may enable deterritorialised nations to fight any loss of sovereignty. If absolute sovereignty is lost, though, other quasi-state arrangements may be possible that would allow community leaders to continue to provide for scattered populations. These scattered communities would also be protected by basic human rights protections, but just how this protection would manifest itself, and particularly how such protections could be enforced against host countries, remains unclear. Steps taken within the United Nations Framework Convention on Climate Change (UNFCCC) to require preparation for displacement eventualities on an international scale may offer an avenue for resolution of these questions, however. Separate efforts to establish a new treaty providing for the rights of climate-displaced persons offer a measure of hope, although there is some debate whether such efforts are worthwhile, or whether they instead distract from the more detailed, and possibly more plausible, efforts to solidify protections within existing international systems. It is not clear how such legal questions might best be resolved, but advanced engagement on these issues will be important to preventing needless difficulties into the future.

A. Introduction

As carbon emissions increase around the world, sea levels will continue to rise and extreme weather events will become more frequent and intense. In this climatic turmoil, there is a very real danger that a group of 22 island nations located around the world, but particularly in the western Pacific, will be lost. These territories – home to approximately seven million people¹ – lie mere feet above the current ocean surface, and could become largely uninhabitable owing to inundation by the sea.

In the face of such threats, several questions arise. Some of these questions are legal in nature: What happens to a country whose territory disappears? Is it still a country? What becomes of its people? Do they retain citizenship? Where do they go, and what sort of status can or should they have in their new homes? And, of course, who pays for the inevitable relocation? Other such questions are more practical: How soon will such a transition need to take place? What can be done to put off such a day as long as possible? And how can the entire process be organised and structured to limit, at least to the extent that such a limitation is possible, the inevitable upheaval in these communities? These questions are as complicated as they are numerous, and no article, or even book, could possibly resolve all of them. As such, this article limits itself largely to the first set of (largely legal) questions listed above, although it does also discuss the available facts about sea-level rise to set out the timeline over which the legal eventualities listed here may take place and when protective measures can no longer wait.

At a minimum, as this article discusses, threatened nations must prepare themselves legally for a future without habitable territory, and there are several important diplomatic and political steps each nation could pursue to strengthen its legal standing into the future. To the extent possible, this article (which was inspired by a book on the same topic that addresses many of the issues below in far greater detail) examines current legal instrumentalities and then explains how they can be utilised.

1 Washington Times (2009).

B. Scientific Summary: Rising Sea Levels

The scientific consensus is that sea levels will rise largely as a result of increasing greenhouse gas concentrations. Steps that mankind takes now to moderate greenhouse gas emissions may eventually reduce the rate of sea-level rise, but any such steps will not stop it.² The height of such a rise is unknown, however.

The Intergovernmental Panel on Climate Change (IPCC) in 2007 projected that sea levels will rise, largely as a result of glacial melt and thermal expansion of the oceans, by between 18 and 60 cm by 2100.³ But this estimate does not include the likelihood that discharge of glaciers into the sea could accelerate as glacier sheets deteriorate.⁴ Another estimate, which focuses on the statistical relation between temperature and sea level and extends that relationship out to periods of higher temperature, has estimated sea-level rise by 2100 (based on temperature predictions for that year) at between 75 and 190 cm.⁵ Yet other estimates, focusing entirely on sea-level rise due to glacial loss in the arctic regions, have found that those alone could cause between 30 and 120 cm of sea-level rise by the end of the century.⁶

These various estimates rely on different technologies and different assumptions about the world. However, one team's analysis of the results, synthesising the various estimates and combining them to approximate academic consensus, has determined that "a lower bound of 1 m for sea level rise [by 2100] seems unavoidable" and "there may be an increase of [up to] 2 m".⁷

It should also be remembered that sea-level change is inherently unequal; that is, certain areas of the world will experience more extreme sea-level rise than other areas. This is partly because the input into the ocean of water from glaciers in different parts of the world will inevitably disrupt ocean currents, and the current system of currents pushes water levels higher in some areas than others.⁸ For instance, from 1993 to 2007, sea-level rise was greatest in the western Pacific and central Indian Oceans, and near Greenland and

2 IPCC (2007).

3 Meehl et al. (2007:820f.).

4 Carr et al. (2013).

5 Vermeer & Rahmstorf (2009:21530).

6 Pfeffer et al. (2008:1341).

7 Carr et al. (2013).

8 Milne et al. (2009:472).

Antarctica.⁹ Sea level can also be affected more dramatically over limited periods of time by regional weather patterns such as the El Niño Southern Oscillation (ENSO), which undermines normal trade winds that push water east, away from the western Pacific.¹⁰

Threatened nations have been and will continue to be subject to storm systems as well, which can temporarily raise sea levels with sometimes catastrophic results. These storms will inflict more severe damage as sea levels rise because the altitude of these nations above sea level will diminish. In addition to this, numerous studies have indicated that climate change, and more specifically the warming of the world's oceans, is likely to result in more powerful and more numerous storms around the world, including more variable precipitation patterns.¹¹

In the context of threatened island nations, these are dire projections, particularly for an island with a maximum elevation of two metres or less above the mean-high-tide sea level. If one adds in regional variation, which anticipates that sea levels will rise higher in the western Pacific and Indian Oceans than in other parts of the globe, the projected elevation gains increase. Individual islands could find themselves semi-permanently overtopped in a matter of decades; and even before that occurs, a single ENSO event or other large storm could overtop these islands and cause saltwater inundation that poses a threat to local plant life and freshwater supplies.

The effect of these changes on individual island nations will vary broadly: islands will face greater or lesser inundation, depending on their unique geography; and greater or lesser devastation, depending on the situation of their populations.¹² But, at the very least, as a result of these anticipated environmental changes, widespread migration is expected from the populations of these threatened island nations to nearby larger islands and, eventually, to more distant continents.¹³ This migration will be large from a regional perspective, as the populations of entire countries may be forced to leave. One recent estimate suggests that regional migration alone from four of the most threatened island nations in the western Pacific will constitute around 500,000 people.¹⁴ This number is approximately a third of the total

9 Carr et al. (2013); Meehl et al. (2007:813).

10 Carr et al. (2013).

11 Mimura et al. (2007: 691); Nurse et al. (2007:852); Hay et al. (2003).

12 Mimura et al. (2007:690–694).

13 Gillespie (2004:113).

14 Wyman (2013).

combined annual migration into the United States, Australia and New Zealand, three of the most likely eventual homes for these populations,¹⁵ but it is a drop in the bucket when compared to the approximately 200 million climate change migrants expected worldwide by the year 2050, according to one prominent estimate.¹⁶ But given these nations' unique circumstances (the potential loss of the entirety of their territory), it is appropriate to think of these populations as distinct, and their smaller size may ultimately ease efforts to forge a tailored long-term solution for the region.

C. The Question of Sovereignty

One of the basic legal questions that could arise from the effective disappearance of threatened island nations is about what happens to the status of the countries themselves.¹⁷ This is a particularly sensitive question in the context of many of the countries likely to be so affected, because many, if not most, of these islands have long histories under external rule, and have only recently achieved independence.¹⁸ However, even without such historical implications, sovereignty in the international system provides numerous practical benefits that these populations cannot afford to lose. It allows countries to establish systems of law and government, to levy taxes, and to incur debts to finance public projects.¹⁹ Membership of the United Nations (UN) also “gives nations the ability to negotiate, secure funding for their people, vote for measures that benefit them in the short and long term, participate in international forums, and otherwise acquire and exert political influence in the international community”.²⁰ All these privileges and powers may well be the difference between a structured transition that maintains these people's cultural and societal rights, and an uncoordinated exodus re-

15 (ibid.).

16 Myers (2005).

17 See Menefee (1991:181).

18 United Nations membership was attained by the Republic of the Maldives in 1965; the Republic of Vanuatu in 1981; the Republic of the Marshall Islands and the Federated States of Micronesia in 1991; the Republic of Palau in 1994; the Republic of Kiribati and the Republic of Nauru in 1999; and Tuvalu in 2000. United Nations, Member States of the United Nations, <http://www.un.org/en/members/index.shtml>, last accessed 18 March 2013.

19 Wannier & Gerrard (2013).

20 (ibid.).

sulting in a powerless diaspora settling on the margins of local communities around the world.

I. Maintaining Sovereignty

Turning first to the question of sovereignty, international law has generally accepted that a modern state is defined by four distinct characteristics: (1) a defined territory; (2) a permanent population; (3) a functioning government; and (4) independence.²¹ For each of these requirements there are well-established precedents on what does or does not qualify.

A defined territory need not be any particular size, but land that is below the water at high tide cannot qualify as territory,²² even where a structure has been built on such land that does remain above the ocean at high tide.²³ There also may be habitability requirements. Although even an uninhabited rocky outcrop may be considered as land under the United Nations Convention on the Law of the Sea (LOSC),²⁴ land under a “functional interpretation” is necessary, but not sufficient, for satisfying the “defined territory” requirement: “[w]hat is at issue here is the distinction between the acquisition of territory by existing States and the territory necessary for a State to . . . survive.”²⁵

In such a situation, the critical goal then becomes the preservation of an island territory capable of sustaining human life and society as it has developed. Fortunately, an already existing island may be artificially protected to maintain habitability and thereby maintain its territorial status under LOSC Article 60(8).²⁶ This tool has limits, however: it may not be used to

21 Grote Stoutenburg (2013).

22 *Case Concerning Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar v Bahrain)* (Merits), Judgment, International Court of Justice, 16 March 2001, I.C.J. Rep. 2001, 40, at 100ff.

23 See Laval (2004:53).

24 United Nations Convention on the Law of the Sea, 10 December 1982, entered into force 16 November, 1994, 1833 United Nations Treaty Collection 397 (hereinafter LOSC).

25 Grote Stoutenburg (2013).

26 Symmons (1995:3).

create newly habitable territory (at least under the current interpretation of the law).²⁷

The second requirement for statehood is a stable and permanent population. The legal question that requires resolution here is: at what point does a population cease to be permanent? There does not appear to be a strict numeric requirement: the UN has recognised a group of as few as fifty people as a “permanent population” with the rights to a sovereign state, and the same number has been said to qualify an island as inhabited under the LOSC.²⁸ There are, however, also qualitative requirements: one German court, for instance, held that such a permanent population must maintain basic infrastructure for its members, as well as demonstrate an intention to live together as a community.²⁹ These qualitative requirements would however be unlikely to hinder any effort by a remaining population to categorise itself as permanent, as the communities most at risk have a long history of communal living, “as a community”, and should be expected to continue that tradition. As scholars have noted, any such remaining community could then “anchor” the legal status of a nation for a larger population.³⁰

The third requirement for statehood under the traditional definition is some form of working government. To fulfil this requirement, governments must exert some degree of control over the defined territory and permanent population. This is not an overly demanding requirement, however: the general rule *vis-à-vis* a functioning government is that the right to exert control is more important than the actual realisation of control over the land.³¹ In this situation, the threatened island nations currently have the unquestioned right to exert control over their territories. To avoid a collapse of governmental structures, central authorities might plan in advance for an eventual exodus from the islands, and they may find it easier to exert some control over the remaining land if some nucleus of people remains to provide gov-

27 This article does not address in detail the variety of physical innovations that may be harnessed to preserve habitability, but the options are numerous and include construction of sea walls, innovative housing arrangements, and lifestyle changes designed for greater interaction with the ocean.

28 United Nations General Assembly Resolution 2869 (XXVI), 20 December 1971; Van Dyke & Brooks (1983:286).

29 Grote Stoutenburg (2013), quoting Verwaltungsgericht Köln, 3 May 1978, Case No. 9 K 2565/77, Deutsches Verwaltungsblatt 510, at 511ff.

30 Grote Stoutenburg (2013).

31 Crawford (2006:57). This again attests to the influence of considerations of legality on the definition of statehood.

ernment services to the communities that may attempt to remain for as long as possible. Thus, this factor increases the importance to island nations of preparing for future eventualities so that their societal structure does not deteriorate; but apart from such a disaster the requirement for a working government is not likely to present a significant burden to recognition as a continuing government in international law. To the contrary, the governing structure is likely to outlast the existence of a defined territory and permanent population over which to govern.

The final traditional prerequisite for sovereignty in international law is independence, which has also been described as the “capacity to enter into relations with the other States”.³² Today, the new criterion that this requirement is said to add is legal independence from the authority of another sovereign entity. There has been some discussion as to whether states must meet this last requirement, and, if so, how it should be met, with some academics making the point that once an island nation becomes wholly dependent on outside aid it might lose its *de facto* independence and therefore no longer qualify as independent.³³ The more common understanding, however, is that *de jure* independence (i.e. a refusal to subject one’s laws to those of another state) would qualify and allow a threatened nation to satisfy this requirement. A difficulty with such an arrangement, of course, is that the continued independence of such a governing body would depend on the goodwill of a host country where such a governing body is located. In practice, it seems possible that the “independence” inquiry may become conflated with the entire sovereignty question, rather than be seen as just one of four discrete requirements, because the same manipulations of legal understanding that would allow a displaced nation to continue its “independence” could just as easily skip the preceding analysis and also continue that nation’s “sovereignty”.

As the analysis above hopefully makes clear, the legal status of nations whose populations have mostly or entirely fled remains in serious doubt under the traditional definition of sovereignty – even considering the ability of law and legal definitions to evolve over time. It seems likely that if a small island nation is able to maintain even a basic population presence on an island and use that as the centre for its governance, the legal status of the country would not be in question. The situation for a fully displaced people is much

32 1933 Montevideo Convention on the Rights and Duties of States.

33 Grote Stoutenburg (2013).

more difficult, though. There is some precedent for continued recognition of a government-in-exile from World War I, where organisations such as the Czechoslovak National Council and the Polish National Committee were recognised as representing their territories under German rule.³⁴ But such arrangements were based on the illegitimate occupation of territory by another country; while here, the ‘illegitimate occupier’ is the ocean, and so it may be difficult to draw any useful parallel to those situations successfully.

II. Alternatives to Complete Sovereignty

If threatened island nations are ultimately unable to demonstrate their status as sovereign entities and retain full sovereignty, a series of unappealing alternatives awaits. The starkest possibility is the loss of sovereignty without a replacement governing structure of any type – which would leave a lost country’s former citizens without any of the traditional protections of nationality. This is certainly a possibility, but the governing structures in these states are well aware of the problem, and have discussed possible outcomes among themselves and at conferences around the world.³⁵ These communities also maintain an active political and diplomatic presence in the UN and elsewhere through organisations like the Association of Small Island States (AOSIS).

On the spectrum between this outcome and full sovereignty, scholars have suggested several alternatives to formal sovereignty in its traditional sense in the international system. Many of these ideas come from historical examples of deterritorialised state-like entities, including the following: (1) countries without a territory; (2) governments in exile from their claimed territory; (3) governments unable to exert control over their territory; and (4) economic entities with quasi-governmental roles.³⁶

One commonly discussed example of a country without a territory is the Sovereign Military Order of Malta, which enjoys quasi-sovereign status and is granted observer rights at many major international forums despite not

34 (ibid.).

35 See e.g. Conference on Threatened Island Nations: Legal Implications of a Changing Climate, Columbia Law School, held in New York, NY, May 23–25 2011, see https://www.law.columbia.edu/null/download?&exclusive=filemgr.download&file_id=5844, last accessed 11 May 2013.

36 Burkett (2013).

having any defined territory.³⁷ Another is the Holy See, which is recognised as a sovereign subject even though it does not possess some of the traditional indices of statehood, such as a permanent population and independent territory.³⁸ The Holy See is a particularly useful example, because from 1870 to 1929 it did not even officially have ownership of the land that the Vatican City now occupies,³⁹ and yet it continued active diplomatic relations with most states, and participated (as it does today) in international agreements.⁴⁰

There are several examples of governments in exile that continue to participate in international discussions today. Perhaps the most well known is the Palestinian Territory, which has been an observer at the UN for many years, may participate in debates there, and was upgraded to “nonmember observer state” on November 29, 2012.⁴¹ The international community also recognises indigenous nations whose territories have been claimed by existing states, such as the Maori and Tibetans, as integral members of the international debate.⁴² Indeed, history is “replete with examples” of governments operating in the territory of other states.⁴³ The limitation here, of course, is that such situations of exiled governments are generally considered to be responses to temporary and exceptional circumstances.⁴⁴

Examples of continued recognition of governments unable to control their own territory (or so-called “failed states”) abound in international law.⁴⁵ Most notably in recent years, Somalia has continued to enjoy international recognition despite failing to exert control over its territory far beyond its capital, Mogadishu, and despite the presence of an insular separate governing body, Somaliland, that exerts control over its claimed territory and declared independence in 1991.⁴⁶

And finally, the best known example of an economic entity gaining recognition in the UN is the European Union (EU), which has no set territory or population of its own, but rather imposes authority on top of already ex-

37 Rayfuse (2009).

38 (*ibid.*).

39 Pollard (2005).

40 US Department of State (2012).

41 Bronner & Hauser (2012).

42 Rayfuse (2009).

43 McAdam (2010:116).

44 (*ibid.*:112).

45 (*ibid.*:111).

46 Mohamed (2012).

isting nations across Europe. In spite of this unusual legal status, the EU offers separate citizenship, which grants additional and tangible benefits to those citizens beyond those granted by their country citizenship.⁴⁷ The same is true for Taiwan, which is no longer recognised in the UN as a separate country, but enjoys so-called “functional sovereignty” in the international sphere, and particularly in international economic affairs, although it is not recognised as a state.⁴⁸

Each of these different arrangements offers interesting alternatives to full and complete sovereignty, although each is subject to its own constraints. For instance, of the group the only entities that enjoy full diplomatic status (including the right to vote on resolutions in the United Nations) are the various failed states that still maintain a territory over which they ostensibly rule. The Holy See and entities such as the EU, Palestine and Taiwan do provide useful examples of quasi-state territories actively participating in debates and discussion in international forums, and these are perhaps viable fallback positions should depopulated island nations fail to maintain complete sovereignty, but this still falls short of full recognition.

There are also various examples of quasi-independent status within countries, including in Native American reservations in the United States, where tribal governments are seen as somewhat independent, but not quite as foreign states and as such are unable to engage in foreign diplomacy.⁴⁹ According to United States law, tribal governments are not considered parties to the United States Constitution and therefore do not even enjoy constitutional protections accorded therein.⁵⁰ However, Congress continues to have “plenary” power over these nations, and they are banned from independent participation in international diplomatic efforts.⁵¹ This alternative, and others like it, are unlikely to provide the voice and independence that depopulated island nations would seek in any new home, and represent a less appealing fallback position for these nations.

But existing structures need not be the only source of ideas for the disposition of the future of threatened island nations; and one academic in particular, Maxine Burkett, suggests an innovative new structure: the “deterri-

47 Rayfuse (2009:11).

48 Burkett (2013).

49 *Cherokee Nation v Georgia*, 30 U.S. 1 (1831); Indian Civil Rights Act of 1968.

50 Indian Civil Rights Act of 1968; *Talton v Maves*, 163 U.S. 376 (1896).

51 *Lone Wolf v Hitchcock*, 187 U.S. 553 (1903).

torialised state”.⁵² This model is based on a political trusteeship system, whereby a sitting government would manage the affairs of the state and of its diaspora from afar.⁵³ Such an arrangement might be similar to the continued management of maritime zones (discussed below), but “greater emphasis would be placed on preserving all other elements of the nation-state that should endure extraterritorially – key among them including the persistence of culture, connections among its people, and the security and well-being of its citizens”.⁵⁴ Members of the ex-situ government would be considered political trustees, and would be responsible for administering the assets of the deterritorialised state for the benefit of its people. Such arrangements would be similar to such trusteeship arrangements that were organised by the League of Nations and the UN for postcolonial transitions around the world in the 20th century,⁵⁵ and could even follow many of the same goals of the original trusteeships (i.e. to “promote the advancement of detrimentally affected peoples consistent with their freely expressed wishes”⁵⁶), except that the diaspora would select its own trustees who would have absolute political independence.⁵⁷ In practice, the UN might offer its services to facilitate long-term governance, and might provide a secretariat to focus UN support for deterritorialised states, but would not govern these states. The final advantage of such an arrangement is that such a designation of nationality would allow the nation ex-situ to exercise jurisdiction over its citizens.⁵⁸ Such jurisdiction could be in addition to diaspora members’ citizenship in their home state – in a situation akin to that enjoyed by citizens of the EU. At the same time, the ex-situ nation will advocate on behalf of its citizens, particularly in circumstances in which they are less well off because of resettlement.⁵⁹

52 Burkett (2013).

53 (ibid.).

54 (ibid.).

55 Perritt (2003:387-389).

56 UN Charter, Chapter XII, Articles 76 and 78.

57 Burkett (2013). This would be in direct contrast to the original trustee systems, which allowed for extensive UN oversight. UN Charter Chapter XIII, Articles 86 and 87.

58 Blackman (1998:1149).

59 This scenario is not far-fetched. See Kolmannskog (2009:12), explaining that involuntary relocation and resettlement rarely lead to improvements in the quality of life of those moved; therefore, moving communities in anticipation of climate change may precipitate vulnerability more than it avoids it. This decline in livelihood due

Burkett suggests an interesting organisational structure for a state-like entity that might result from the depopulation of existing island nations, and this suggestion merits attention no matter what the final status of these nations is. But the international participation and voting rights of the nation ex-situ itself will still depend on international recognition. Without such recognition, these deterritorialised states would join the body of pseudo- and partial states on the outskirts of UN decision-making.

III. Fighting any Potential Loss of Sovereignty

Although the quasi-state entities discussed above would be preferable to complete loss of nationality, continued sovereignty presumably remains the ultimate goal for the citizens of these nations. As an alternative to fighting to redefine the traditional understanding of sovereignty, or accepting a second-class status as a semi-state, there may be some avenue for maintaining full sovereignty using *jus cogens* norms, as has been explored particularly thoroughly by Jenny Grote-Stoutenburg. Under this theory, events leading to the disappearance of states (i.e. the loss of territory) could be ignored where they result from “a violation of a fundamental norm of the international legal order” (*just cogens* norm).⁶⁰ Article 53 of the Vienna Convention on the Law of Treaties defines *jus cogens* norms, noting that they must be “accepted and recognized by the international community of States as a whole as a norm from which no derogation is permitted and which can be modified only by a subsequent norm of general international law having the same character”.⁶¹ More importantly, a treaty is void if it is found to be in conflict with a *jus cogens* norm.⁶²

The concept that actions are legally void to the extent that the conflict with a *jus cogens* norm has gained recognition outside the context of treaties, including in the International Law Commission’s Draft Articles on the Re-

to climate-related relocation and resettlement may have precedent. See Vainerere (2009).

60 Grote Stoutenburg (2013).

61 Vienna Convention on the Law of Treaties, 23 May 1969, entered into force 27 January 1980, 1155 United Nations Treaty Collection 331.

62 (ibid.).

sponsibility of States for Internationally Wrongful Acts (DASR) of 2001.⁶³ Under the DASR, a situation that results from a country violating a *jus cogens* norm may not be recognised as lawful by other states.⁶⁴ This norm has been used as a basis for refusing to recognise shifts in sovereignty in several situations, including Japanese incursions into China in 1931; Turkey's attempt to establish the Turkish Republic of Northern Cyprus in 1983; Germany's annexation of Austria, Poland, Czechoslovakia and the Baltic States from 1936 to 1940; and most recently Iraq's annexation of Kuwait in 1990.⁶⁵ In each of these situations, unsanctioned military aggression was the basis for application of the *jus cogens* norms; but there is nothing explicitly prohibiting application of these norms in other contexts.

For threatened island nations, the perpetuation of arguably unlawful emissions, which worsen global climate change, offers an opportunity to apply *jus cogens* norms. According to Article 2 of the DASR, a "wrongful act" consists of two elements: first, that a state takes some action that manifests in international law; and second, that such action breaches such a state's international obligations.⁶⁶ If applied to the climate emissions context, the relevant action would be the failure of the state to regulate the emissions of activities within its borders. The second would depend on the nature of the obligation of each state. Relevant to this inquiry, many (though not all) states have undertaken obligations through the UNFCCC to reduce their emissions,⁶⁷ and have even committed themselves to numeric obligations under the Kyoto Protocol.⁶⁸ Without going into the details of these agreements (as other articles in this volume do), it is also clear at this point that the Kyoto Protocol failed, during its first commitment period of 2008–

63 United Nations General Assembly Official Records, International Law Commission, Draft Articles on Responsibility of States for Internationally Wrongful Acts, with Commentaries (DASR), 56th Session Supp. No. 10, 43 (2001).

64 Article 41(2) DASR.

65 Grote Stoutenburg (2013).

66 Article 2 DASR; see Article 4 DASR, "The conduct of any State organ shall be considered an act of that State under international law, whether the organ exercises legislative, executive, judicial or any other functions, whatever position it holds in the organization of the State, and whatever its character as an organ of the central Government or of a territorial unit of the State."

67 United Nations Framework Convention on Climate Change, 9 May 1992, entered into force 21 March 1994, 1771 United Nations Treaty Collection 107.

68 Kyoto Protocol to the United Nations Framework Convention on Climate Change, 10 December 1997, entered into force 16 February 2005, (1998) 37 International Legal Materials 32.

2012, to achieve a reduction in greenhouse gas emissions. But the extent to which this involved any violation of law by nations that signed the Kyoto Protocol is debatable. Among the largest emitting nations, one (the United States) did not ratify the Kyoto Protocol; others withdrew from it (Canada, Japan, Russia); others (such as China and India) did not commit themselves to any emissions reductions obligations. The number of nations that fulfilled and even significantly exceeded their Kyoto Protocol obligations and still acknowledge their obligations is small, and few of them have large economies.⁶⁹ It would be difficult or impossible to demonstrate that the emissions from these few countries in excess of their international commitments contributed in a major way to the plight of the island nations.

Assuming there are countries that did in fact violate their international obligations to some significant degree, island nations seeking to maintain their status as nations would still need to establish violation of *jus cogens* norms. The most likely *jus cogens* norms to be affected would be the right to self-determination, to sovereignty over one's resources and territory, and (on an individualised basis) to nationality within a country. Two related International Human Rights Covenants passed in 1966 provide explicitly for the right to self-determination, including determination of political status, and of social and economic development.⁷⁰ They also provide that communities should be allowed to utilise their own natural resources as they choose.⁷¹ And the Universal Declaration on Human Rights of 1948 provides individuals with the right to nationality.⁷² Here, the importance of these fundamental rights, and the degree to which they have been lost, are clear: people losing their homeland and their community because of the failure of others to reduce their own pollution would almost certainly qualify as a *jus cogens* norm.

In summary, it seems clear that the path to full sovereignty, both through traditional definitions and through application of *jus cogens* norms remains uncertain from a purely legal perspective. However, multiple observers have noted that considerations of equity and acceptance of their moral responsi-

69 IEA (2012:13 Table 1). Australia is the largest economy with such an exceedance.

70 International Covenant on Civil and Political Rights, 19 December 1966, entered into force 23 March 1976, 999 United Nations Treaty Collection 171; International Covenant on Economic, Social and Cultural Rights, 16 December 1966, entered into force 3 January 1976, 993 United Nations Treaty Collection 3.

71 (ibid.).

72 United Nations General Assembly Resolution 217 (III) A, 10 December 1948.

bility can and should prompt states in the developed world to continue recognising depopulated island nations even after their territories become uninhabitable, particularly where several legal hooks remain that would justify such treatment. For several reasons, outlined above and below, this would be preferable to recognition of a quasi-state status, which would provide such nations very little power to protect their diasporas.

D. Preserving Maritime Boundaries

One of the most important legal privileges afforded to nations that would need to be resolved in the context of threatened island nations is the right to maritime zones adjacent to land territories, and their associated fishing and subsea minerals rights. To some extent, resolution of this legal question will be tied to resolution of the statehood question, discussed above. Traditionally, only habitable islands may form the basis for large marine territories. However, marine territories are also subject to an entirely separate body of law, anchored by the LOSC and related treaties and agreements.

The current regime dates back to 1982, when the major countries of the world first met to discuss norms of maritime diplomacy, and began to negotiate what has since become the LOSC.⁷³ The LOSC officially came into effect on November 16, 1994, and has been ratified by 161 nations.⁷⁴ The list of ratifying nations notably lacks the United States (although it recognises large swathes of the treaty as binding customary international law).⁷⁵ As structured, the LOSC establishes four distinct “maritime zones” in the oceans: internal waters, territorial waters, the contiguous zone, and the exclusive economic zone (EEZ), with the high seas constituting the remainder of the ocean.⁷⁶ Each of these zones is determined on the basis of a given coastal state’s “baseline”, defined as the low-water mark of the coast.⁷⁷ States have absolute control over internal waters and over the territorial sea extending 12 nautical miles from the baseline.⁷⁸ They may also exert control over the contiguous zone to the extent necessary to protect their sovereign

73 See generally LOSC.

74 See Status of LOSC, United Nations Treaty Collection.

75 Holmes (2008:332).

76 See Articles 46-54 LOSC.

77 Article 5 LOSC.

78 Articles 2, 3 and 8 LOSC.

territory.⁷⁹ But by far the largest zone associated with a state, and the one which therefore grants the greatest benefits to a potentially displaced island population, is the EEZ, which generally extends 200 nautical miles from the baseline.⁸⁰ Within this zone, a state enjoys sovereignty over all living and nonliving resources in the water, on the seabed, and in the subsoil.⁸¹ Interestingly, states may also establish artificial islands within their EEZ, although the establishment of such islands does not create a new basis for an EEZ.⁸² And finally, states independently are granted jurisdiction over the seabed and subsoil resources of their continental shelves (although not the water above those shelves) under a separate section of the LOSC.⁸³ This control extends to the end of the continental shelf, even if the shelf itself extends beyond 200 nautical miles from the baseline.⁸⁴

The distinction between the EEZ and the continental shelf is not insignificant: most notably the LOSC offers avenues to secure continental shelf jurisdiction permanently, namely by allowing a state to provide the UN secretary-general with a geographic delimitation of the state's proposed territory (even if it does not adhere to the underlying physical topography).⁸⁵ The obvious implication of this provision is that states fearing a loss of territory can take prior steps to claim their continental shelves and thereby retain them in perpetuity.⁸⁶ This conflicts directly with the situation for EEZs, which cannot ever become permanent – at least not under a plain reading of the LOSC.⁸⁷ Thus, the norm under the LOSC will be that as island nations lose land territory, causing their baseline to shrink, their presumptive EEZ will similarly retreat and shrink (the term used for this phenomenon is “ambulatory baselines”). This means that states would not be able to maintain their fishing rights around submerged islands (and the associated revenues), but they could maintain the rights to subsea minerals.

In the face of such an eventuality, there are several steps, both legal and physical, that threatened island nations might take to preserve their marine territories. The physical innovations are probably more straightforward, and

79 Article 33 LOSC.

80 Article 57 LOSC.

81 Article 56 LOSC.

82 Articles 56 and 60 LOSC.

83 Articles 76 and 77 LOSC.

84 Articles 1, 76 and 77 LOSC.

85 Article 76 LOSC; Soons (1990:216f.).

86 Soons (1990:216f.).

87 Articles 76-79 LOSC.

centre around the way LOSC determines the boundaries of the various marine zones. As noted above, the international community has accepted the possibility that coastal states may buttress current habitable islands and therefore maintain the “habitability” designation: the same holds true under the LOSC.⁸⁸ This strategy is not without its risks – numerous studies have demonstrated the difficulties associated with artificially altering natural mineral flows on an isolated island through the construction of hard structures, including unanticipated erosion elsewhere on the same island⁸⁹ – but may also be applied to preserve the outer-bound baselines defining marine territories under the LOSC. In one of the better-known examples of such a strategy, Japan has employed just such a strategy to maintain the 40,000 potential square nautical miles surrounding a tiny island, Okinotorishima, in the far south of Japan.⁹⁰ This has not been without controversy, and indeed both China and the Republic of Korea have filed official protests.⁹¹ Island nations facing the loss of their homeland would be in a position to respond to similar protests by focusing particularly on the equities involved. In fact, the equities in favour of such nations are so strong that some scholars have suggested that artificial or even floating islands could provide a new anchor for both statehood and marine territories.⁹² Although this would seem to conflict directly with the rules in the LOSC against granting artificial structures any recognition,⁹³ such nations might justifiably present such installations as mere preservation projects of territory that will otherwise disappear in its entirety.

A less drastic and controversial option exists for islands that stand to lose large chunks of their territories without losing their entire territory: the maintenance of island basepoints. Because islands are by their nature irregular in shape, certain points on the land will provide the furthest “reach” for purposes of calculating marine territory, with large swathes of islands having no effect on the ultimate calculation of the EEZ. Thus, to the extent that they bulwark parts of their territory that are subject to submergence, island nations might limit territorial loss by focusing their preservation efforts on such “reach” points, which are usually the tips of peninsulas or other extreme

88 Soons (1990:222).

89 Schofield & Freestone (2013).

90 Song (2009:148).

91 Schofield & Freestone (2013).

92 (ibid.).

93 Article 60(8) LOSC.

points in island geography. Such efforts cannot themselves prevent the unfortunate loss of land territory, but could preserve valuable swathes of EEZs, which can be rented out for fishing rights, as well as continental shelves that can be rented out for mineral access and provide a source of income to these island populations.

Although physical efforts to maintain targeted areas may provide a bulwark against severe declines in land and sea territories, perhaps the most effective solutions for maintaining marine territories are exclusively legal in nature. In addition to claiming continental shelves immediately, threatened island nations may call for certain interpretations of LOSC rules that freeze baselines regardless of future changes in land territory. As one such example, Article 5 of the LOSC provides that “the normal baseline for measuring the breadth of the territorial sea is the low-water line along the coast as marked on large-scale charts officially recognized by the coastal State”.⁹⁴ Focusing on the latter part of that definition, several scholars have contemplated that once baselines are established against a present coastline, there is no requirement that those countries redefine their baselines even if the coasts recede. In effect, then:⁹⁵

the practical effect of marking the low-water line on large-scale charts officially recognized by the coastal State may be to “fix” that baseline as against coastal regression and the claims of other States, at least until such time as new charts are produced.

The difficulty, of course, is that navigation charts are used for more than baseline delimitation; they are used to navigate, and so refusal to update those charts could have disastrous results. This could provide pressure against states’ refusals to update their charts.

An alternative legal innovation focuses on Article 7(2) of the LOSC, which allows the use of “straight baselines” between points “along the furthest seaward extent of the low water line” in certain circumstances.⁹⁶ This approach is allowed where “because of a delta and other natural conditions the coastline is highly unstable”,⁹⁷ which test would seem to definitionally exclude island nations from utilising this approach, since they are without a delta. However, here again scholars have long suggested that a round of

94 Article 5 LOSC.

95 Rayfuse (2013); see Kapoor & Kerr (1986).

96 Article 7(2) LOSC.

97 (*ibid.*).

reinterpretation of these requirements, particularly focusing on the equities of climate change and rising seas, could bring island nations within the ambit of the Article on the basis of their unstable coastlines resulting from “natural conditions”.⁹⁸ Another provision such nations could use is Article 47 of the LOSC, which allows archipelagic states to use straight baselines that connect islands together as one “baseline territory”.⁹⁹ This is technically only allowed for countries in certain circumstances (land-to-water ratio below 9 to 1, no straight lines longer than 125 nautical miles, and 97% of such lines shorter than 100 nautical miles),¹⁰⁰ but again the principle of equity might compel other countries to allow threatened island nations to expand use of this Article to their situation. As a final note here, if a straight baseline re-definition approach is allowed under Article 7 or Article 47, the strategy of maintaining bulwarks along the extreme points of land territories (discussed above) will become even more important.

In their favour, marine territory claims of island states will be granted a “presumption of permanence” once they are declared and publicised in the international community; this is an argument for immediate action in preference to a delay of any sort.¹⁰¹ Examples already abound of other nations, such as Australia,¹⁰² defining their baselines accordingly, so such action would not be unprecedented.

In addition to options utilising the existing text of the LOSC, there are of course several other ways for threatened island nations to attempt to secure their marine territories in perpetuity. Perhaps the most straightforward method would be to call for an amendment of LOSC that would set current baselines in perpetuity. There is some support for such an effort,¹⁰³ but threatened island nations may find it difficult to secure such a significant amendment to what is already a controversial treaty in many ways. Legal scholars have thoroughly examined the process by which such an amendment could be achieved; but it is at least clear that efforts would be needed to overcome what is generally a “slow and unwieldy” process.¹⁰⁴ For that reason, other scholars suggest that the LOSC process is not the best avenue

98 See e.g. Bird & Prescott (1989).

99 Rayfuse (2013).

100 Article 47 LOSC.

101 Rayfuse (2013).

102 Seas and Submerged Lands Act 1973 (Act No. 161/1973) (Au.).

103 Rayfuse (2013); see also Jesus (2003:602).

104 Rayfuse (2013); Hayashi (2009).

for changing the rules, and that instead an entirely new treaty should be negotiated, perhaps within the auspices of the UNFCCC.¹⁰⁵

Another legally simple solution, and one that focuses more on *realpolitik* than on traditional international law, would be to enter into bilateral treaties with other nations that are the most likely to encroach on their marine territories, and/or who could help enforce their jurisdiction over such territories against other nations. For instance a nation unable to find a traditional justification for its continued existence might seek continued recognition from a larger and more powerful country, as well as some form of bilateral aid, in return for granting that nation exclusive fishing or mineral rights within its EEZ or continental shelf. The benefit of such a strategy is limited by the degree to which the partner nation would be willing to enforce the island nation's claims (for its own benefit), and the degree to which other nations might challenge this arrangement. However, at the very least, such an arrangement would provide the partner nation with a valid, and equitably proper, justification for its actions, while giving it an incentive to provide financing to the island nation and its diaspora.

E. Existing Protections for Displaced Populations

Although the plight of nations is important, and national status and territory may be key to providing rights and a source of income for large displaced populations, the story of rising sea levels in this context is fundamentally one about people. Particularly in the small island nations discussed here, entire populations may need to be relocated somewhere else on the planet, be forced into foreign societies, struggle to maintain communities and livelihoods, and generally face severe personal and societal stresses. However, we know very little about where these populations will go, and what rights and protections they may enjoy in their new homes. It is thus important to determine what, if any, human rights protections exist for such communities, given the context of their expected resettlement.¹⁰⁶

The short answer to this question, unfortunately, is that human rights law provides relatively little direct guidance on how human rights protections should be applied in the context of climate change. (This leaves aside, of

105 Schofield & Freestone (2013); Freestone & Oude Elferink (2005).

106 See generally Knox (2009).

course, the question – discussed below – of the enforceability of even the clearest human rights obligations.) To be sure, it is clear that climate change does implicate human rights protections; this was finally recognised formally in 2008 by the UN Human Rights Council, which adopted the first resolution on human rights and climate change.¹⁰⁷ The regime of human rights provides several areas of protection that might apply to threatened island nation populations, and indeed it is clear that climate change does implicate several human rights, but each of these areas of human rights law requires separate analysis.

The basic patchwork of human rights protections¹⁰⁸ has been described as centring around three basic obligations: (1) to respect other nations and their people’s human rights, and not to interfere with their appreciation thereof; (2) to protect people and nations against any violations of human rights that might be perpetuated by third parties; and (3) to fulfil human rights and their enjoyment in other countries.¹⁰⁹

The obligation to respect can be seen as providing perhaps the most useful avenue for achieving human rights protections in the context of climate change. This is because the prohibition against “interfering” with the enjoyment of human rights in other nations can clearly translate to a duty to “do no harm”, which in the context of climate and threatened island nations could be seen as an injunction not to contribute to climate change, or at least to help those hurt by any such contribution.¹¹⁰ Indeed, the “do no harm” school of liability has already shown up in the Rio Declaration and at the

107 UNHRC Res. 7/23, U.N. Doc. A/HRC/7/78, 28 March 2008, adopted by consensus.

108 For a general summary of customary international law, see Henckaerts & Doswald-Beck (2005:299-306). See also Universal Declaration of Human Rights, General Assembly Resolution 217, United Nations General Assembly Official Records, 3rd Session, United Nations Doc. A/810 (1948).

109 McInerney-Lankford (2013).

110 This theory has also been held forth as a method for establishing liability for climate harms caused by major emitters, because it would support “a requirement that States carry out prior assessments to predict and evaluate the effects of actions that might degrade the environmental and thereby harm individuals’ rights.” McInerney-Lankford (2013). This article does not address questions of liability, but human rights doctrine establishing duties not to harm other countries can also provide pressure on ‘violating’ countries to provide basic human rights to victims of their actions.

UN Conference on the Human Environment,¹¹¹ and is the basis for the determination of the International Court of Justice that states may be held responsible for human rights violations.¹¹²

The obligation to protect imposes on states the responsibility to regulate the actions of third parties (where such regulation is possible) to ensure that these parties are not violating human rights.¹¹³ Here, drawing a connection to the possible plight of displaced communities is straightforward: states are almost certainly responsible for regulating private actors in their territory to ensure that they do not violate existing human rights protections. For instance, when displaced communities arrive unbidden in another state's territory, that host state is responsible for ensuring that its own citizens and local governments honour the nation's human rights obligations to such communities. Importantly, there is a positive human rights obligation here (something that must be done), as opposed to merely a negative obligation (something that may not be done). In addition, some scholars have argued that the duty to protect "extends beyond the confines of a State's borders and ... may have extraterritorial application" to all parties within a given country's control, whether domestic or international.¹¹⁴

Finally, the obligation to fulfil is an explicitly positive obligation: nations must secure conditions that are conducive to full enjoyment of human rights.¹¹⁵ Technically, this means that states are "under an immediate obligation to take 'deliberate, concrete, and targeted steps'" toward the full realisation of human rights.¹¹⁶ In practice, of course, states are granted leeway in the process of seeking to ensure enjoyment of human rights, because it is

111 Rio Declaration, Principle 2; United Nations Conference on the Human Environment, Stockholm, Sweden, 5-16 June 1972, Declaration of the United Nations Conference on the Human Environment, United Nations Document A/CONF. 48/14, 11 I.L.M. 1416, 16 June 1972.

112 See e.g. *Armed Activities on the Territory of the Congo (DRC v Uganda)*, 2005 International Court of Justice 116, 220, 19 December 2005; *Legal Consequences of the Construction of a Wall in Occupied Palestinian Territory*, Advisory Opinion, 2004 International Court of Justice 163, 111, 9 July 2004.

113 Again here, this obligation might be used in an attempt to establish liability against nations with domestic actors emitting large quantities of greenhouse gases. McInerney-Lankford (2013). However, this obligation may also be used to impress upon such nations the importance of regulating domestic actors who might violate displaced people's human rights more directly.

114 McInerney-Lankford (2013).

115 (*ibid.*).

116 (*ibid.*), quoting CESCR General Comment No. 3.

impossible to achieve full human-rights-compliant behaviour instantaneously. But this norm, particularly when coupled with the norm of establishing an obligation to control the actions of third parties, could be seen as imposing a certain course of activity upon nations expected to receive large communities of displaced persons.

A difficulty with all of these three norms of human rights law is that they are fundamentally unenforceable. These discussions and protections alone may place some pressure on countries to comply, but with certain limited exceptions there are precious few concrete requirements that might actually compel countries to protect human rights around the globe.¹¹⁷ Human rights obligations are usually realised within a country, by citizens within that country (and sometimes other visitors to that country),¹¹⁸ rather than against third party countries. Thus, in the context of displaced citizens of threatened island nations, they may have recourse against their own governments (which they most likely would not take), but would find it difficult to use traditional human rights protections to impose obligations on third-party countries that must take them in. That said, linking human rights and climate change also is not a worthless exercise, because (1) it brings the full weight of human rights and obligations to bear on climate and immigration decisions, imposing pressure on countries to take steps to preserve human rights; and (2) to the extent that human rights treaties establish international norms that may influence countries' behaviour (to protect, respect, and fulfil, as above), they bring climate-related bad actions within the purview of such rules.¹¹⁹

One possible avenue for imposing backdoor human rights liability on countries to care for displaced island communities is the body of existing international migration law.¹²⁰ Whenever people migrate from one country

117 Hannum (1995-1996); see also *Sosa v Alvarez-Machain*, 542 U.S. 692, 734 (2004), “[T]he [Human Rights] Declaration does not of its own force impose obligations as a matter of international law.” But see *Filartiga v. Pena-Irala*, 630 F.2d 876, 882 (2d Cir. 1980), noting that the Human Rights Declaration does impose some obligations through customary law.

118 Darrow & Arbour (2009:470).

119 McInerney-Lankford (2013).

120 “International migration law draws together the norms governing the legal relationships between States and those between States and individuals involved in the migration process. It is an umbrella term for an area of law that has developed over time and indeed continues to develop.” Klein Solomon & Warner (2013); See International Organization for Migration, International Migration Law <http://www.>

to another, they become subject to human rights protections in both their own country of nationality and the eventual host state. There is no apparent reason to treat environmental migrants differently from other migrants, so this should apply equally to island communities. Many countries have subjected themselves to honouring certain basic human rights protections, through international agreements or national laws or both, and so migrants may find themselves in a position to invoke human rights protections in host countries' court systems directly. In short, island nation communities entering into host nations may be able to use their status as migrants to bring human rights protections to bear on the treatment they receive in their new homes.¹²¹ Such improvements in treatment could include due process under the law, a greater right to self-determination, or such basic life necessities as health services and education. This remains a relatively novel concept, and merits further consideration; but it does offer a possible role for the International Organization for Migration, which, though lacking a legal protection mandate, is responsible for contributing to the protection of migrating persons.¹²²

In addition to the general human rights protection regime, there are certain areas of international law that may provide some hope for displaced communities seeking a tool to ensure their human rights are preserved. One such possible alternative tool centres on global refugee protections. The main instrument for refugee protections in international law is the UN Human Rights Commission, which oversees the 1951 Convention relating to the Status of Refugees (1951 Convention).¹²³ This instrument, together with its subsequent Protocol,¹²⁴ provides refugees with a guarantee of "national treatment" in the provision of housing, education, and other services, which could be exceedingly useful to a displaced group of threatened island nation citizens. In the context of climate, however, numerous scholars have observed that refugee protections under the 1951 Convention alone cannot

iom.int/jahia/Jahia/international-migration-law/lang/en (last accessed 19 March 2013), for key publications and analysis on international migration law.

121 Klein Solomon & Warner (2013).

122 United Nations High Commissioner for Refugees (2007).

123 United Nations Convention Relating to the Status of Refugees, July 28, 1951, 19 U.S.T. 6259, 189 United Nations Treaty Collection 137 (hereinafter 1951 Convention).

124 Protocol Relating to the Status of Refugees, 31 January 1967, 19 U.S.T. 6225, 606 United Nations Treaty Collection 268.

properly apply to climate refugees.¹²⁵ The 1951 Convention defines a refugee as any person who “owing to a well-founded fear of being persecuted ... is outside the country of his nationality, and is unable to ... avail himself of the protection of that country”.¹²⁶ This definition seems to require that *a refugee’s country be contributing to the problem* and that the violation of human rights results from *persecution*; and presumably neither of these situations would exist in the context of climate displacement, where the states are working hard to provide for all of their citizens.¹²⁷ In fact, the UN Human Rights Commission itself has observed that climate refugees are unlikely to be covered under the original convention.¹²⁸

In certain regions, it might be argued that the situation has changed; subsequent agreements in Africa and Latin America have expanded the definition of refugee from the 1951 Convention specifically to include people who have fled their home countries as a result of any disturbance to the “public order”.¹²⁹ Under the expanded definitions laid out in these agreements, climate-displaced persons will find it much easier to qualify as refugees. However, the agreements only apply to the regions in which they have been adopted, and so could only provide protection to climate-displaced populations to the extent that they move to one of those two regions.¹³⁰

In the face of a refugee treaty that fails to cover what may well be the largest source of refugees in the next hundred years, many have called for modification of the convention, while others argue that political refugees and climate refugees are facing such different challenges that different legal regimes are needed for the two phenomena, and also that the number of climate refugees will become so large that the plight of political refugees would be superseded. Many of the expected refugee-hosting countries have expressed reluctance to extend international refugee protections further than where they are presently.¹³¹

125 McAdam & Saul (2010); Williams (2008); Klein Solomon & Warner (2013).

126 1951 Convention.

127 Cooper (1998); Lopez (2007).

128 United Nations High Commissioner for Refugees (2009).

129 Organization of African Unity Convention Governing the Specific Aspects of Refugee Problems in Africa, 20 June 1974, 1001 United Nations Treaty Collection 45, Article I, Paragraph 2; Cartagena Declaration on Refugees (Cartagena de Indias, 22 November 1984) OAS/Ser.L./V/II.66, doc. 10, rev. 1, 190-193, Article III, Paragraph 3.

130 See Leighton (2010:6).

131 Klein Solomon & Warner (2013).

Finally, even if it were politically feasible to extend refugee protections to the coming masses of environmental refugees, some scholars have argued that refugee protections are insufficient for the task. Refugee protection consists of two principal elements: (1) in the host state, treatment for persons identified as refugees equivalent to national treatment (i.e. with regard to access to education, social benefits, and the like – effectively a “nondiscrimination” principle); and (2) a “non-refoulement” principle (i.e. protection from being sent back to a place of persecution).¹³² Both of these would be useful protections; but refugee protections are by their nature reactive, rather than proactive. Given the predictability of upcoming climate displacement, these populations would be better served by an orderly and structured evacuation plan than they would be by an unorganised scattering, followed by individually applied general refugee protections.¹³³

One interesting recent development in the area of climate negotiations that may provide comfort to island communities hoping for international aid for their eventual transition has been detailed in particular by Michele Klein Solomon and Koko Warner, who were involved in UNFCCC negotiations leading to the addition of language considering the plight of climate-displaced persons.¹³⁴ At the 16th Conference of the Parties to the UNFCCC in Cancun, Mexico (Cancun COP) in 2010, parties agreed to add language to the final agreement that –¹³⁵

14) Invites all Parties to enhance action on adaptation under the Cancun Adaptation Framework, taking into account their common but differentiated responsibilities and respective capabilities, and specific national and regional development priorities, objectives and circumstances, by undertaking, inter alia, the following: (f) Measures to enhance understanding, coordination and cooperation with regard to climate change induced displacement, migration and planned relocation, where appropriate, at national, regional and international levels.

Solomon and Warner have provided a far more detailed summary of the potential uses of this language, but at least there is now language as part of the UNFCCC process suggesting that countries should coordinate with each other to make climate-change-induced displacement, migration and planned relocation happen as smoothly as possible. In this text, small island nations

132 1951 Convention, Article 1(A)(2); see also Ruddick (1997:448).

133 Klein Solomon & Warner (2013).

134 (ibid.).

135 Cancun Agreement para. 14(f).

and their governments have been provided with a tool to guide their discussions with countries around the world and seek the aid they will need. It seems clear that early on in this process, discussions will be limited to efforts to promote understanding of the scope of the issue. It is also clear that many of these efforts to coordinate will continue along the current planning trajectory, which includes utility of bilateral and multilateral agreements.¹³⁶ However, this text gives some hope that, through Paragraph 14(f), the UN-FCCC can provide a basis for the “operational cooperation” that will be needed to manage the flows of people as sea-level rise becomes much more severe.¹³⁷

Beyond the possibilities listed above, the prospects for displaced communities obtaining protection as they uproot their lives are limited. Perhaps the most straightforward eventuality is that island nations lose their status as nations, and the resulting displaced communities find themselves classified as ‘stateless’ peoples. Island communities may try to avoid this outcome because of the loss it would mean to community cohesion, even if such a status might provide additional avenues for obtaining support.¹³⁸ Several options for obtaining support would still be available to displaced citizens from these nations, with several national and multi-national programmes available that may provide protections to island nation diaspora.¹³⁹ And with the added benefit of nationhood, threatened island nations may enter into new (or rely more heavily on existing) arrangements with other countries to accommodate their populations, financing such movements through some combination of national assets and rents, and aid from the rest of the world. This article does not address the multitude of options surrounding bilateral and multilateral arrangements in detail, but such options merit thorough consideration.

F. The Possibility for Future Protections

In the face of what is widely acknowledged to be an incomplete and imperfect set of existing protections for communities facing climate-related displacement, several scholars have proposed new regimes and treaties better

136 Wyman (2013); see F below for a discussion of possible multilateral treaty options.

137 Klein Solomon & Warner (2013).

138 1954 Convention Relating to the Status of Stateless Persons, Article 1.

139 For a summary of such programs see Wyman (2013).

designed to address the particular needs of climate-displaced persons. These proposals have spawned a debate both among proponents of the various proposed options, and between those calling for a change and those who feel that efforts in this area are best served by securing protections under the existing regime.

Among the proposals for new protection regimes, five in particular stand out as particularly noteworthy: those from Frank Biermann and Ingrid Boas (Biermann-Boas Plan),¹⁴⁰ Bonnie Docherty and Tyler Giannini (Docherty-Giannini Plan),¹⁴¹ Dana Falstrom (Falstrom Plan),¹⁴² David Hodgkinson and his team (Hodgkinson Plan),¹⁴³ and Michel Prieur and his team (Prieur Plan).¹⁴⁴ Each of these plans contains a particular set of policy choices and implementation methods, and offers different rationales for these choices. Among the elements that differ from treaty to treaty are how they define the class of persons protected by such an agreement, what types of climate displacement events they cover (sudden, gradual, or both), whether they address the needs of *internally* displaced persons, what level (and type) of coercion they anticipate applying against member states to ensure compliance, and what form the administration of the treaty might take (and whether it would be independent or tied in with an existing international bureaucracy such as the UNFCCC).

Among the most relevant distinctions for the populations of small island nations is the degree to which the various plans purport to address the plight of internally displaced persons. This is because international refugees coming from such islands represent a small fraction of the total number of people expected to be displaced by climate change over the coming centuries.¹⁴⁵ Treaties granting protections exclusively to internationally displaced persons (which is of course undesirable from the perspective of internally displaced communities), or at least addressing the unique needs of the two groups separately, are more likely to provide the practical level of support such communities will require. Of the five, the Docherty Plan and the Falstrom Plan are the two that cater entirely to displaced persons crossing in-

140 Biermann & Boas (2007).

141 Docherty & Giannini (2010).

142 Falstrom (2001).

143 Hodgkinson et al. (2010); see also Hodgkinson & Young (2013).

144 Prieur (2010); For a more thorough discussion of these five works, as well as others, see Hodgkinson & Young (2013).

145 Compare Wyman (2013) with Myers (2005).

ternational borders, omitting entirely the matter of internally displaced persons.¹⁴⁶ The other three plans are much broader, covering all persons who may be forced from their homes, even when they stay in their home countries, although the Hodgkinson Plan at least draws a distinction between the two groups.¹⁴⁷

In a similar vein, the Docherty and Hodgkinson Plans limit their applicability to communities displaced as a result of climate change, whereas the other three more generally advocate protections for those displaced as consequence of a variety of environmental events.¹⁴⁸ Here the distinction may be less important: numerous scientific teams have warned that climate change will also lead to an increase in intense storms that will cause some of the worst incidents of environmental displacement, as well as a change in precipitation patterns that could cause additional flooding or drought events in different parts of the globe.¹⁴⁹ But all else being equal, it is likely that the more specific treaty (focusing on events at least made more likely by climate change) would be more narrowly tailored, on balance, to the specific needs of island communities.

Another important distinction among the various proposals lies in their approach to addressing the need for migration, between establishing protections for eventual migration channels, and establishing such migration channels in advance of any disasters that would necessitate movement. Here, there is a range of coverage. The Falstrom and Docherty-Giannini Plans focus their proposals heavily on those who are “forced” to leave, owing to “threats to a refugee’s survival”.¹⁵⁰ These therefore appear to leave less room for advanced planning before moving becomes absolutely necessary. By contrast, both Hodgkinson and Biermann-Boas contemplate conventions that would include planned relocation and resettlement in advance of expected migration. The Hodgkinson Plan anticipates protections for “prospective migration based on likely consequences of climate change”,¹⁵¹ and the Biermann-Boas Plan notes that the “need for local populations to leave regions that suffer from increased risk can be foreseen” and such exoduses could be “carried out in planned, voluntary relocation and resettlement pro-

146 Docherty Plan; Falstrom Plan.

147 Hodgkinson & Young (2013).

148 Docherty Plan; Hodgkinson Plan.

149 Carr et al. (2013).

150 Falstrom Plan; Docherty-Giannini Plan.

151 Hodgkinson Plan.

grammes – sometimes over many years and decades – for certain populations as opposed to spontaneous flights”.¹⁵² Finally, the Prieur Plan also appears to provide for advanced resettlement, although this is less clear: his plan covers populations whose “displacement [is] made inevitable by environmental disaster”.¹⁵³ This would seem to include situations where displacement is inevitable, although Prieur does not explicitly state this. In the context of threatened nations, such provisions may be critically important: a convention allowing for an island to plan its relocation in advance with the benefit of displaced-persons protections would be significantly more useful than one forcing island communities to wait for a particularly powerful storm before gaining such protections.

As important as the differences among the various proposals are, the similarities indicate a certain degree of consensus on the best course of future action. For instance, all these plans base their laws on, and work to maintain consistency with, existing human rights and humanitarian law.¹⁵⁴ They establish both norms of protection, and, more prosaically, methods for acquiring humanitarian assistance. And they take great trouble to define a group of people moving who may obtain the benefits of their proposed conventions.¹⁵⁵ In fact, several of the authors have taken great pains to compare their various proposals, and the general approach among those proposing new agreements has been engagement and cooperation rather than competition.¹⁵⁶

The number of broad similarities among the various proposals has enabled these academics collectively to counter a contrary line of thinking in the scholarly community, which questions more broadly the merits of seeking to pass *any* new climate-specific human rights treaty. Several academics (Jane McAdam being among the most prominent) have come out against a new convention focused specifically on climate refugees (or even environmental refugees).¹⁵⁷ The main arguments against efforts to press for new

152 Biermann-Boas Plan 25.

153 Prieur Plan.

154 Klein Solomon & Warner (2013).

155 Jane McAdam (2011). See Hodgkinson & Young (2013).

156 For example, Hodgkinson and Prieur both spoke at the Conference on Threatened Island Nations: Legal Implications of a Changing Climate, held at Columbia Law School, New York, NY, May 23–25, 2011 and expressed their desire to work together to modify their individual agreements. Further, Hodgkinson & Young (2013) discuss the other major proposals in some detail.

157 See e.g. McAdam (2011).

rules in the climate arena are (1) that such efforts are likely to be futile, and would ultimately detract from more promising efforts within the existing system; (2) that the definitional problem when establishing special protections for persons displaced by climate (or environmental) factors is too difficult to overcome (how does one define persons displaced by environmental factors as opposed to those displaced as a result of economic or personal circumstances?); (3) that as a consequence of definitional ambiguities that would result, such a system would be vulnerable to gaming by dishonest people looking for a way to circumvent the existing migration system; and (4) that even if a treaty passed and addressed the definitional concerns above, it could not possibly address the full range of issues required to be addressed to prepare for dramatically rising seas in the coming century and beyond.¹⁵⁸ These critics instead propose that the community continue to use existing international law and principles.

Perhaps the central question dividing commentators on this issue is the feasibility of passing a new convention. It seems clear that, if the international community is extremely unlikely to adopt a new set of rules, then any effort to pass such a set of new rules would ultimately be fruitless. The question of how feasible a new convention might be will ultimately be determined by states and international politics, and is difficult to answer from an academic perspective, although it seems clear that a country unwilling to take on new obligations is likely to be unwilling to do so even under a new convention. This critique may be more effective with some proposals than others: for instance, most of the plans envision some form of binding obligations with attached punishments for noncompliance; but the Hodgkinson Plan does not contain any enforcement provisions, instead envisioning itself as a tool countries might use for more effective cooperation.¹⁵⁹

At the very least though, critics argue that the negotiation and ratification process is likely to take a long time, which carries the risk that protracted and inconclusive negotiations or low numbers of ratifying states following a conclusion may “serve as an excuse for inaction and distract from actual, current needs – which in the case of sinking island [communities] might be so pressing that the [communities] cannot afford to wait for the conclusion of a lengthy process”.¹⁶⁰ Perhaps the most interesting response to this concern comes from those who have urged that the climate change problem

158 McAdam (2011); McAdam & Saul (2010).

159 Hodgkinson Plan.

160 Klein Solomon & Warner (2013).

should be “split ... into different pieces” so that specialised forums can address discrete issues, such as the need to prepare for climate displacement without being distracted by more contentious issues (including liability for climate change and mitigation efforts).¹⁶¹ Such a ‘building block approach’ might enable different elements of climate governance to proceed at different paces, and yield partial results where complete consensus is impossible.¹⁶² The details of such an arrangement are beyond the scope of this article; but the possibility of such a process would make efforts to call for a new treaty specifically addressing the needs of threatened island communities much more plausible.

The second set of critiques against proposals for new treaties focuses on the difficulty of distinguishing between people displaced by climate (or even environmental) factors, as opposed to social or economic factors. As Jane McAdam, one of the leading voices arguing that efforts to pass a new treaty are misplaced, observes:¹⁶³

Treaty proposals are premised on certain assumptions about climate change and human movement that are not borne out in the empirical studies ... which show that movement is likely to be predominantly internal and/or gradual, rather than in the nature of refugee “flight.”

In other words, treaties seeking to identify victims of climate-related events would inevitably be forced to draw difficult and possibly somewhat arbitrary distinctions between environmental refugees and other refugees (and even fortune seekers). This observation bleeds into the third critique, that owing to the distinctions, such systems would be easy to manipulate by certain parties. In responding to such critiques, academics such as Hodgkinson argue that their proposals address the issue of identification through the establishment of complicated “institutional architecture” to address these definitional concerns, as well as through the development of carefully crafted definitions.¹⁶⁴ Hodgkinson further observes that “complexity of a pursuit does not necessarily render that pursuit any the less worthwhile”.¹⁶⁵ Hodgkinson’s observation has some merit: policies often turn on intricate definitional issues, and policymakers are constantly required to draw distinctions based on difficult-to-isolate definitional points. Such policies may leave them-

161 Bodansky (2010).

162 Falkner et al. (2010).

163 McAdam (2011:8).

164 See Hodgkinson & Young (2013).

165 (ibid.).

selves open to manipulation, but as with any administrative system, to the extent that newly established climate refugee regimes are properly run, it may be possible to minimise administrative issues.

Finally, several academics have argued that the various proposed conventions cannot single-handedly address the multitude of issues that will need to be resolved.¹⁶⁶ In this case, there appears to be at least some agreement between the two sides of the issue: as above, the various authors generally anticipate their treaties as building onto existing protection infrastructure, and as Hodgkinson particularly notes, his “convention provides a general framework for CCDP [.....] assistance as one element of a wider international climate change ‘regime complex’”.¹⁶⁷ However, this response to the critique is perhaps too simple. The full set of plans analysed in this article focus sharply on controlling migration, either as emergencies arise or years in advance of such a need; but they do not concentrate much of their focus on shoring up existing some communities to enable them to stay for as long as possible. This demonstrates a disregard for the political reality in many of these island nations, which is characterised by a determination to adapt infrastructure and prepare for a changing planet.¹⁶⁸ Michele Klein Solomon and Koko Warner explain this balance as follows:¹⁶⁹

A convention would likely have to choose between a remedial and a preventive approach. Both have their limitations in the context of environmental migration: a purely remedial (post hoc) stance would mean missing a chance to act to avert a worst case scenario; a preventive approach, however, should be careful to avoid suppressing migration at all costs, as doing so may in fact increase the risk of vulnerability and harm.

The major point to remember here is that improvements in infrastructure are important even if an island will eventually become uninhabited, because such improvements can significantly reduce loss of life in the decades before actual evacuation becomes wholly necessary, and can also push back that eventual date. Treaties focused entirely on preparing for migration and protecting migrants may distract policy planners from considering improve-

166 McAdam (2011).

167 Hodgkinson et al. (2010).

168 See e.g. proceedings from the Conference on Threatened Island Nations: Legal Implications of a Changing Climate, held at Columbia Law School, New York, NY, May 23–25 2011.

169 Klein Solomon & Warner (2013).

ments in infrastructure, dwellings, agriculture, and other items that could save lives in the interim.

G. Conclusion

Global climate change is a complex phenomenon, and there are generally few scientific certainties where it comes to predicting future physical impacts. One point on which there is broad scientific consensus, however, is that warming temperatures will cause sea levels to rise around the planet, placing low-lying islands at particular risk of submersion. As a result, island communities face the dire possibility of forced evacuation from their homelands, and a resulting loss of national heritage and community cohesion, over the coming century and beyond.

As many island nations, which today possess full sovereignty, become incapable of sustaining a permanent population owing to sea-level rise, their citizens will no doubt take steps to preserve their identities in whatever way possible. This article explores the host of imperfect options available to these communities. Among the issues that climate-threatened island communities must decide upon are whether they will be able to (1) maintain their nationhood; (2) utilise marine resources as a source of revenue; and (3) rely on existing or possible new human rights protections for their people as they seek to establish new lives in foreign lands. Unfortunately, there are no clear answers on any of these fronts: these questions are important precisely because they are novel, and even if threatened nations exert their full diplomatic weight in support of their citizens it is not clear how successful they will be. As a result, instead of attempting to provide advice to island nations, this article presents a number of possible paths forward for these communities; in the face of such uncertainty, advance preparation and thoughtful planning will be required to avoid serious societal breakdowns on these islands.

The total population of islands that may become uninhabitable in the next century is tiny compared to the full scope of human migration that global climate change will set in motion. But with their low-lying habitats threatened in their entirety by submergence, island populations face potential loss not just of their homes, but of their very identities. As the world prepares for a difficult transition into the future, the plight of these communities should not be forgotten.

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Abstract

When small island states – the most affected by climate change but contributing the least thereto – eventually wish to bring a claim for compensation for damage caused by climate change vis-à-vis a large emitting state, several legal barriers would stand in the way of their success. The United Nations Framework Convention on Climate Change and its Kyoto Protocol lack clear rules on compensation for damage caused by climate change. These states may gain compensation by invoking state responsibility for breach of international obligations by other states, whether in treaties or customary law; however, it is not easy to claim successfully for such responsibility because of the very nature of climate change: difficulties exist in proving which part of damage caused is due exactly to climate change and is precisely attributable to the allegedly responsible state. Efforts to grapple with these legal challenges of state responsibility might be necessary, but a more innovative approach, such as the use of insurance, should be explored in order that prompt and adequate remedies be provided to the victims.

A. Introduction

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) indicates that climate change has indeed been occurring, and that most of the recorded increase in globally averaged temperatures since the mid-twentieth century is very likely due to the observed increase in anthropogenic greenhouse gas (GHG) concentrations.¹ It is likely that anthropogenic warming has had a discernible influence on many physical and bi-

1 IPCC (2007a:10).

ological systems², and has thus impacted upon our ecosystems, lives, and economies. The Fourth Assessment Report of the IPCC makes it clear that while the impacts of future climate change will be mixed across regions, it is very likely that all regions will experience a net decline in benefits or net increase in costs from a rise in temperature greater than 2 to 3°C.³ In terms of its causes and effects, climate change is global in nature; however, the impacts of climate change are and will be unevenly distributed. Developing countries, generally more vulnerable to and less capable of addressing these impacts, are expected to experience larger percentage losses.

Small islands, although contributing least to climate change themselves, are especially vulnerable to the effects of climate change, sea-level rise and extreme events.⁴ Deterioration in coastal conditions, for example through erosion of beaches and coral bleaching, is expected to affect local resources, such as fisheries, and reduce the value of these destinations for tourism. Sea-level rise is expected to exacerbate inundation, storm surge, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities. Climate change is projected by mid-century to reduce water resources in many small islands, such as the ones in the Caribbean and Pacific, to the point where they become insufficient to meet demand during low-rainfall periods.

Facing such reality, and in response to the announcement of non-participation in the Kyoto Protocol by the United States and Australia in 2002, Koloa Talake, Tuvalu's then prime minister, announced that Tuvalu and two other island nations, Kiribati and Maldives, planned to take legal action against major polluting countries that refused to join in the Protocol.⁵ This, however, has never materialised owing to change of the Tuvalu government. Tuvalu, a low-lying, small island state in the South Pacific, has been suffering from adverse impacts of climate change, such as sea-level rise, and extreme weather events, like storm surges and floods.⁶ The same is true for other small island states. Such a variety of possible injuries to their territory, human life and properties could open a number of channels for remedies

2 IPCC (2007b: 9).

3 (ibid.:17).

4 (ibid.:15).

5 BBC NEWS (2002). In 2007, immediately after change of government, Australia finally ratified the Kyoto Protocol and sent the instrument of ratification to the depositary on 3 December 2007. This instrument was accepted on 12 December 2007.

6 For impacts of climate change on Tuvalu, see Ralston et al. (2004).

against GHG emitting countries or operators, especially large emitting ones, supposedly contributing to the occurrence of the injuries.⁷ Affected countries could bring a claim against other countries before the International Court of Justice (ICJ) and, for any injuries relating to the marine environment, they could also bring a claim before the International Tribunal for Law of the Sea. At the same time, these countries and their inhabitants could possibly bring an action before the national courts of a particular country. Island inhabitants could, for instance, seek redress in United States District Courts against major GHG emitters under the Alien Tort Claims Act⁸. Furthermore, these inhabitants could submit petitions before human rights bodies: the Inuit filed a petition against the United States with the Inter-American Commission of Human Rights of the Organization of American States, asserting that the United States had violated human rights by destroying the Inuit environment and culture by means of emitted GHGs.⁹

Drastic mitigation action is essential in order that the international community would avoid dangerous climate change. Strengthening adaptation efforts is also necessary to prevent and/or mitigate adverse impacts of climate change. Even with these efforts, some adverse impacts would inevitably occur. The paper examines the question whether small island states – the most affected by climate change but contributing the least thereto – can eventually bring a claim for compensation for damage caused by climate change against large emitting countries such as the United States, and what legal barriers would stand in the way of their success. The paper also explores other options available to these vulnerable countries to grapple with increasing adverse impacts of climate change. While a number of legal channels exist for acquiring remedies, as mentioned above, the paper focuses on interstate channels for remedies, especially the ICJ.

7 For the overview of legal avenues to address climate damage, see Burkett (2012).

8 For a discussion on bringing an action against the United States under the Alien Tort Claims Act, see Reed (2002).

9 For the Inuit's petition to the Inter-American Commission of Human Rights, see Koivurova (2007:285ff.).

B. Legal Possibility and Challenges for Bringing a Claim for Remedies for Climate Damage

The damage resulting from climate change is covered by various spheres of international law, including law of the sea and international human rights law. This section will firstly examine whether international treaties specifically on climate change could provide a remedy for damage caused (I), and then whether general international law could do the same (II).

I. Could International Treaties Specific to Climate Change Provide a Remedy for Climate Damage?: United Nations Framework Convention on Climate Change and its Kyoto Protocol

1. United Nations Framework Convention on Climate Change

a) Articles 2, 4.1 and 4.2

Immediately before the United Nations Conference on Environment and Development, countries agreed to adopt the first international treaty dealing with climate change, the United Nations Framework Convention on Climate Change (UNFCCC)¹⁰. The UNFCCC stipulates in its Article 2 that the ultimate objective of that convention and any related legal instruments is the stabilisation of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. While the UNFCCC provides for some commitments from all parties, including commitment to formulate and implement national programmes containing measures to mitigate climate change (Article 4.1(b)), commitments and their stringency differ depending on categories of countries, such as Annex I Parties (developed countries parties) and non-Annex I Parties (developing countries parties). Annex I Parties are obliged to adopt national policies and take corresponding measures on the mitigation of climate change and periodically to communicate detailed relevant information (Article 4.2). In addition, Annex II Parties (member countries of the Organisation for Economic Co-operation and Development (OECD)) have an obligation to provide new and additional financial resources to meet the agreed

10 Done on 9 May 1992, it entered into force on 21 March 1994. 1771 UNTS 107, 31 ILM 849 (1992).

full costs incurred by developing country parties in complying with their obligations under the Convention (Article 4.3) and to take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies to other parties to enable them to implement the provisions of the Convention (Article 4.5).

The question arises whether these commitments provided for in the UNFCCC could trigger the international responsibility of a specific state that is not in compliance with these commitments.

Article 2 of the UNFCCC provides that:

The ultimate objective of this Convention ... is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

This ultimate objective is the one that parties to the UNFCCC collectively seek to achieve, but when and at what level the GHG concentration shall be stabilised is not clear. The way of formulating the provision is rather declaratory than mandatory. In the course of negotiations toward the adoption of the UNFCCC, some alternative texts were proposed to provide for collective obligation of parties to the UNFCCC to achieve stabilisation of the GHG concentration, but they were not adopted.¹¹ Such circumstances of the adoption would imply that Article 2 provides general guidance for parties in elaborating on and implementing the UNFCCC and its related legal instruments rather than a specific obligation of each party.

Article 4.1 provides for commitments from all parties: both developed and developing countries. Although these commitments are formulated in a mandatory way by using the term “shall”, most of them are obligations to cooperate and obligations to promote. In addition, the chapeau of Article 4.1 leaves much to the discretion of the parties and allows them to implement their commitment by “taking into account their common but differentiated responsibilities and their specific national and regional development priorities and objectives and circumstances”.

More controversial provisions from this point of view are Article 4.2 (a) and (b). Article 4.2 (a) stipulates that each developed country “shall adopt

11 Bodansky (1993:500ff.).

national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs". It states that:

[t]hese policies and measures will demonstrate that developed countries are taking the lead in modifying longer-term trends in anthropogenic emissions consistent with the objective of the Convention, recognizing that the return by the end of the present decade to earlier levels of anthropogenic emissions ... would contribute to such modification, and taking into account the differences in these Parties' starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of these Parties to the global effort regarding that objective.

Article 4.2 (b) continues to state that developed countries shall communicate detailed information on the policies and measures they adopt, as well as on their resulting projected anthropogenic emissions by sources and removals by sinks of GHGs with the aim of returning individually or jointly to their 1990 levels of these anthropogenic emissions.

Communication under Article 4.2 (b) shall be made with the aim of returning their anthropogenic emissions individually or jointly to their 1990 levels, but *when* such aim should be achieved is not clear in this provision. "Return by the end of the year 2000 to earlier levels of anthropogenic emissions" in Article 4.2 (a) does not mention a clear level of reduction and mandatory wording appears to be carefully avoided. These provisions use ambiguous and descriptive wording, rather than mandatory wording. During the negotiation, a number of alternative texts had been proposed especially by European countries and the Alliance of Small Island States (AOSIS) to set international quantified targets of stabilisation with specific schedules and timelines.¹² On the other hand, other developed countries, including the

12 For instance, Denmark put forward a proposal to reduce emissions by 20% by 2005 compared to 1990 levels. Compilation of Proposals Related to Commitments, INC/FCCC, 3d Session, U.N. Doc. A/AC.237/Misc. 7 (1991), p. 30. Negotiating text discussed in the intergovernmental negotiation committee held in December 1991 in Geneva contained the provision that as a first step, developed countries shall reduce emissions by 25% by 2010 compared to 1990 levels. Article IV(2)(C), Alternative B of the Consolidated Working Document in Report of the Intergovernmental Negotiation Committee for a Framework Convention on the Work of Its Fourth Session, U.N. GAOR INC/FCCC, 4th Session, U.N. Doc. A/AC. 237/15 (1992).

United States, strongly objected to the introduction of quantified targets. Eventually, Article 4.2 was a compromised outcome between the two groups of countries.

Such ambiguous wording actually led to a divergence in interpretation of this Article. According to the written statement submitted by the Global Climate Coalition in the hearing before the Subcommittee on Economic Policy, Trade and Environment of the Committee on Foreign Affairs, House of the Representatives in 1993 after the adoption of the UNFCCC indicates¹³ that:

The U.S. position has always been that these agreements do not create binding targets or timetables for reductions of greenhouse gas emissions. As the Counsellor to the President for Domestic Policy wrote to the Chairman of the House Energy and Commerce Committee, “there is nothing in any of the language which constitutes a commitment to a specific level of emissions at any time.”¹⁴ The counsellor stated:

The word ‘aim’ [of subparagraph (b)] was carefully chosen, and it does not constitute a commitment, binding or otherwise. Nor does this sentence prescribe or imply any kind of timetable...[B]y avoiding specific, definitive binding commitments we have put this nation in a position to respond more flexibly, and hopefully more fully, than would have otherwise been the case.

This position continued to be confirmed during the United States process for ratification of the UNFCCC. In transmitting the Convention to the President, the United States Department of State advised: “This subparagraph [2(b)] does not create a legally binding target.”¹⁵

In contrast, the European Community then provided a different interpretation. Portugal issued a statement on behalf of the European Community, on the occasion of the signature by the European Community, characterising the UNFCCC as establishing a “commitment to introduce measures aiming at the return of anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol to their 1990 levels by

13 Committee of Foreign Affairs (1993).

14 The Committee report notes that this comes from the letter from Clayton Yeutter to John D. Dingell (May 8, 1992) (presenting White House views on final text of the Convention).

15 Letter from Arnold Kanter to President George Bush (28 August 1992) (attaching article-by-article analysis of the Convention), as reprinted in Treaty Doc. No. 38, 102d Cong., 2d Sess. viii (1992). See Committee of Foreign Affairs (1993:73–74).

the end of the present decade.”¹⁶ Voigt assesses these Articles as follows: “if an Annex I Party has increased its emissions continually since its ratification of the UNFCCC, this could amount to a breach of treaty.”¹⁷ These widely divergent interpretations would render highly unpredictable an eventual judgment by the international courts on whether these Articles provide a specific obligation to reduce emissions. In reality, although the target year of returning emissions to 1990 levels has come and this target has not been achieved collectively, no country has yet claimed responsibility for non-compliance with the target.

b) Articles 4.4 and 4.8

Article 4.4 states that developed countries “shall also assist the developing country parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects.” The provision could become a legal basis for claiming payment for adaptation costs; however, to what extent costs of adaptation are to be paid to developing countries by which country is not clear from this provision. Developing countries seeking aid for adaptation costs may have difficulty in proving causation, for instance in the case of sea-level rise. It is difficult to establish which part of sea-level rise may be due to climate change and which to natural variability.

Article 4.8 provides:

[I]n the implementation of the commitments in this Article, the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures.

While this provision provides guidance for the implementation of Article 4, it is too general to provide a specific obligation.

16 See Bodansky (1993:517 note 401). Statement by Anibal Cavaco Silva, Prime Minister of the Portuguese Republic on Behalf of the European Community and Its Member States on the Occasion of the Signature by the Community of the Convention (June 1992).

17 Voigt (2008).

2. *Kyoto Protocol*

The Kyoto Protocol¹⁸, adopted at the third session of the Conference of Parties (COP) to the UNFCCC, held in Kyoto in 1997, stipulates that developed country parties (Annex I Parties) ensure that their aggregate anthropogenic carbon dioxide (CO₂) equivalent emissions of the GHGs do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B (Article 3(1)). This quantified target for developed countries is much clearer compared to commitments provided for in the UNFCCC. It would therefore be much easier for countries to claim remedies for non-compliance with the target. The Kyoto Protocol, through its Conference of the Parties serving as the meeting of the parties (COP/MOP) decision, has established its compliance procedure and mechanism to address cases of non-compliance with the provisions of the Protocol, including non-compliance with the quantified target.¹⁹ In the case of non-compliance with the quantified target, the following consequences are to be applied to the non-compliant party by the Compliance Committee: (a) further reduction for the second commitment period of emissions equal to 1.3 times the amount in tonnes of excess emissions; (b) development of a compliance action plan to meet its target; and (c) suspension of the eligibility to make transfers under emissions trading. These consequences do not include any measure relating to compensation for damage due to such non-compliance.

The question may arise whether a party claiming to have suffered damages due to non-compliance by any other party may still invoke responsibility for such damage despite the presence of compliance procedure and mechanisms specific to and inside the Kyoto Protocol regime. Such a special regime does not automatically preclude the possibility of invoking the responsibility.²⁰ Especially, upon ratification of the UNFCCC and its Kyoto Protocol, several small island states declared that the provisions of the UNFCCC and of the Kyoto Protocol “shall in no way constitute a renunciation of any rights under

18 Adopted on 11 December 1997, it entered into force on 16 February 2005. 2303 UNTS 148, 37 ILM 22 (1998).

19 Decision 27/CMP.1 Procedures and mechanisms relating to compliance under the Kyoto Protocol, FCCC/KP/CMP/2005/8/Add.3, 92-103.

20 Simma & Pulkowski (2006); Fitzmaurice & Redgwell (2000).

international law concerning State responsibility for the adverse effects of climate change”.²¹

In summary, both the UNFCCC and its Kyoto Protocol provide some provisions relating to mitigation and adaptation. By claiming responsibility for non-compliance with these provisions, countries might succeed in mitigating future impacts of climate change through enhanced mitigation. However, full implementation of mitigation actions under these provisions is not able to address current adverse impacts of climate change, since these impacts derive from emissions in the past. On the other hand, ensuring implementation of adaptation might reduce risk of climate change impacts that occur or are likely to occur.

Although there are provisions in both the UNFCCC and its Kyoto Protocol to oblige developed countries to provide assistance to developing countries for mitigation and adaptation through financing, technology transfer and capacity-building, it remains unclear *which* developed countries would pay for cost of mitigation and adaptation and *how much* they would pay. There’s no clear provision on compensation for damage caused as a result of climate change. Such lack of clarity of primary rules would constitute one of the barriers for countries claiming responsibility for damage caused by climate change.

II. General Obligation of States to Prevent Transboundary Damage to the Environment in the Context of Climate Change

Though neither the UNFCCC nor its Kyoto Protocol provide clear provisions about possible compensation for damage caused by climate change, states have a general obligation to prevent transboundary damage to the environment. This general obligation derives from the arbitral judgment of the Trail Smelter Case (1941).²² The formulation of obligation of states in the judg-

21 For declarations made upon ratification of the UNFCCC by Fiji, Kiribati, Nauru, Papua New Guinea and Tuvalu, see http://treaties.un.org/pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXVII~7&chapter=27&Temp=mtdsg3&lang=en, last accessed 30 April 2013. For declarations made upon ratification of the Kyoto Protocol by Cook Islands, Kiribati, Nauru and Niue, see http://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-a&chapter=27&lang=en, last accessed 30 April 2013.

22 *Trail Smelter (United States v Canada)*, 16 April 1938 and 11 March 1941, Reports of International Arbitral Awards, Vol. III, 1905-1982, especially page 1965.

ment has evolved to the obligation of states to prevent transboundary damage to the environment as declared in Principle 21 of the Stockholm Declaration (1972)²³ and consecutively reaffirmed by Principle 2 of the Rio Declaration (1992).²⁴ The obligation has evolved so as to acquire the status of general obligation under international law, which has been confirmed by the ICJ in its Advisory Opinion of the Legality of the Threat or Use of Nuclear Weapons.²⁵ The ICJ confirms as follows:

The existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment.

Numerous multilateral environmental agreements also contain this obligation, starting with the 1982 United Nations Convention of Law of the Sea (UNCLOS)²⁶ (Article 194.2) and the 1992 Convention of Biological Diversity²⁷ (Article 3).

The obligation of states to prevent transboundary damage to the environment is obligation of due diligence. According to the 2001 Draft Articles on Prevention of Transboundary Harm from Hazardous Activities adopted by the International Law Commission,²⁸ obligation of due diligence means that states are under an obligation to take unilateral measures to prevent significant transboundary harm or at any event to minimise the risk thereof arising out of their activities.²⁹ The standard of due diligence depends on what is generally considered to be appropriate and proportional in relation to the degree of risk of transboundary harm in the particular instance. The required

23 Stockholm Declaration on the Human Environment, in Report of the United Nations Conference on the Human Environment, UN Doc.A/CONF.48/14, at 2 and Corr.1 (1972).

24 Rio Declaration on Environment and Development, in Report of the United Nations Conference on Environment and Development, UN Doc. A/CONF.151/26 (Vol. I), 12 August 1992, Annex I.

25 *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion of 8 July 1996, *ICJ Reports 1996*, 19, para. 29.

26 Concluded on 10 December 1982, it entered into force on 16 November 1994. 1833 UNTS 3, 21 ILM 1261 (1982).

27 Adopted on 5 June 1992, it entered into force on 29 December 1993. 1760 UNTS 79, 31 ILM 818 (1992).

28 Draft Articles on Prevention of Transboundary Harm from Hazardous Activities, Report of the International Law Commission on the Work of its fifty-third session, 148–170.

29 (*ibid.*:154f.).

degree of care is proportional to the degree of hazard involved. The degree of care in question is that expected of a good government; however, it would alter according to the capabilities and resources that are available to that state. The degree of harm itself should be foreseeable and the state must know, or should have known, that the given activity has the risk of significant harm. The obligation would trigger international responsibility of a non-complying state if that state violates the obligation and if it is evidenced that it has caused the damage to the environment.

In the context of climate change, compatibility with the obligation of a state emitting GHG should thus depend on whether the state satisfied the degree of due diligence by taking appropriate and reasonable mitigation actions to prevent significant transboundary harm or to minimise the risk thereof arising out of its emission, required based on its capabilities in light of the level of hazard of the emission and its foreseeability.

III. Potential Legal Barriers to Invoking International Responsibility in the Context of Climate Change

1. Entitlement to Invoke State Responsibility as Injured State

When a state claims compensation for damage, the state may invoke international responsibility of the other state/states by arguing that that state/states has committed an internationally wrongful act against the claiming state through breach of international law, whether customary law or treaty. Although there is no international treaty concerning responsibility of states for their internationally wrongful acts, most rules exist in the form of customary law. The International Law Commission has sought to formulate, by way of codification and progressive development, the basic rules of international law concerning the responsibility of states in the form of the Draft Articles on Responsibility of States for Internationally Wrongful Acts (hereinafter, referred to as “Draft Articles on State Responsibility”).³⁰ These Articles are not a treaty and have no legally binding nature; however, since most of the articles have a customary status,³¹ this paper bases its analysis on the Draft Articles which are a fairly good reflection of customary law.

30 International Law Commission (2001).

31 For instance, *Case Concerning Pulp Mills on the River Uruguay (Argentina v Uruguay)*, Judgment of 20 April 2010, *ICJ Reports 2010*, 77, para. 273.

The question about the right to invoke another state's responsibility is important. The standing before the ICJ and the right to invoke another state's responsibility, although closely linked, are distinct problems. However, in practice so far, in cases where a state can establish a general right to invoke another state's responsibility, it may be presumed to have standing before the ICJ.³²

In the context of climate change, a state suffering from damage caused by climate change could bring an action against one or more states causing damage before the international courts by invoking their responsibility. However, the claiming state encounters difficulties in invoking responsibility owing to the very nature of the climate change problem.

According to the Draft Articles on State Responsibility, a state is entitled to invoke the responsibility of another state *as an injured state*³³ (Article 42). The Draft Articles list three distinct cases in which a state is considered as an injured state. Firstly, a state is entitled to be an *injured state* when the state has an individual right to the performance of an obligation (Article 42(a)) of a bilateral nature, like the one a state party to a bilateral treaty has vis-à-vis the other state party.³⁴

Even though a state does not have an individual right to the performance of an obligation in question, the state may be entitled to invoke the responsibility *as injured state* when it is "specially affected" by the breach of an obligation (Article 42(b)(i)). For example, a pollution of the high seas in breach of Article 194 of the United Nations Convention on the Law of the Sea (UNCLOS) may particularly impact on one or more states whose beaches may be polluted by toxic substances. In that case, those coastal state parties to the UNCLOS should be considered as injured by the breach because they

32 Tams (2005:39f.).

33 Author's emphasis.

34 International Law Commission (2001:117–118). Multilateral treaties generally establish a framework of rules applicable to all the States parties; but some multilateral treaties involve a relationship of a bilateral nature between two parties, referred to as 'bundles' of bilateral relations". For example, the Vienna Convention on Diplomatic Relations establishes bilateral relations between particular receiving and sending States, and violations of these obligations by a particular receiving State injure the sending State to which performance was owed. See also United States Diplomatic and Consular Staff in Tehran Case. *Case Concerning United States Diplomatic and Consular Staff in Tehran (United States of America v Iran)*, Judgment of 24 May 1980, *ICJ Reports 1980*.

are specially affected³⁵. The nature or extent of the special impact that a state must have sustained in order to be considered *injured* is not defined in the Draft Articles on State Responsibility and this special condition is probably to be assessed on a case-by-case basis. In order to be considered *injured*, a state must be affected by the breach in a way that distinguishes it from other states.³⁶

A state is also considered as *injured* if the performance by all the other states is a necessary condition of the performance of the obligation, and that the breach of such an obligation (the so-called “integral” or “interdependent” obligation) radically affects the enjoyment of the rights or the performance of the obligations of all the other states to which the obligation is owed (Article 42(b)(ii))³⁷.

In the context of responsibility for damage caused by climate change, it is difficult to argue that a state has an individual right to the performance of an obligation by other states, either under the UNFCCC and its Protocol or under general international law, given the multilateral nature of legal relationships underlying each of these obligations. Therefore, for a state to invoke responsibility as injured state, the state has to prove either that it is/was “specially affected” by the breach of an obligation or that the breach radically affects the enjoyment of the rights or the performance of the obligations of all the other states to which the obligation is owed. The latter might be possible, but perhaps only in the extreme case, for instance, where a state intentionally and continuously emits huge amounts of emissions. For the former case, while it is generally agreed that small island states are the most affected by climate change, it is certainly difficult, if not impossible, for a small island state to prove that emission of GHGs by another state specially affects the enjoyment of its rights or its performance of its obligations in a way which distinguishes it from other states. Here there is a causation problem, or a causal link problem, between the damage and the activity causing it. Almost universal consensus exists about general causation, in that increase in anthropogenic global emissions causes climate change and damage due to it. However, proving a causal link between a specific activity/emission and a specific damage, in other words attributing a specific emission by a

35 International Law Commission (2001:119).

36 (*ibid.*:119). An ironic situation may occur where the breach is so serious that it has broadly or generally affected countries: in this case it will be more difficult for the affected state to invoke, as an injured state, the responsibility of the errant state.

37 (*ibid.*:119).

state to a specific damage, is not possible because of very complex interactive climate systems (for details, see 2.2.3 below).

2. *Broadened Right to Invoke State Responsibility: Possibility of Invoking Responsibility in the Interest of International Community*

The Draft Articles on State Responsibility have broadened the scope of the states that are entitled to invoke the responsibility of states in addition to *injured state*. “Any state other than an injured state is entitled to invoke the responsibility of another State” in either of the following 2 cases (Article 48). Firstly, a State may invoke the responsibility when the obligation whose breach has given rise to responsibility must have been owed to a group to which the State invoking responsibility belongs and it must be established for the protection of a collective interest of the group (Article 48. 1(a)). Such obligations have sometimes been referred to as “*obligations erga omnes partes*”. Secondly, a State may also invoke the responsibility if the obligation in question was owed “to the international community as a whole” (Article 48.1(b))³⁸.

In both cases, states are acting in the collective interest not in their individual capacity by reason of having suffered injury, but in their capacity as a member of a group of states to which the obligation is owed, or as a member of the international community as a whole. In other words, in the case of breaches of specific obligations protecting the collective interests of a group of states or the interests of the international community as a whole, responsibility may be invoked by states which are not themselves injured. All or many states will therefore be entitled to invoke responsibility, often in parallel with injured states.

Invocation of responsibility by a state not injured in its own right gives rise to a more limited range of rights as compared to those of injured states. A state not injured in its own right and therefore not claiming compensation on its own account is only entitled to request cessation of the wrongful act if it still continues, and assurances and guarantees of non-repetition. In light of recent developments of international law to protect the community or collective interest such as protection of human rights and of the global environment, it is found desirable that a state or some states be in a position to

38 (ibid.:126).

claim reparation, in particular restitution, even though there is no state individually injured by the breach. Such a claim must be made in the interest of an injured state, if any, or of the beneficiaries of the obligation breached (Article 48.2)³⁹. This aspect of Draft Articles on State Responsibility is considered as a measure of progressive development, reflecting recent developments in international law.

In the context of climate change, such expansion of entitlement to invoke responsibility would allow small island states successfully to claim responsibility to seek reparation; in this case, not in their individual capacity by reason of having suffered injury, but in the interests of the group to which they belong or of the international community as a whole. Crawford, special rapporteur, has referred to it as a “victimless” breach of community obligations, a breach without a specific, identifiable victim, for instance in the event of certain obligations *erga omnes* in the environmental field such as involving an injury to global commons.⁴⁰ Within such a framework, small islands states could successfully invoke the responsibility and stop breach of international law, but it is not a matter of certainty that damage they suffer can actually attract compensation when they act in the collective interest or in the interest of the international community, and not in their own capacity.

3. Identification of the Responsible States and of Activities Causing Damage, and the Causation Problem

Perhaps the most difficult barrier to overcome is how to identify the state responsible for damage caused. In case of breach of obligations stipulated in treaties such as the UNFCCC and the Kyoto Protocol, the identification of the responsible state is relatively easy, i.e. the state that violates its obligation under treaties. In the context of climate change, the difficulty arises from the case of general obligation, such as the obligation to prevent transboundary environmental damage. Climate damage is caused by cumulative emissions from the jurisdiction of multiple states over time. The responsible states then could be multiple with the damage perhaps occurring over time, while the degree of contribution varies among states. The exact extent of contribution by each state is difficult to define and it varies according to

39 (ibid.:127).

40 Fitzmaurice (2012:22).

different factors, starting with the period and the coverage of gases, subject to estimation of contribution.

The Draft Articles on State Responsibility deal with the situation where there is a plurality of responsible states in respect of the same wrongful act and it stipulates that in such a situation the responsibility of each responsible state may be invoked in relation to the act (Article 47). According to the commentaries on the Draft Articles on State Responsibility, Article 47 only applies to the situation where several states are responsible for “the same internationally wrongful act” through carrying out the act together, through organs jointly established by these states and through direct control by one state over other states⁴¹. In the situation in which several states by separate internationally wrongful conduct have contributed to causing the same damage, for instance, by polluting a river by the separate discharge of pollutants, the responsibility of each state can be invoked only for the part attributable to it. Some concepts, such as ‘joint’ and ‘joint and several’, are often used in similar situations under various domestic legal systems, but they may not be applied to international law, except where *lex specialis* (treaties) otherwise agreed among states applies. The Convention on International Liability for Damage Caused by Space Objects, for instance, provides expressly that liability is joint and several where damage is suffered by a third state as a result of a collision between two space objects launched by two states (Article 4.1). However, in international law, the general principle in the case of a plurality of responsible states is that each state is separately responsible for conduct attributable to it.⁴² In the context of climate change, under such conditions, the claiming state has extreme difficulties in invoking the responsibility successfully, since it is difficult to prove which part of the damage is due exactly to climate change and is precisely attributable to the responsible state.

The analysis shows difficulty exists in invoking the responsibility for damage caused by climate change, especially by the breach of general international law. With such limits, state responsibility cannot play a great practical role in providing compensation for damage caused in this context, though playing a role in cessation of breach of international obligation. It is therefore necessary to elaborate special international rules relating to com-

41 International Law Commission (2001:125).

42 (ibid.:125). For issues relating to responsibility for damage caused by multiple state actors, see Okowa (2000:195–202).

pensation for climate damage in order that damage suffered by vulnerable countries such as small island states should be effectively compensated.

C. Possible Options to Effectively Address Damage Suffered by Small Island States

In light of difficulties that small islands states are likely to face, as mentioned above, other options are to be examined. This section of the paper will examine a couple of possible and prospective options together with their merits and demerits in order to address damage suffered by small island states effectively.

I. Seeking the Advisory Opinion from the ICJ

Seeking the advisory opinion from the ICJ is one of the options to clarify obligations and responsibilities of states to prevent and compensate transboundary harm caused by GHG emissions. In reality, in September 2011, the Republic of Palau's President, Johnson Toribiong, speaking at the Sixty-sixth Session of the United Nations General Assembly, noted that climate change implicates the international rule of law and warrants consideration by the ICJ and called for an ICJ advisory opinion on the obligations and responsibilities of states under international law to avoid transboundary harm caused by GHG emissions.⁴³

The ICJ serves two adjudicative functions: it issues judgments on disputes between states submitted before the ICJ and it also issues advisory opinions on any legal question at the request of the organs of the United Nations and specialised agencies such as the World Health Organisation (WHO) (Article 96 of the United Nations Charter). Although the advisory opinion is of an advisory nature and is not legally binding, the advisory opinions are respected as authoritative statements of the ICJ, the "principal judicial organ of the United Nations".⁴⁴

The advisory opinion has often played a valuable role in identifying relevant international rules and in clarifying their content.⁴⁵ In its advisory

43 Toribiong (2011); United Nations Department of Public Information (2012).

44 Article 92 of the United Nations Charter.

45 Korman & Barcia (2012).

opinion of the Legality of Threat or Use of Nuclear Weapons case, for instance, the ICJ confirmed the general obligation of states to prevent trans-boundary environmental damage and it also endorsed the obligation to cooperate towards nuclear disarmament. By requesting the opinion from the ICJ, small island states can expect further clarification of international rules relating to climate change including the ones relating to compensation for damage caused by climate change. Such further clarification of rules could possibly facilitate mitigation and adaptation actions by presenting clearer rules of conduct by states.

In addition, requesting the advisory opinion from the ICJ is much easier than bringing an action before the ICJ. The United Nations General Assembly, for instance, needs a simple majority for requesting the advisory opinion. On the other hand, for bringing an action before the ICJ, the claiming state has to acquire consent from other states in dispute, which is usually not easy.

II. Establishing a Mechanism Dealing with Compensation for Damage Caused by Climate Change

1. Loss and Damage in the Climate Negotiations

Another and prospective option is to establish a mechanism dealing with compensation for damage caused by climate change. As mentioned above, several legal challenges exist when small island states wish to obtain a remedy for damage caused by climate change by invoking the responsibility of states causing the damage. Difficulties exist in proving that states are specially affected and in identifying one or more responsible states among numerous states emitting greater or lesser quantities of GHGs as well as in identifying the exact extent of contribution to the “wrongful act”. In the face of these difficulties, the establishment of a mechanism that would determine fair rules on these points could be a more practical and desirable solution, rather than agreeing among states to modify the current international rules on state responsibility to find a solution.

In the on-going climate negotiation, countries have discussed the possible establishment of institutional arrangements to address loss and damage associated with climate change impacts under the agenda item “Approaches to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change to enhance adaptive capacity”, in brief named “Loss and

Damage”⁴⁶. At COP16 (2010), parties to the UNFCCC decided to establish a work programme in order to consider approaches to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change.⁴⁷ Having established a work programme on this issue at COP17 (2011)⁴⁸ and having implemented its operation during the year 2012, parties decided at COP18 (2012) to establish at COP19 the “institutional arrangements, such as an international mechanism, including functions and modalities, . . . , to address loss and damage associated with the impacts of climate change in developing countries that are particularly vulnerable to the adverse effects of climate change”.⁴⁹

2. AOSIS International Insurance Pool Proposal in 1991

In the course of the negotiations toward the adoption of the UNFCCC, Vanuatu, on behalf of the small island states, suggested the creation of a fund – to which developed countries would contribute – to “compensate developing countries (i) in situations where selecting the least climate sensitive development option involves incurring additional expense and (ii) where insurance is not available for damage resulting from climate change”.⁵⁰ Small island states then put forward a supplementary proposal to establish an international insurance pool with a view to covering the costs of climate change impacts.⁵¹ The insurance pool proposal is to establish an international

46 For historical background of this issue in the negotiation, see Millar et al. (2013: 444–458).

47 1/CP.16 The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, FCCC/CP/2010/7/Add.1, 6–7, para. 25f.

48 7/CP.17 Work Programme on Loss and Damage, FCCC/CP/2011/9/Add.2, 5–8.

49 Decision -/CP.18 Approaches to Address Loss and Damage Associated With Climate Change Impacts in Developing Countries that are Particularly Vulnerable to the Adverse Effects of Climate Change to Enhance Adaptive Capacity (advance unedited version), para. 9, available at http://unfccc.int/files/meetings/doha_nov_2012/decisions/application/pdf/cmp8_lossanddamage.pdf, last accessed 30 April 2013.

50 Vanuatu on behalf of the Alliance of Small Island States (AOSIS), Elements for a Framework Convention on Climate Change, UN Doc. A/AC.237/Misc.1/Add.3 at 30.

51 Proposal by Vanuatu on behalf of AOSIS, A/AC.237/WG.II/CRP.8. For details, see Verheyen (2005:50).

scheme funded by developed countries, to compensate small island states and low-lying developing countries for loss and damage resulting from the sea-level rise. Contributions to the fund were to be calculated on the basis of (i) the ratio between the gross national product (GNP) of each developed country and the total GNP of the group of developed countries and (ii) the ratio of developed country CO₂ emissions to the total CO₂ emissions of that group. The formula proposed for allocating contributions was similar to the one used in the 1963 Brussels Supplementary Convention to the 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy, named the Brussels Supplementary Convention and adopted within the framework of the OECD.⁵² Right to claim against the pool would trigger only when the rate of global mean sea-level rise and the absolute level of global mean sea-level rise had reached agreed figures.

While the proposal of the insurance pool mechanism had not been incorporated in the UNFCCC, it contains a number of interesting ideas that could be useful for overcoming legal challenges that states face when they invoke responsibility. Although the mechanism is named “insurance”, it is actually a fund to compensate for damage from sea-level rise. By using a kind of index that triggers the right to claim, the proposal seeks to incentivise developed countries as a group to reduce emissions in order not to reach the level where the triggering right to claim against the pool is activated. In addition, the proposal obliges developed countries to contribute to the Fund depending on the degree of their responsibility for CO₂ emissions and of their capability to pay. With such a criterion for contribution, the mechanism is expected to induce developed countries to take more aggressive mitigation measures in order to limit their contribution as much as possible. Countries suffering from sea-level rise can invoke the right to claim without proving which country is responsible and to what extent. They are also exempted from proving a causal link; they can claim a payment only by showing that some prefixed index such as degree of sea level rise are met. The mechanism would institutionalise ‘compensation’ for the affected countries by emitting countries through establishing objectified rules on attribution of responsi-

52 Article 12 of the Convention of 31 January 1963 Supplementary to the Paris Convention of 29 July 1960, as amended by the additional Protocol of 28 January 1964 and by the Protocol of 16 November 1982 (Brussels Supplementary Convention), available at <http://www.oecd-nea.org/law/nlbrussels.html>, last accessed 30 April 2004. Protocol to Amend the Brussels Supplementary Convention was adopted but it has not yet come into force.

bility and a causal link. The burden of proof for small island states is thus mitigated.

The mechanism, however, has a couple of weak points: one being that it lacks incentives for countries likely to be affected to take adaptation measures to avoid or mitigate adverse impacts of climate change.

Most of these ideas, starting with the establishment of a fund to better compensate victims, already have precedents in international treaties relating to environmental liability. While these precedents, which adopt a civil liability scheme (in which the victim claims for damage against the person that caused it), cannot simply be used as a model for the mechanism to deal with compensation for climate change, they may offer lessons for designing a system to compensate effectively for damage caused by climate change.

3. New Approach/Tools for the Mechanism: Insurance and Risk-pooling

In light of lessons learnt from experience and the socio-economic changes which have taken place across the world, new approaches and tools may be worth examining. One of the most relevant tools is insurance.⁵³ Insurance is one of the tools for risk transfer used to reduce the uncertainty and volatility associated with potential financial burden of loss and damage.⁵⁴ Commercially based insurance, sometimes publicly supported, to cover climate-change-induced loss and damage has currently expanded⁵⁵. Even in some developing countries, microinsurance has been used especially to address weather-related damage. Microinsurance is characterised by low premiums or coverage and is typically targeted at lower-income individuals who are unable to afford or access more traditional insurance – sometimes, with some external insurance backstop such as reinsurance.⁵⁶

Microinsurance can cover a broad range of risks: to date it has tended to cover weather risks including crop and livestock insurance. Weather insurance typically takes the index-based form, whereby payment is made if a

53 Mills et al. (2006).

54 A literature review on the topics in the context of thematic area 2 of the work programme on loss and damage: a range of approaches to address loss and damage associated with the adverse effects of climate change, Note by the secretariat, 15 November 2012, FCCC/SBI/2012/INF.14, 18ff.

55 Quinto (2010).

56 (ibid:19–20).

chosen weather index – such as five-day rainfall amounts – exceeds some threshold. Such initiatives minimise administrative costs and moral hazard and allow companies to offer simple, affordable and transparent risk transfer solutions. One of the largest microinsurance schemes, the Weather-Based Crop Insurance Scheme, was established by the government of India and currently protects more than 700,000 farmers against the losses associated with drought.⁵⁷

Without risk transfer such as insurance, a country or household may be faced with the full financial burden of loss and damage. Through insurance, the funds can be available more quickly than external aid and can be used more flexibly. On the other hand, insurance neither directly prevents nor reduces the risk of damage or loss, nor usually covers the full cost of loss and damage. Insurance would fit some predicted risk; however, for unexpected risk like the low probability but high risk of an extreme event, insurance might need some supplementary mechanism.

Insurance might entail some moral hazard. The person, once insured, would not try to prevent or mitigate adverse impacts since in all cases his damage would be covered by the insurance. In this case, index-based insurance might avoid such moral hazard, since the insurer pays the money to the insured whether damage has actually occurred or not. Here the insured has some incentive to prevent or mitigate adverse impacts.

Private sector involvement through insurance could provide some space for public funding, which would play a special role that the insurance cannot not play, for instance, deal with risk that insurance could not establish commercially and assist in starting up and backing up the insurance scheme, including reinsurance.

Especially at the regional and international levels, the initiative for regional fund-pooling has been advancing.⁵⁸ Risk pools aggregate risk regionally, allowing individual risk holders to spread their risk geographically. Such risk-pooling allows participants to gain catastrophe insurance on better terms and access collective reserves in the event of a disaster. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) is a good example, which allows Caribbean governments to purchase coverage for earthquakes and/or hurricanes. CCRIF was able to secure USD110 million of reinsurance ca-

57 (ibid.:19). See also Manuamorn (2007).

58 (ibid.:20).

capacity in addition to its own reserves. Lower-income countries may also find that their participation in regional insurance pools could be beneficial.

D. Conclusion

Global GHG emissions are estimated to continue to increase without drastic mitigation actions, but the overall pledges by countries in the period up to 2020 are not sufficient to limit climate change and therefore adverse impacts of climate change will become greater in the future.⁵⁹ Those that contribute least to climate change, such as small island states, might suffer the most – to the extent that their existence may be threatened, with no immediate prospects of any compensation. Confirming the right to remedy for damage caused by emission would provide an incentive to countries to limit emissions. Claiming compensation from emitting countries through invoking state responsibility is one of the ways to proceed, but it would face several legal challenges. Efforts to grapple with these legal challenges of state responsibility might be welcome and necessary, but the creation of a mechanism away from the state responsibility approach (in which emitters would pay for their share in relation to their emissions, and where the victims suffering from adverse impacts of climate change receive an adequate remedy) would be a desirable option, especially if the mechanism could provide a quick and adequate remedy for the victims.

In the case of state responsibility, even though legal challenges associated with invoking it would be adequately settled, it would only provide a remedy for damage that is evidenced as climate-change induced. As mentioned in Section I.1.b), factoring out climate-change-induced damage is technically difficult, if not impossible, and only paying out a part of climate-change-induced damage would certainly not be the best option for small island states and their local population facing catastrophic damage of weather-related disaster. In addition, damage from slow-onset events such as progressive sea-level rise would be more difficult to deal with within the framework of state responsibility.

From such a perspective, it would be worth considering and exploring an innovative mechanism beyond state responsibility to provide an adequate remedy to victims for damage caused by climate change, including the use

59 UNEP (2012).

of innovative approaches and tools, such as insurance. For those suffering from climate impacts, the provision of a full remedy and relief for disaster damage, whether climate induced or not, is most desirable. For this purpose, collaboration with relevant organisations, starting with the United Nations International Strategy for Disaster Reduction (UNISDR)⁶⁰ which has experience and expertise in the field of extreme events, is essential.

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60 For the mission and work of the UNISDR, see <http://www.unisdr.org>, last accessed 30 April 2013.

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**PART V:
JUDICIAL REVIEW AND
INTERNATIONAL CLIMATE CHANGE
LITIGATION**

Some Perspectives on Global Governance, Judicial Review and Climate Change

Hennie A. Strydom

Abstract

This article is about the public law reaction to the global governance phenomenon, and in particular about the concerns that have been raised about the accountability and legitimacy deficits associated with global governance institutions which, arguably, need to be addressed from a normative, as opposed to a purely functional, understanding of the concept of global governance. The scholarly debate on these issues has also entered the subject of global environmental governance, where a multiplicity of institutions with overlapping mandates form a non-hierarchical governance system, lacking a single, overarching organisation with the necessary political authority to coordinate the different international environmental regimes and their decision-making. From this perspective, the article then addresses the view that sees a remedy in the systemic linkages between climate change and other international law concerns, and the promise that these linkages hold for facilitating an improved system of supranational governance based on the compliance and enforcement mechanisms created by multilateral environmental agreements.

A. Introduction

Scholarship on the relevance of administrative law principles for the enforcement of legal obligations for the protection of the environment is influenced by mainly two developments. The first development originated in social science studies in the early nineties on the concept of global governance¹ which drew attention to the growing importance of international in-

1 Rosenau & Czempiel (1992); Kooiman (1993).

stitutions and their impact on domestic activities; the growth of procedures and instruments that often escape the grasp of established legal concepts; and the multilevel character of governance activities which tend to blur the traditional divisions between international, supranational and national activities and decision-making processes. The second development derives its meaning from liberal and democratic public law scholarship which pointed out the accountability and legitimacy deficits in global governance institutions and the potential undermining of individual freedoms by the unilateral exercise of authority if such authority is allowed to determine outcomes free from the realm of public law constraints which are articulated by uncontested principles such as lawfulness, reasonableness, procedural fairness and proportionality.

In this manner, the public law reaction to the global governance phenomenon wants to shift the focus from a pure functional understanding of the concept of global governance to a normative one which sees global governance as an exercise of (international) *public* authority which ought not to escape legal accountability and legitimacy analysis and justification.²

This article starts with an overview of the global administrative law initiative and the identification of emerging administrative law principles and mechanisms to ensure accountability and legitimacy in the various transnational systems of decision-making and regulation. This is then followed by an explanation of the problems associated with the current state of global environmental governance and the potential of the climate change regulatory regime to function as a vehicle for overcoming fragmentation and giving shape to an improved system of environmental governance. In the next part, developments at the national level in seeking administrative law and other remedies for environmental harm and the obstacles one may face in that regard, are dealt with.

B. The Global Administrative Law Approach

In 2005 the New York University School of Law initiated a research project with the aim of systemising studies in diverse national, transnational and

2 See for instance von Bogdandy et al. (2009:5f.); Slaughter (2001); Weiler (2004:559f.); Meidinger (2006); Esty (2006:1515f.).

international settings relating to the administrative law of global governance. The rationale for this project has been explained as follows:³

Underlying the emergence of global administrative law is the vast increase in the reach and forms of transgovernmental regulation and administration in such fields as security, the conditions on development and financial assistance ..., environmental protection, banking and financial regulation, law enforcement, telecommunications, trade in products and services, intellectual property, labor standards, and cross-border movement of populations, including refugees. Increasingly, these consequences cannot be addressed effectively by isolated national regulatory and administrative measures. As a result, various transnational systems of regulation or regulatory cooperation have been established through international treaties and more informal intergovernmental networks of cooperation, shifting many regulatory decisions from the national to the global level.

In proposing that much of global governance is in the form of administrative action through rule-making, administrative adjudication and other forms of regulatory and administrative decision-making and management, global administrative law is then defined by these authors as those principles and practices that “promote or otherwise affect the accountability of global administrative bodies, in particular by ensuring they meet adequate standards of transparency, participation, reasoned decision and legality, and by providing effective review of the rules and decisions they make”.⁴

What the research project has brought to light is that the growing concern with the accountability deficit in the increasing exercise of transnational regulatory power has given rise to two different types of responses. The one is to apply the principles of domestic administrative law to inter-governmental regulatory decisions having an effect in the domestic sphere; the other to develop new mechanisms of administrative law at the global level to address accountability issues within inter-governmental regimes. Cautioning against constructing a too-easy analogy between national and transnational administrative law⁵, the authors have ventured, firstly, to identify, in preliminary fashion and based on developments in domestic and international jurisprudence, emerging principles of administrative law for ensuring accountability and legitimacy in global administrative decision-making; and secondly, to raise the question about crafting, in addition, alternative accountability mechanisms suitable for the global administrative process of governance characterised by diffuse and multilevel decision-making, often

3 Kingsbury et al. (2005:16).

4 (*ibid.*:17).

5 (*ibid.*:28).

with indirect effects and an absence of proper checks and balances and review mechanisms.⁶

With regard to the first response above, the following have been identified as emerging principles, of both a procedural and substantive character, determining the outcome of administrative decision-making in a global setting: participation and transparency; reasoned decisions; judicial or other forms of review; proportionality; rational connection between the means and the ends; avoidance of unnecessary restrictive measures; and legitimate expectations.⁷ Following administrative law practices in various national jurisdictions and good governance strategies developed by international institutions, some scholars have catalogued a number of requirements to construct a coherent link between administrative law-derived principles and the potential to enhance legitimacy in global policy-making. These requirements include anti-corruption control measures; the rule against bias; regular auditing; procedurally fair decision-making; notice and comment procedures; disclosure of the identity of decision-makers; properly documented decisions; transparency and public participation; open forum justification of policies; access to information; and checks and balances through judicial review.⁸

It is on the basis of these results that there is an ongoing debate and a growing number of scholarly contributions on developing new mechanisms of administrative law suitable for the international regulatory process. This is not the place even cursorily to deal with these developments. What should be mentioned, though, is that there is considerable agreement amongst scholars working in the field that domestic mechanisms for ensuring accountability and just administrative decision-making cannot be transplanted to the global institutional level without pragmatic adjustments with a view to accommodating the special challenges inherent in global governance structures.⁹ But there is also the view that there is no clear distinction between the domestic and global spheres and that the distinction between national and international law in this area is unpersuasive. The argument here is that a real administrative judicial system has evolved at the global level where principles common to at least the dominant domestic systems have

6 (ibid.:55f.).

7 (ibid.:37–41).

8 Esty (2006:1524–1536). See also Cassese (2005:690f.).

9 For a more comprehensive account of these issues see Grant & Keohane (2005:29f.). See also Esty (2006:1509f.).

been absorbed into the global level of decision-making and that, in the process, international law has begun some kind of constitutionalisation of global administration characterised by greater openness, participation and transparency.¹⁰ Paradigmatic examples that are used to support this development are usually decision-making by World Trade Organisation inspection panels, the North American Free Trade Agreement review panel, the Arbitration and Mediation Centre of the World Intellectual Property Organization and the International Centre for the Settlement of Investment Disputes.¹¹

Global Environmental Governance

Central to the debate on international environmental governance is the role and future of the United Nations Environmental Programme (UNEP), established pursuant to the 1972 Stockholm Conference on the Human Environment¹² as a subsidiary organ of the United Nations.¹³ This historical event marked the beginning of a movement that rapidly succeeded in bringing environmental issues to the centre of international public opinion and to decision-making in almost every sector of government activity. Within a few decades a multifaceted array of agencies and institutions with environment-related mandates exploded onto the world scene. This resulted in a loose network of UN bodies, state and non-state actors forming a structurally non-hierarchical governance system lacking a single, over-arching organisation, with the political authority to centralise and coordinate international environmental regimes and their decision-making in a coherent and authoritative manner.¹⁴ Over time these developments could no longer be aligned with the original thinking behind the creation of UNEP and its core mission, namely to have a unit within the United Nations system that could provide central leadership and a comprehensive and integrated overview of environmental problems and develop stronger linkages between the different institutions and programmes. This led to many voices, including the United States National Academy of Sciences, raising concern, at an early stage, over the fragmentation and uncoordinated interventions across a number of policy

10 Cassese (2005:684f.). See also Kingsbury & Donaldson (2011).

11 Cassese (2005:685f.).

12 See UN General Assembly resolution 2398 (XXIII) of 3 December 1968.

13 See General Assembly resolution 2997 (XXVII) of 15 December 1972.

14 See Hierlmeyer (2002:773f.).

areas, such as agriculture, health, labour, transportation and industrial development, and the effect that this would have on the envisaged central leadership and coordinating function of UNEP.¹⁵

Today there is no shortage of literature arguing that UNEP has failed in its role as an inter-agency coordinator and in performing its mandate as the leading organisation in global environmental governance.¹⁶ As a result, the call for the establishment of an overarching international or global environmental organisation¹⁷ facilitating collective action, consolidating organisational mandates and strengthening monitoring, enforcement and compliance has gained significant support in recent times. The argument has been put forward that, until this is achieved, climate change should be looked at as a vehicle for overcoming fragmentation and giving shape to an improved system of environmental governance. This view finds its logic in the systemic linkages between climate change and other international law concerns, such as the law of the sea, human rights, international trade and biodiversity, and in the prospects for improved systems of supranational governance created by the institutional linkages between these areas. It follows then that as a new category of international problem, which is inter-disciplinary in nature, climate change issues force climate change negotiations to cross boundaries between international environmental law and other branches of international law “to demand a new type of hybrid, more engaged system of law”, since climate change, more than any other environmental issue, “requires policy-makers to develop linkages between normally compartmentalised systems of law”.¹⁸

If we accept that the legal inter-linkages made possible by the climate change regime form an essential ingredient in promoting good governance in climate matters and in addressing the fragmentation in the current environmental governance system, then our attention should, in the first instance, turn to the compliance and enforcement mechanisms established in terms of the relevant multilateral treaty arrangements. Ironically, it is in the area of creating international environmental agreements that UNEP has been most successful, but, once established, these agreements and the institutional mechanisms set up by them have become autonomous entities with an in-

15 See Ivanova (2010:32f.); Hierlmeyer (2002:779f.).

16 See for instance Ivanova (2010:46); Andresen (2002:22f.); Carlarne (2008).

17 See Carlarne (2008:459, 473).

18 (*ibid.*:472).

fluence that surpasses that of UNEP.¹⁹ For current purposes, some general remarks on the compliance and enforcement regimes created in terms of the 1987 Montreal Protocol²⁰ and the 1997 Kyoto Protocol²¹ will suffice.

The legal basis for the Montreal Protocol's compliance and enforcement mechanism is article 8, which instructs states parties to consider and approve, at their first meeting, "procedures and institutional mechanisms for determining non-compliance". The actual establishment of the mechanism occurred during the fourth Meeting of the Parties (MOP),²² where a central role was assigned to the implementation committee composed of ten representatives of the parties and performing an advisory and conciliatory function. The committee is empowered to consider submissions relating to non-compliance in respect of both procedural obligations and substantive commitments determined by the treaty obligations of the states parties.²³ Although the procedure to be followed in determining non-compliance is conceived as cooperative, non-confrontational and conciliatory, deliberations are conducted under principles of due process which includes prior notification, the right to a fair hearing and impartiality.²⁴

The Kyoto Protocol also contains only an enabling provision to ensure compliance. Article 18 authorises the Conference of the Parties (COP), which serves as the Meeting of the Parties (MOP) for purposes of the Protocol, to approve appropriate and effective procedures and mechanisms for determining and addressing cases of non-compliance. This mandate includes the development of an indicative list of consequences, taking into account the cause, type, degree and frequency of non-compliance. Binding consequences for non-complying parties are subject to adoption by means of an amendment to the Protocol. This has been achieved through the Marrakech Accords agreed to in November 2001 at the 7th Conference of the Parties.²⁵

The Accords, pursuant to COP Decision 8/CP.4, provide for the establishment of a compliance committee, made up of a plenary, a bureau and a

19 Ivanova (2010:42, 43, 46).

20 The protocol supplements the 1985 Vienna Convention on Substances that Deplete the Ozone Layer. The Convention entered into force on 22 September 1989. For the text see ILM 26 (1987) 1529.

21 The Kyoto Protocol is supplementary to the United Nations Framework Convention on Climate Change. See also Láncoš (2009:271f.).

22 MOP Decision IV/5 25 November 1992.

23 See also Jacur (2009:19).

24 (*ibid.*:21f.).

25 For the Marrakech Accords and Decisions see Sands & Galizzi (2004:179).

facilitative and enforcement branch.²⁶ The members of the two branches make up the plenary of the committee. The facilitative branch is responsible for providing advice and facilitation to the parties in implementing the Protocol and for promoting compliance by parties with their commitments under the Protocol. In performing this function, the facilitative branch must take into account the principle of common but differentiated responsibilities and respective capabilities, as well as the circumstances pertaining to each one of the cases before it. Specific questions of implementation included in the mandate of the facilitative branch are those related to the minimisation of adverse social, environmental and economic impacts on developing countries resulting from implementation by Annex I (to the United Nations Framework Convention on Climate Change (UNFCCC)) parties of their Protocol commitments, and those related to joint implementation, the Clean Development Mechanism and Emissions Trading under Articles 6, 12 and 17 of the Protocol, respectively. Early warning of potential non-compliance is an important element in enabling the facilitation branch to preempt states parties defaulting on their commitments. To act timeously in such instances, the facilitation branch also has the responsibility to advise on appropriate action to be taken with respect to emission reduction commitments, national systems and methodologies for the estimation of greenhouse gas emissions, and national inventories and information dissemination on such emissions, as required by Articles 3, 5 and 7 of the Protocol, respectively.

The enforcement branch of the compliance committee must comprise members with legal experience. This branch must determine whether an Annex I (to the UNFCCC) party is not in compliance with its emission reduction commitments under Article 3 of the Protocol; the methodological and reporting requirements under Articles 5 and 7 of the Protocol, and the eligibility requirements under Articles 6, 12 and 17 of the Protocol. In addition, the enforcement branch may also determine adjustment to inventories in the event of a disagreement between an expert review team and a party; and a correction to the compilation and accounting database for the accounting of assigned amounts of greenhouse gas emissions in the case of a disagreement between an expert review team and a party concerning the validity of a transaction or the party's failure to take corrective action.

Matters concerning implementation or non-compliance end up before the facilitation or enforcement branch via the secretariat and are based on reports

26 See also Urbinati (2009:68f.); Röben (2009:828f.).

by expert review teams, which, under Article 8 of the Protocol, are responsible for the assessment of information provided to them by the parties in accordance with Article 7 of the Protocol. Any preliminary examination by the respective branches must ensure that the issue of implementation is supported by sufficient information; is not *de minimus non curat lex* or ill-founded; and is based on the requirements of the Protocol.

In following the rules of natural justice, the compliance procedures determine that any information considered by the branches shall be made available to the party concerned and that the branch must indicate to that party which parts of the information have been considered with a view to providing the party with the opportunity to respond in writing to the relevant parts of the information used by the relevant branch. Considerations of confidentiality aside, the information considered shall also be made available to the public, unless the branch, on its own volition or at the request of the party, decides against disclosure to the public until such time as a final decision has been reached. The decisions of a branch must include conclusions and reasons and the party concerned must be given the opportunity to comment in writing to any decision of the relevant branch.

Since it is clear from the Marrakech Accords that the proceedings before the enforcement branch are in the form of a hearing and presumably also since a finding of non-compliance may reflect more negatively on a party to the Protocol, the proceedings follow more closely the fairness rules of judicial proceedings. The party concerned may therefore dispute evidence (information) and provide evidence in rebuttal and may also present expert testimony or opinion at the hearing. The enforcement branch may put questions to and seek clarifications from the party concerned, either in the course of the hearing or at any other time and the party must provide a response thereto within a prescribed period. Failure to respond may result in a preliminary finding of non-compliance, which, if it remains unchallenged, will become a final decision; or the branch may decide not to proceed further with the issue.

The judicial-like decision-making and enforcement actions characterising the compliance mechanisms above could function as centres of good environmental governance in two ways.

The first way is through the application of principles and rules that have a normative quality and by means of which certain behaviour is directed or

action is required.²⁷ Their application in concrete settings requires justification and reasoning and, as such, ‘legal’ precedents (even if non-binding) are created, which, in any legal system contribute to the development of the law and determine its coherence, relative uniformity and predictability. The success of this is directly related to the articulation of principles such as common but differentiated responsibilities, polluter-pays, sustainable development, sovereignty over natural resources, good neighbourliness, good faith, prevention, and precaution in the decision-making process in concrete situations.²⁸ This must coincide with the protection, by procedural means, of the rights and interests of those affected by the exercise of compliance control, an objective that requires conformity of decisions with the principle of procedural cooperation; the right to be heard; equitable (as opposed to equal) treatment; proportionality between the measures and their objectives; and the protection of confidential information in circumstances justifying confidentiality.²⁹

The second way entails the taking into consideration of what is known in some national legal systems as jurisdictional facts. In national law, jurisdictional facts are often circumscribed in legislation, while in international law they are spread over a variety of locations and legal regimes, and when environmental issues are involved, also in scientific data. In this instance, one may borrow from the observation that, since compliance procedure follows a “clear-cut legal and administrative design”, compliance control is bound to impact on sovereignty and the interests of private entities, all of which may be affected by (scientific) data collection and reporting.³⁰ But apart from jurisdictional facts such as these, compliance control in climate change matters can hardly avoid taking into account, where applicable, the inter-linkages between the international climate change regime and other areas of environmental regulation, such as ozone depletion, biodiversity, transboundary air pollution, international trade and human rights, to name a few. Such an integrated approach, apart from bringing greater legitimacy to the compliance process, promotes, in an important way, “institutional cooperation,

27 See Beyerlin & Marauhn (2011:37).

28 See also the International Law Association’s study on Legal Principles Applicable to Climate Change, ILA (2012).

29 See also Beyerlin & Marauhn (2011:334).

30 (ibid.:333).

the promotion of cross-cutting coherent rules and effective implementation at both the national and international levels”.³¹

At about the same time as the Kingsbury report³² the renowned German scholar, Eberhard Schmidt-Aßmann, gave an inaugural speech upon the conferral on him of the status of professor emeritus at the University of Heidelberg on the internationalisation of administrative relations as a challenge for administrative law.³³ In his speech, Schmidt-Aßmann propagated the idea of “open statehood” as a normative ideal to accommodate the convergence of international law and administrative law through the internationalisation of administrative relations and processes of secondary law-making that flow from treaty-based institutional structures. In concluding this section, two points made by Schmidt-Aßmann need to be recounted. The first is that the law on internationalised administrative relations will first have “to orient itself toward *principles*, before individual regulations can be developed. Such principles can be derived inductively from national law and international treaties and deductively especially from human rights protections under international law”.³⁴ The second is that —³⁵

International administrative law is to be understood as the administrative law originating under *international law*. It involves processes of reshaping national law and reconstructing international law.... As a matter of clarification, it is worth noting that none of this changes the fact that *national* administrative law remains the main point of orientation for the practical administrative activity of most agencies. ... For the newly defined international administrative law, I would propose ... three main functional circles: it is a body of law governing international administrative institutions, a body of law *determinative* of national administrative legal orders, and a body of law on *cooperative* handling of specific associative problems.

Schmidt-Aßmann acknowledges that tensions between the legal orders will continue with the intensification of administrative activities by international bodies, leading to forms and levels of intervention that the international legal order is not yet equipped to handle. This, he argues, is illustrated by the literature on international environmental law where the level of compliance

31 ILA (2012:40).

32 Kingsbury et al. (2005).

33 Schmidt-Aßmann (2006).

34 This is taken from the English version of his inaugural speech published as Schmidt-Aßmann (2009).

35 (ibid.:961). See also Schmidt-Aßmann (2012); von Bogdandy (2009:24).

monitoring has not been matched by “a canon of indispensable procedural principles”.³⁶

C. Developments in National Jurisdictions

In a recent publication the observation is made that it is “important to bear in mind that ... climate change liability is daily being established in less glamorous and less globally significant ways, especially in an administrative law context”. In support of this, legal developments in eighteen jurisdictions are analysed and documented, showing, what the authors call a frustration with the slow process of addressing climate change matters by means of international regulation.³⁷ Seeking redress within existing national laws, members of and entities in society are turning increasingly to existing legal concepts and doctrines in both private and public law to get a legal response to questions about climate change liability in its different forms. As far as the use of public law is concerned it is pointed out that national laws in most jurisdictions provide for the judicial review of decisions by public authorities and that it is necessary to consider properly such administrative law remedies in the context of the relevant substantive national law which may be found in the constitution, in national environmental law and possibly also in human rights law.³⁸ As the comparative material in the book shows litigants in several of the jurisdictions have used administrative law remedies to challenge government decision-making or the failure to act, even in cases where national laws have inadequately provided for climate change considerations. However, the outcome of these efforts is still mixed in terms of the question whether the remedies sought eventually materialised. But even unsuccessful cases have meaning in that they too contribute to the development of the law and there are still many open questions relating to jurisdiction, standing, causation and damages for which answers will have to be found.

The relevance of the precautionary principle for climate change regulation has also given rise to attempts at determining the contribution of precaution to a liability claim in the case of, for instance, inadequate regulation or the

36 Schmidt-Aßmann (2009:955).

37 Brunnée et al. (2012:3–5).

38 (ibid.:31). On the human rights connection see the compilation of contributions in Shelton (2011).

failure to regulate.³⁹ It is suggested that the precautionary principle can be used as a legal tool in holding emitters of greenhouse gases directly responsible for climate change. In this sense, the principle does not function as an aid in choosing between either strict or fault-based liability, but it affects the standard of care or due diligence required by favouring precaution over inaction in circumstances where an element of scientific uncertainty still prevails.⁴⁰ But, even in cases where a finding of fault may still be relevant, the argument is put forward that in view of the precautionary principle governments as well as entrepreneurs should have been under an obligation to question their conduct, as happened from the 1950s onwards, when the risks in question became more than a suspicion. Consequently, there is a case to be made out for proactive gathering of information and investment in follow-up research, as opposed to doing nothing until further notice.⁴¹

The potential link between human rights and climate change has evoked mixed reactions. From the perspective of the United Nations Human Rights Council climate change impacts on a range of substantive human rights, such as the right to life, to adequate food, to adequate housing and to access to safe drinking water and sanitation.⁴² In addition, climate change may also impact negatively on the resources available to states and hence their ability to comply with their obligations in rendering socioeconomic rights meaningful.⁴³ But this should not detract from the obstacles a human rights approach to climate change could possibly face. One obvious obstacle is establishing a causal link between greenhouse gases emitted in a specific state and an alleged human rights violation. Another relates to the question whether from the perspective of the national state, the state of origin, human rights obligations have extra-territorial effect. At least with regard to the first obstacle there are other approaches by means of which the causality issue can be addressed, such as the duty to cooperate in the United Nations Charter and in human rights treaties for the achievement of universal respect for, and observance of, human rights. This obligation, it has been argued, includes the duty of each state not to interfere with the ability of other states to fulfil their human rights obligations and to prevent private actors from doing so. In the context of climate change, this “could be reasonably construed as an

39 Haritz (2011:21).

40 (*ibid.*:23).

41 (*ibid.*:23f.).

42 See HRC resolution 7/23 of 2008 and 18/22 of 2011.

43 See OHCHR (2009).

obligation on the part of major greenhouse emitting States to substantially reduce emissions so as to not interfere with ... the ability of a State to grow food or ensure adequate water resources to its citizens”.⁴⁴

The obligations of states in this regard are known as *erga omnes* obligations, i.e. obligations a state owes to the international community as a whole,⁴⁵ a matter that, on occasion, has received the attention of the Human Rights Committee, the monitoring body of the 1966 International Covenant on Civil and Political Rights (ICCPR). In its General Comment No 31 the Committee has stated that, since states parties assume obligations towards individuals in terms of the ICCPR, “every State Party has a legal interest in the performance by every other State Party of its obligations” and that the “contractual dimension of the treaty involves any State Party to a [human rights] treaty being obligated to every other State Party to comply with its undertakings under the treaty”. It is this understanding of the effects of human rights treaties that prompted the Committee to comment that the violations of treaty rights by any state deserves the attention of every other party to the treaty.⁴⁶

This special character of human rights treaties and the obligations they impose on states parties go back to 1951 when the International Court of Justice in the Genocide Convention case distinguished between ordinary treaties and those of a human rights or humanitarian character. In the latter instance, states parties “do not have any interests of their own; they merely have, one and all, a common interest, namely, the accomplishment of those high purposes which are the *raison d’être* of the convention”.⁴⁷ Ten years later the European Commission of Human Rights argued in a similar fashion in affirming that the obligations imposed on states parties by the European Convention on Human Rights are of an objective character in that they are designed to protect fundamental rights from infringement by any of the states parties, as opposed to creating subjective and reciprocal rights for the parties

44 ILA (2012:53).

45 *Barcelona Traction, Light and Power Company (Belgium v Spain)* 1970 ICJ Reports 3 at para 33.

46 UN Doc CCPR/C/21/Rev. 1/Add.13 of 26 May 2004, para 2.

47 *Reservations to the Genocide Convention (Advisory Opinion)* 1951 ICJ Reports 15 para. 23.

themselves.⁴⁸ To this one should add the following important views of the Inter-American Court of Human Rights –⁴⁹

[M]odern human rights treaties in general ... are not multilateral treaties of the traditional type concluded to accomplish the reciprocal exchange of rights for the mutual benefit of the contracting States. Their object and purpose is the protection of the basic rights of individual human beings irrespective of their nationality, both against the State of their nationality and all other contracting states. In concluding these human rights treaties, the States can be deemed to submit themselves to a legal order within which they, for the common good, assume various obligations, not in relation to other States, but towards all individuals within their jurisdiction.

D. Concluding Remarks

The different attempts at both the international and national level to introduce a normative approach to the governance concept – inter alia, by means of exploring a variety of options to enforce compliance by states to their international commitments on climate change and other environmental concerns – is a project that is only now gaining momentum. It therefore stands to reason that many issues remain open-ended and ripe for further research and deliberation. In this concluding section, some observations are made with regard to three matters that may be of importance for the debate on governance and the enforcement options within the administrative law paradigm.

The first one deals with the development, as pointed out in the growing literature in the field, of a genuine administrative judicial system that has taken root in the global institutional setup and the links between that system and what one finds at the national level. An essential element of any such administrative system, if it wants to be legitimate, accountable and efficient, is the rationality of its decision-making. What matters, it has been observed, is a “governance process that produces rational analysis within legal boundaries yielding good outcomes”.⁵⁰ This hints to a re-application in the global governance sphere of Max Weber’s famous theories on the virtues of bu-

48 *Austria v Italy* Application no 788/60, 4 Yearbook of the European Convention on Human Rights 1961 at 140.

49 The Effect of Reservations on the Entry into Force of the American Convention, IACtHR Series A No. 2, 24 September 1982, paras 29–30.

50 Esty (2006:1517). See also Cohen (2005:1102).

reaucratic governance processes that rely on the expert knowledge, neutrality and insulation from politics of decision-makers in delivering superior decision-making outcomes determined, inter alia, by rational legal authority and rules of governing performance. Some scholars, quite appropriately in this author's view, have linked this form of governance (at the national level) to the promise of the modern constitutional state to act rationally, in the sense that the modern state is based on the belief in the comprehension of and command over the world by means of reason. Consequently, government organs should, in the performance of their functions, refrain from speculation, magic, intuition, metaphysics or religion, and do what is rationally justifiable.⁵¹ In performing their tasks state administrations are or ought to be guided by what is constitutionally or legally determined and take into account the doctrine of *trias politica* as minimum requirement. Apart from these *constitutive* elements, decision-making takes place in a *regulatory* environment of which the contours are determined by discretionary prerogatives, proportionality assessments, the relationship between measures and their objectives, scientific data and the balancing of interests. All of this raises important questions about the level of expertise and professionalism administrative components in institutions of governance must command to instil confidence in their ability to even modestly address the complexity of problems modern societies face.

The second matter relates to the relationship between the executive and the judiciary when government action or inaction in environmental issues such as climate change needs to be reviewed. The case of *Friends of the Earth v Canada*⁵² offers a good illustration. This case deals with Canada's Kyoto Protocol Implementation Act (2007), which has the unequivocal aim of giving effect to Canada's Kyoto Protocol commitments. It states in its preamble that Canada has a clear responsibility to take action on climate change given the fact that the country's greenhouse gas emissions are amongst the highest in the world and that some consequences of this are already unfolding, particularly in the Arctic. Moreover, Canada has also undertaken to reduce its average annual greenhouse gas emissions during the 2008–2012 period to 6% below the 1990 levels.

To make this a reality, the Act envisaged a number of measures that the government needed to take, which included a climate change plan spelling

51 Voßkuhle (2008:640).

52 2008 FC 1183, 2009 3 FCR 201. For a more comprehensive discussion of the case and related matters see Strydom (2011).

out the measures to be taken to ensure compliance with Canada's obligations in terms of the Protocol. It may be mentioned here that the Act was unpopular from the start. Introduced as a private member's bill, its legislative programme was at odds with the government's declared Kyoto policy, namely that, for economic reasons, Canada could not comply with its obligations under the Kyoto Protocol. The government cited an economic decline in gross domestic product and a fall in employment levels should the country deliver on its Kyoto promises.

In 2008 the applicant commenced action in a federal court, seeking judicial review of the government's inaction and declaratory, mandatory relief in connection with the government's alleged breaches of its Kyoto obligations. Fundamental to the legal issues before the court was the question about the justiciability of the government's climate change policy, which raised pertinent questions about the boundaries of judicial intervention in executive decision-making and about the prospects of climate change litigation as a means of ensuring compliance with a country's international environmental law obligations. The dismissal of the application, confirmed on appeal, centred around the court's view that the measures envisaged by the Act fall outside the realm of judicial review and involved policy-laden considerations by government, which involve matters that cannot be completely controlled by government and which are subject to review and adjustment within a continuously evolving scientific and political environment.

A striking feature of the case is the almost resigned manner in which the court accepted the arguments put forward by government as to why Canada was justified in renegeing on its international treaty obligations. No attempt was made by the court to examine carefully each of the different measures imposed on government by the Act or to reflect on the feasibility of their adoption and potential contribution in reaching the targets Canada has knowingly accepted as a signatory to the Kyoto Protocol. But, apart from this, the question can be raised whether courts in such circumstances should not shy away from investigating scientific and economic data. Two cases can be mentioned as illustration. The one is the ruling by the South African Supreme Court of Appeal in *Foodcorp (Pty) Ltd v Deputy Director-General, Dept of Environmental Affairs and Tourism*.⁵³ This case involves an application for the review of the allocation of commercial fishing rights in terms of the Marine Living Resources Act 18 of 1998. The main issue was the blind use

53 2005 1 All SA 531 (SCA).

of a formula by government for allocating commercial catch between successful tenders and which the applicant claimed infringed its right to administrative justice in view of the unreasonable results of the formula used in the allocation. In the Cape High Court the matter was dismissed on the basis that it was a policy-laden issue which entailed a certain degree of specialist knowledge and expertise which very few judges could be expected to have. The specialist knowledge the court referred to involved a mathematical algorithm developed with the expert assistance of a professor of mathematics. However, on appeal the Supreme Court of Appeal, after having acquainted itself with the anomalies in results of the formula, concluded that one does not need to understand the complex processes, mathematical or otherwise, to realise that at least some of the results produced by the application of the formula were irrational and inexplicable. In upholding the appeal and referring the matter back to the respondent for re-consideration, Harms JA reasoned as follows:⁵⁴

A reasonable decision-maker would, in my judgement, have used a formula to make a provisional allocation but would have considered the output as a result of the application of the formula and then have considered whether the output gives reasonable justifiable results bearing in mind the facts. That the results were distorted would have been patent to anyone applying his or her mind to them. Some participants were inexplicably and unreasonably favoured; at least the appellant was prejudiced, but not only the appellant. A reconsideration of the formula or of the input fed into it would have been called for. If the problem had not been solved thereby, the results would have been adjusted to make some sense.

The second example is the ruling by the German Bundesverfassungsgericht (BVerfG) in the controversial Hartz IV matter.⁵⁵ In this matter, the BVerfG ruled unconstitutional welfare calculation rules for payments to adults and children under a new social welfare dispensation embarked on in 2005. The Court in this matter argued that although constitutional guarantees do not contain quantifiable indicators of what a dignified existence in the circumstances would mean, they nevertheless render necessary judicial control over the foundation and the method of ascertaining the social welfare amounts and whether these amounts were justifiable in view of the applicable constitutional guarantees. Consequently, to ensure in this instance the constitutionality of the legislative measures, the calibration of the welfare payments

54 (ibid.:para 19).

55 BVerfG, 1 BvL 1/09 of 9 February 2010, paras 1–220.

must be shown to be based on reliable figures and proven calculation processes. In concrete terms, the court reasoned, this would mean that the court would exercise its judicial control function over the following: whether the legislature correctly understood and circumscribed the aim of realising a dignified existence in accordance with the relevant constitutional provisions by means of the impugned welfare payments; whether, within its own margin of appreciation, the legislature has chosen an appropriate calculation method to determine the amount due to the beneficiary; whether the legislature has ascertained the requisite facts in a complete and suitable manner; and whether the legislature, in working through the different calculation phases has stayed within the calculation processes and the underlying structural principles of the statistical method chosen for the purpose.⁵⁶ On the basis of an extensive analysis of the government's calculation methods and their outcomes, the court was in a position to discover a number of anomalies which caused the government measures to be in breach of the relevant constitutional guarantees.⁵⁷ What should be clear from the approach followed by the federal constitutional court is that judicial review firmly embedded in the foundational principles of the *Rechtsstaat* is conceptually a different cup of tea from judicial review under a dispensation where the separation of powers doctrine is not yet clearly grounded in theoretical or constitutional precepts and the boundaries between the different branches of government are still fluid.

Lastly, is the matter of the impact of changes in government on the international treaty obligations of states, keeping in mind the well-known international law principle that a change of government does not affect a state's legal duty to comply with international law obligations binding upon it. The *Friends of the Earth* case, referred to earlier, should illustrate the point. Canada was one of the first countries to sign (1998) and ratify (2002) the Kyoto Protocol. Since the lapse of time between signing and ratifying international agreements is usually used by states to assess their ability to comply with their treaty obligations and to bring about the necessary changes in their domestic legal orders to facilitate compliance, one could assume that the government in power at the time of ratification was fully aware of Canada's international legal obligations associated with the country's membership of the Kyoto Protocol. On 12 August 2003, the Canadian government

56 (ibid.:para 143).

57 (ibid.:para 210).

pledged \$1 billion more for its climate change plans, bringing total federal spending to a level of \$3,7 billion, which included incentives to consumers and industry. In the same year when the Kyoto Protocol entered into force, i.e. 2005, conservatives threatened to vote against the budget because of a controversial provision in the budget bill causing greenhouse gas emissions to become a controlled substance. Opting for appeasement of the conservatives, the liberal government at the time agreed to a deal to do away with the controversial provision. In addition, an earlier Kyoto plan was revamped and emission targets for large industry polluters were relaxed. In 2006 the liberal government was unseated and in 2007 the new government published its climate change plan which formed the basis of the government's justification for non-compliance with its Kyoto obligations in the *Friends of the Earth* case.⁵⁸

These events raise a number of questions: was ratification of the Kyoto Protocol based on a reasonable prospect of compliance, following a proper assessment of the factual and other circumstances that existed at the time? If so, could the factual basis have changed so dramatically between 2002 and 2006 that the new government had no option but to renege on its international obligations? Or was the true reason for the change of mind a change in political and economic interests that coincided with the liberal-conservative divide?

The developments underlying these questions can take place in any country and they require careful thinking about what can be expected of the courts in such circumstances when called upon to perform judicial review functions. The question that arises is whether courts in cases like *Friends of the Earth* should be more inclined to adopt review proceedings that are not only more stringent, but are also more responsive to the justifiability and accountability requirements for government actions associated with modern constitutional democracies and the compelling nature of the obligations they have agreed to by ratifying the UNFCCC and the Kyoto Protocol.

58 See CBC News (2007).

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Abstract

In this contribution it is argued that, as a response to climate change, international criminal law and the evolving system of international criminal justice can play a useful role in global governance. There are still many obstacles in the way of a truly international criminal justice response in the area of climate change. These obstacles include the lack of a substantive framework for the criminalisation of environmental crimes as international crimes, as well as the necessary enforcement jurisdiction at international and national levels. Complex issues such as the expansion of the jurisdiction of the International Criminal Court and corporate criminal liability under international criminal law inform the debate. These obstacles should, however, not be seen as insurmountable since the evolving system of international criminal law is dynamic in nature and firmly rooted in the normative frameworks that underpin modern international law. International climate change instruments and agreements can equally inform future efforts to provide for crimes against the environment under international law.

A. Introduction and Problem Statement

This article is concerned with the possibilities presented by international criminal justice as a response to climate change. It presents a balanced evaluation of international criminal justice mechanisms as possible helpful tools in the broader global response to climate change. The argument is presented that there are various modalities and mechanisms in the field of international criminal justice that may be useful. However, the pitfalls are also noted and contextualised. This article is not an exhaustive study of international criminal justice as a response to climate change. It proposes a meaningful framework for further debate and analyses.

The essential assumption is that climate change is, at least in part, caused by human conduct. To the extent that such human conduct is *harmful* to the environment, thus causing or contributing to detrimental climate change, the question is whether an (international) criminal justice response or responses would be meaningful, appropriate and effective.

Philosophically, the question whether an international criminal justice response to climate change is meaningful, or indeed, warranted, can perhaps best be answered with reference to Hannah Arendt's distinction between *Verbrechen gegen Menschheit* (crimes against mankind) and *Verbrechen gegen Menschlichkeit* (crimes against humanity).¹ The former group of atrocities affect our very existence and survival. This includes crimes against peace, and should arguably also include crimes against the environment which, in terms of gravity and scale, constitute threats to the survival of mankind. While the crime against peace (in the form of the crime of aggression) was recognised as the "supreme international crime" at Nuremberg,² we have yet to see any comparable criminal justice response to the phenomenon of climate change caused by human conduct. The crimes against humanity group of crimes are informed by those violations that affect our sensibilities and characteristics as human beings: our sense of being private, free, autonomous beings with inherent human dignity.

There are, of course, criminal justice responses to conduct affecting the environment – both under national and international law. For instance, international humanitarian law prohibits widespread, long-term and severe damage to the natural environment. Violations of the relevant rules can lead to individual criminal liability. The article will return to the role of international humanitarian law later, but the point here is that the criminal justice response to harmful conduct against the environment is relatively well-established. The question is to what extent an (international) criminal justice response to human conduct that is so harmful that it causes climate change is sensible, and indeed feasible.

1 Reference to Hannah Arendt's use of the terms in Jaspers (2006:855).

2 Schabas (2004:31).

B. International Criminal Justice as a Manifestation, or Exponent, of Global Governance

The central question in this contribution is whether international criminal justice can contribute meaningfully to efforts to stem global climate change. Margaret Karns and Karen Mingst's neat definition of global governance suggests that international (criminal) law is a "piece of global governance". They declare that "pieces of global governance are the cooperative problem-solving arrangements and activities that states and other actors have put into place to deal with various issues and problems".³ The most important pieces of global governance identified by Karns and Mingst are:

- International law (including international humanitarian law and international criminal law)
- Norms or 'soft law' (for instance framework conventions on biodiversity and climate change)
- Formal and informal structures (such as intergovernmental organisations, non-governmental organisations, global conferences), and
- International regimes (for instance, on trade, nuclear nonproliferation, food aid and telecommunication).

If we accept that international law (including international criminal law) is an important part of global governance, the critical question is to establish the circumstances under which we (the international or global community) should resort to international criminal justice as a response to atrocities.

One view is that the (evolving) system of international criminal justice is primarily a system informed by the international community's *reaction* to atrocities like genocide, crimes against humanity and war crimes. The *ad hoc* nature of international criminal tribunals from Nuremberg to the Yugoslavia Tribunal (ICTY) and the Rwanda Tribunal (ICTR) underscores this view. Of course, the creation of the permanent International Criminal Court (with its forward-looking, preventive potential) represents an important turning point away from the primarily reactionary narrative of international criminal justice, discussed later. The point is that the criminal justice response is, by its nature, mostly reactionary and backward-looking: the emphasis is on punishment (retribution) for past conduct. This is not to say that criminal law theory is one-dimensionally preoccupied with past events: in-

3 Karns & Mingst (2004:4).

deed, the utilitarian aspiration of (international) criminal law has an eye on the future as well – namely, prevention of further crime, rehabilitation of offenders, and even integration or healing of society affected by crime.⁴

A progressive view is that there are important elements and characteristics of international criminal law that espouse constitutionalist qualities. Constitutionalist in this context means that the international system is moving towards the supranational limitation of state power.⁵ In this sense, the International Criminal Court can also be described as a constitutional development. It impacts on the way states conduct themselves and complements the exercise of state jurisdiction over the most serious crimes under international law.⁶

One should be careful not to view the emergence of international criminal law, generally, and the establishment of the International Criminal Court, in particular, in a too idealistic way. Of course, idealism has always been, and should remain, an important driving force for good – also with respect to international criminal justice. In practical terms, however, it is prudent to keep in mind that the body of international criminal law (still) consists of two conceptually somewhat different parts – namely, international law, with its “diplomatic conferences, convention-making by consensus and autopoietic interpretation of law”,⁷ and criminal law, which is “supposed to be the, by definition, positivistic discipline of law, based on the fundamental importance of legality, the principle of *nullum crimen sine lege, nulla poena sine lege*”.⁸ These observations underscore the promises and the pitfalls of international criminal law as a potential tool or “piece” of global governance, aimed at addressing climate change. In the paragraphs below some of the important promises and pitfalls will be highlighted and analysed in the context of the global governance paradigm.

4 Tallgren (2002:562).

5 This reflects the development away from the traditionally anarchist international system where sovereign states invariably acted in their own interest. See further comments by Caron (2006:56).

6 Werner (2007:18–23); Kemp (2008).

7 Tallgren (2002:562).

8 (ibid.:564).

C. The Main Features of the Emerging System of International Criminal Justice

A detailed discussion of the emerging system of international criminal justice falls beyond the scope of this article. A number of features of what can be called the emerging or evolving system of international criminal justice are however elucidated. In turn, the relevance of these features is indicated for the topic under discussion, namely international criminal justice as a piece of global governance that might assist with efforts to address global climate change.

I. Individual Criminal Liability

Individual criminal liability is the cornerstone of modern international criminal law. The evolving system of international criminal justice is premised on the notion that the various atrocities which form the subject matter material of international criminal law are committed by persons. In this sense, the Nuremberg and Tokyo precedents⁹ established the separateness of international criminal law from other branches of international law. The principle was established that individuals are the subjects of international criminal law and can be held liable for crimes under international law. Decades later this principle was confirmed by the International Criminal Tribunal for the Former Yugoslavia (ICTY) in *Prosecutor v Tadić*:

The basic assumption must be that in international law as much as in national systems, the foundation of criminal responsibility is the principle of personal culpability: nobody may be held criminally responsible for acts or transactions in which he has not personally engaged or in some other way participated (*nulla poena sine culpa*).¹⁰

The Rome Statute of the (permanent) International Criminal Court (ICC) also confirms the principle of individual criminal responsibility as a key part of the Court's jurisdictional regime. Article 25 of the Statute provides as follows:

9 See the important observations by Wright (1947:38–72); Taylor (1955); Leonhardt (1949); Komarow (1980); Marston Danner (2005); Carr (1948).

10 International Criminal Tribunal for the Former Yugoslavia (ICTY) *Prosecutor v Dusko Tadić* (Appeals Chamber) Case No IT-94-1-A, 15 Jul 1999, para. 186.

1. The Court shall have jurisdiction over natural persons pursuant to this Statute.
2. A person who commits a crime within the jurisdiction of the Court shall be individually responsible and liable for punishment in accordance with this Statute.
3. In accordance with this Statute, a person shall be criminally responsible and liable for punishment for a crime within the jurisdiction of the Court if that person:
 - (a) Commits such a crime, whether as an individual, jointly with another or through another person, regardless of whether that other person is criminally responsible;
 - (b) Orders, solicits or induces the commission of such a crime which in fact occurs or is attempted;
 - (c) For the purpose of facilitating the commission of such a crime, aids, abets or otherwise assists in its commission or its attempted commission, including providing the means for its commission;
 - (d) In any other way contributes to the commission or attempted commission of such a crime by a group of persons acting with a common purpose. Such contribution shall be intentional and shall either:
 - (i) be made with the aim of furthering the criminal activity or criminal purpose of the group, where such activity or purpose involves the commission of a crime within the jurisdiction of the court; or
 - (ii) be made in the knowledge of the intention of the group to commit the crime;
 - (e) In respect of the crime of genocide, directly and publicly incites others to commit genocide;
 - (f) Attempts to commit such a crime by taking action that commences its execution by means of a substantial step, but the crime does not occur because of circumstances independent of the person's intentions. However, a person who abandons the effort to commit the crime or otherwise prevents the completion of the crime shall not be liable for punishment under this Statute for the attempt to commit that crime if that person completely and voluntarily gave up the criminal purpose.
4. No provision in this Statute relating to individual criminal responsibility shall affect the responsibility of States under international law.

Some of the important implications of the Rome Statute's provisions on individual criminal responsibility will be discussed when dealing with the ICC as a potential forum to deal with those responsible for climate change.

II. The Principle of Legality

The notion that legal rules should be clear and certain is not unique to criminal law. But as an element of due process and as a general principle of

criminal law, the principle of legality has a central and fundamentally important place in national criminal law as well as in international criminal law.¹¹ There are differences in approach between national and international criminal law, which are briefly discussed below. But first, it is necessary to delineate the normative foundations of the principle of legality in criminal law generally.

In the early 1880s the German legal scholar JP Anselm von Feuerbach coined the maxim *nullum crimen, nulla poena sine lege*. In terms of this principle, no crime (or punishment) can exist without a clear norm in law criminalising the conduct in question and providing for applicable punishment. The principle thus provides for a crime norm and a punishment norm.¹² In essence, the principle is understood to mean that criminal laws should be made by “a competent legislature that announced in advance and with clarity and certainty the definition of crimes and the details of their punishments”.¹³

The principle of legality is firmly established in international criminal law – although with some modifications. It even has customary international law status, which is not surprising, given the widespread and general respect for the principle and international judicial confirmation of its paramount importance.¹⁴ The Rome Statute of the ICC also provides for the principle of legality by splitting it into the two components referred to above, namely *nullum crimen sine lege*, in Article 22,¹⁵ and *nulla poena sine lege*, in Article 23.¹⁶ A further aspect, the non-retroactive application of criminal law, is provided for in Article 24¹⁷ of the Rome Statute.

11 Lamb (2002:733).

12 Kemp (2010:13).

13 Burchell (2005:95).

14 Werle (2005:32).

15 Article 22: “1. A person shall not be criminally responsible under this Statute unless the conduct in question constitutes, at the time it takes place, a crime within the jurisdiction of the court. 2. The definition of a crime shall be strictly construed and shall not be extended by analogy. In case of ambiguity, the definition shall be interpreted in favour of the person being investigated, prosecuted or convicted. 3. This article shall not affect the characterisation of any conduct as criminal under international law independent of this Statute.”

16 Article 23: “A person convicted by the Court may be punished only in accordance with this Statute.”

17 Article 24: “1. No person shall be criminally responsible under this Statute for conduct prior to the entry into force of the Statute. 2. In the event of a change in the law

Although the principle of legality, as applied in national criminal law and in international criminal law, clearly shares the same normative roots (fairness, clear warning that conduct is criminal, and so on), it is interesting to note that the principle is sometimes applied less strictly in international criminal jurisprudence. Indeed, the Nuremberg Tribunal set the scene with the retroactive criminalisation of and ultimate conviction of senior Nazis for the crime of aggression, as well as crimes against humanity (war crimes as a distinct category of crimes was already well-established). Many commentators objected to the Nuremberg Tribunal's *ex post facto* criminalisation of certain conduct.¹⁸ By contrast, and not surprisingly, Telford Taylor¹⁹ argued that international (criminal) law "is not capable of development by the normal processes of legislation, for there is no continuing international legislative authority". International criminal law "grows, as did the common law, through decisions reached from time to time in adapting settled principles to new situations".²⁰

In a famous dissenting opinion delivered at the Tokyo Tribunal, judge Röling did not place the emphasis on the pre-existing criminal norm. This judge concluded that crimes against peace were to be punished "because of the dangerous character of the individuals who committed them". The focus was on the danger, rather than on the guilt.²¹

The notion that legality in criminal law can somehow be applied less strictly in international criminal law also found favour at the Special Court for Sierra Leone, which is hearing cases of crimes against humanity and war crimes committed in Sierra Leone since 1996.²² In *Prosecutor v Sam Hinga Norman*,²³ the defence made certain objections in a motion relating to the substantive jurisdiction of the Special Court. In essence, the defence asserted that the Special Court had violated the principle of *nullum crimen sine*

applicable to a given case prior to a final judgment, the law more favourable to the person being investigated, prosecuted or convicted shall apply."

18 See the general criticism listed in Leonhardt (1949).

19 Telford Taylor was part of the American prosecution team at Nuremberg. He served on the team of Robert Jackson, who played an important role in the drafting of the Nuremberg Charter.

20 Taylor (1955:516).

21 See discussion in Cassese (2003:143–144).

22 Statute of the Special Court for Sierra Leone (2002), reproduced in van den Wyngaert (2005:307).

23 *Prosecutor v Sam Hinga Norman (Decision on preliminary motion based on lack of jurisdiction – child recruitment)* Case No SCSL-2004-14-AR72 (E) 31 May 2004.

lege since the crimes mentioned in the indictment were not part of customary international law at the relevant times; neither were they criminalised under Sierra Leonean criminal law at those times. In reply to the defence, the prosecutor argued as follows:

The principle of *nullum crimen sine lege* should not be rigidly applied to an act universally regarded as abhorrent. The question is whether it was foreseeable and accessible to a possible perpetrator that the conduct was punishable.²⁴

The majority of the judges in this hearing favoured the approach submitted by the prosecutor, namely that the emphasis should be on the conduct, rather than on the specific description of the offence in substantive criminal law.

The examples from the Nuremberg and Tokyo Tribunals as well as the Special Court for Sierra Leone notwithstanding, the author of this article argues that the margin of difference between national and international understandings of the legality principle in criminal law is not fundamental. At any rate, the protection of the legality principle in the Rome Statute (as mentioned above) is quite clear and in line with most national systems that provide for a rather strict protection of the legality principle. The relevance of the more fluid application of *nullum crimen sine lege* is perhaps limited to crimes (and criminalisation) under customary international criminal law. There is no reason why conventional international criminal law should be treated differently from statutory criminal law at the national level.²⁵

III. State Sovereignty and the Impact of International Criminal Justice

It was noted above that the evolving system of international criminal justice can be viewed as a constitutional limitation on the freedom of sovereign states to conduct their affairs as they wish. It is, of course, self-evident that international law generally has this constitutional effect. While the Charter of the United Nations is based “on the principle of the sovereign equality of all its Members”,²⁶ other developments in international law, notably human rights, international criminal justice, and, indeed, environmental law, shape the content and scope of state sovereignty. In essence, it is safe to say that

24 *Prosecutor v Sam Hinga Norman* para. 2.

25 For more on this debate, see Swart (2005).

26 Article 2(4) UN Charter.

states may no longer act as they please – in terms of their relations with other states or, to a growing extent, internally.

Bruce Broomhall eloquently describes the impact of international (criminal) law on the notion of state sovereignty:

The idea that sovereignty does not arise in a vacuum, but is constituted by the recognition of the international community, which makes its recognition conditional on certain standards, has become increasingly accepted in the fields of international law and international relations. Such limits are held always to have been imposed by the community on the recognition of its members, but to be subject to development over time. From this perspective, crimes under international law can be understood as a formal limit to a State's legitimate exercise of its sovereignty, and so in principle justify a range of international responses (subject to the rest of international law, including that relating to the use of force).²⁷

The author thus understands sovereignty to be a notion constantly changing and evolving in the light of the growing importance of international law, including the content and institutions of international criminal law. International criminal law should, however, not be seen as a negative limitation of state sovereignty. It also empowers states to act as agents of a normative framework premised on the rule of law, and is a drive to end impunity for the worst crimes affecting the whole of humankind. Next, the role of states vis-à-vis the International Criminal Court, the primary role-player in the modern international criminal justice system, needs to be considered.

IV. The International Criminal Court

The creation of the ICC in terms of the Rome Statute of 1998²⁸ was not an End of History²⁹ moment; it did not represent an end point even in terms of

27 Broomhall (2003:43).

28 Rome Statute of the International Criminal Court (1998), UN doc A/CONF 183/9, *International Legal Materials*, 1998, 999.

29 This refers to the much debated book by Fukuyama (1992). At the time, Fukuyama argued that, after the fall of the Berlin Wall and the collapse of the Soviet empire, the winner is clear: market economy and liberalism. It is plausible to see the progress of international criminal law, and the institutions of international criminal justice during the 1990s as part of the new world order made possible by the collapse of communism. It is true that the thaw in international relations after the end of the Cold War made possible the consensus in the Security Council which in turn adopted the statutes of the first international criminal tribunals since Nuremberg and Tokyo,

the long historical quest for a system or structure to end impunity. It can be seen as an important development, even a starting point,³⁰ in the narrative that is international criminal law, or, the quest to end impunity for the worst crimes against humankind.³¹

For present purposes, a number of features of the ICC will be elucidated. The aim is briefly to identify and discuss those features of the ICC that are viewed as relevant to this article. The choices are informed by the central theme of this article, namely the contribution of international criminal justice as a piece of global governance that can help to address climate change.

1. The Crimes within the Substantive Jurisdiction of the ICC

a) The Core Crimes

The ICC has jurisdiction over the crimes of genocide, crimes against humanity, war crimes and the crime of aggression (although the latter crime is not yet within the effective jurisdiction of the court). The crimes listed were regarded by the drafters of the Rome Statute as the *most serious crimes of concern to the international community as a whole*.³² This list of crimes can be viewed as at least containing the most serious crimes affecting humankind, but is not necessarily complete, as discussed later. The states that adopted the Rome Statute discussed various crimes to be included within the ICC's jurisdiction. The inclusion of the crime of genocide (based on the Genocide Convention of 1948) was not controversial. A bit more contentious were the definitions and scope of crimes against humanity and war crimes. After a considerable debate, the crime of aggression was also included, but on condition that a suitable definition be drafted and conditions for the ex-

namely the International Criminal Tribunal for the Former Yugoslavia (1993) and the International Criminal Tribunal for Rwanda (1994). It is quite reasonable to see the adoption of the Rome Statute of the International Criminal Court in 1998 as a logical extension of the process that started in the early 1990s. However, the ICC, which purports to be a permanent international tribunal, cannot be seen as a culmination or end point. In many ways it is a starting point.

30 See observations by Kirsch (1999) who was elected the first President of the ICC.

31 For a discussion of the historical processes that culminated in the adoption of the Rome Statute of the ICC, as well as a broader historical perspective on the trends and currents in international criminal justice, see Bassiouni (2005:3–121).

32 Article 5(1) Rome Statute of the International Criminal Court.

ercise of jurisdiction by the ICC of this crime be agreed upon. This indeed happened at the Kampala Review Conference of the International Criminal Court which was held in 2010. However, the definition of the crime of aggression and the related provisions on this crime can at the earliest enter into force in 2017.³³

b) Other Crimes (like Drug Trafficking and Terrorism)

Apart from the so-called core crimes under international law mentioned above, the Rome Diplomatic Conference considered the inclusion of other crimes within the jurisdiction of the ICC. The most notable of these crimes were drug trafficking, terrorism, and violations of the Convention on the Safety of United Nations and Associated Personnel. A majority of states at the Rome Diplomatic Conference opposed inclusion of these treaty crimes.³⁴ The (rather unconvincing) rationale for the exclusion was that effective enforcement and cooperation regimes already existed for these crimes.

Jerry Fowler, legal counsel for the Lawyers Committee for Human Rights and participant at the Rome Conference, pointed out that the inclusion of drug trafficking and terrorism enjoyed “significant support”, but not as much as aggression. While drug trafficking and terrorism certainly affect the international community as well, there was simply not enough agreement on the inclusion of these crimes. Of course, the contentious scope and content of, to a lesser extent, drug trafficking and, to a large extent, terrorism made them less obvious to include as the worst crimes affecting the whole of humankind.

33 For a comprehensive discussion of the work of the Special Working Group on the Crime of Aggression, see Kemp (2010:208–237). For a discussion of the definition of aggression and the conditions for the exercise of jurisdiction by the ICC over this crime, as adopted at the Kampala Review Conference, see Kress & von Holtzendorff (2010).

34 Lee (1999:81).

c) What about Crimes against the Environment?

It was noted that the International Criminal Court was established as a result of many legal and geo-political factors that aligned in the 1990s. It was also pointed out that the creation of the ICC should not be seen as an end-point, but rather as an important starting-point, or new chapter, in international criminal justice.

While the outcome of the Rome Diplomatic Conference on the International Criminal Court was, on balance, satisfactory in terms of the crimes included in the jurisdiction of the ICC, activists and environmental lawyers can rightly point to the exclusion of crimes against the environment as an important omission, hopefully to be rectified at a future review conference.

The exclusion of crimes against the environment was by no means the result of bad preparatory work. In 1996, two years prior to the Rome Diplomatic Conference, a document on crimes against the environment was published in the context of the work by the International Law Commission on the Draft Code of Crimes against the Peace and Security of Mankind – including the draft statute for an international criminal court.³⁵ The proposal on crimes against the environment was not adopted at Rome. However, the document on crimes against the environment can still serve as a very useful starting point for a debate on the inclusion of crimes against the environment (and even more broadly, crimes in the context of climate change) at a future Review Conference. Some of the important aspects of the document on crimes against the environment are discussed below.

2. *ICC has Jurisdiction only over Natural Persons (Not Legal Entities)*

Article 25(1) of the Rome Statute of the International Criminal Court provides as follows: “The Court shall have jurisdiction over natural persons pursuant to this Statute.” There is no provision in the statute for corporate or state criminal liability.

There was considerable debate at the Rome Diplomatic Conference on whether to include corporate criminal liability. France proposed the recognition and inclusion of corporate criminal liability on the following grounds: first, the French concept of criminal liability for *personnes morales* is an

35 Tomuschat (1996).

established criminal law notion; second, there is a moral imperative to punish all entities (natural or legal) who are responsible for the worst crimes affecting the whole of humankind; third, corporate criminal liability presented the ICC with a practical mechanism for ensuring compensation – especially since individual perpetrators on their own might not have the resources to fund adequate compensation for victims; fourth, the notion of corporate criminal liability can serve as a deterrent and can foster a culture of caution in the context of profit-motivated decision-making processes.³⁶

The notion of corporate criminal liability is well established in many national legal systems. There are also notable exceptions – for instance, Germany. Although the German Criminal Code provides for criminal liability of certain administrators and officers of corporations, there is no general principle of liability for the legal entity, the corporation.³⁷

Despite the relatively common acceptance of corporate criminal liability at national level, the debate at the Rome Diplomatic Conference resulted in a rejection of the French proposal on the inclusion of corporate criminal liability under the Rome Statute. The rejection of the proposal was not primarily motivated by a lack of understanding that corporations are important role-players and actors in terms of potential liability for gross human rights violations and atrocities. Indeed, many delegations at the Rome Conference noted the fact that many conflicts and instances of gross human rights violations were in no small measure aided and abetted by corporations. These include the involvement of media entities in the Rwandan genocide; the forced removal and transfer of people as a result of the activities of multinational oil companies; and, decades earlier, the involvement of corporations (including big banks) in the Holocaust.³⁸

Because of the workings of the system of complementarity, which is discussed below, some delegations at the Rome Conference felt that the inclusion of corporate criminal liability would cause jurisdictional and practical problems. This means that where national legal systems do not recognise corporate criminal liability, this could hardly be seen as their being unwilling or unable to deal with the crime in question, as per the complementarity-regime.

Because of the difficulties mentioned above, France ultimately decided to withdraw the proposal.

36 Stoitchkova (2010:14).

37 For a comparative perspective, see Kemp (2012:215–218).

38 Stoitchkova (2010:15). For more detail see Bachmann (2007).

The exclusion of corporate criminal liability from the ICC jurisdictional regime is relevant for the discussion of international criminal justice responses to climate change. It is assumed, for purposes of this article, that corporations are not only active role-players in the global economy, but indeed also contributors to the human and commercial activities that cause climate change. The implications of this observation are further explored below.

3. *The Principle of Complementarity*

The jurisdictional regime of the International Criminal Court can perhaps best be described as justice in reserve: the ICC will only step in if states party to the Rome Statute are unwilling or unable to investigate and prosecute the crimes which fall under the jurisdiction of the ICC. This is known as the principle of complementarity. The principle is provided for in Article 17 of the Rome Statute:

1. having regard to paragraph 10 of the Preamble and article 1, the court shall determine that a case is inadmissible where:
 - (a) the case is being investigated or prosecuted by a State which has jurisdiction over it, unless the State is unwilling or unable genuinely to carry out the investigation or prosecution;
 - (b) the case has been investigated by a State which has jurisdiction over it and the State has decided not to prosecute the person concerned, unless the decision resulted from the unwillingness or inability of the State genuinely to prosecute;
 - (c) the person concerned has already been tried for conduct which is the subject of the complaint, and a trial by the Court is not permitted under article 20, paragraph 3;
 - (d) the case is not of sufficient gravity to justify further action by the Court.
2. In order to determine unwillingness in a particular case, the Court shall consider, having regard to the principles of due process recognised by international law, whether one or more of the following exist, as applicable:
 - (a) the proceedings were or are being undertaken or the national decision was made for the purpose of shielding the person concerned from criminal responsibility for crimes within the jurisdiction of the court referred to in article 5 [currently genocide, crimes against humanity and war crimes];
 - (b) there has been an unjustified delay in the proceedings which in the circumstances is inconsistent with an intent to bring the person concerned to justice;
 - (c) the proceedings were not or are not being conducted independently or impartially, and they were or are being conducted in a manner which,

in the circumstances, is inconsistent with an intent to bring the person concerned to justice.

3. In order to determine inability in a particular case, the Court shall consider whether, due to a total or substantial collapse or unavailability of its national judicial system, the State is unable to obtain the accused or the necessary evidence and testimony or otherwise unable to carry out its proceedings.

It is obvious from the text of Article 17 that the issue of complementarity is very complex.³⁹ It involves the intricate relationship between the ICC and states. It underscores the ICC as an instrument of international criminal justice-in-reserve. Complementarity puts the emphasis on the *national* application of international criminal law. At the same time one can view the principle of complementarity as a form of fairness and quality control over national criminal justice systems. In this sense it reminds us of the constitutional role of international criminal justice mechanisms such as the Rome Statute of the ICC, as noted above. Thus, one can say that the principle of complementarity is also a manifestation of global governance.

D. The Potential Role of International Criminal Justice in Environmental and Climate Change Law

From the discussion above, it should be clear that the evolving system of international criminal justice (both in terms of substantive law and in terms of enforcement) can be regarded as an important piece of global governance. The International Criminal Court as the 'face' of international criminal justice is imperfect. Not only is it not meant to be the sole or even the most important enforcer of international criminal law, it also lacks certain mechanisms that would be necessary to address possible crimes against the environment and, more broadly, crimes in the context of climate change.

The exclusion of corporate criminal liability, complementarity, and the lack of substantive jurisdiction over crimes against the environment were noted. But it was also noted that the system of international criminal justice, including the ICC, is an evolving system. It is dynamic. The Rome Statute of the International Criminal Court also provides for amendment procedures. The mechanics and technical aspects of amendment aside, consideration will now be given to the possibility of criminalising crimes against the environment (including crimes of sufficient gravity to be regarded as crimes that

39 For a discussion see Zahar & Sluiter (2008:455f.).

contribute to climate change). A brief discussion will then follow on the ICC as a possible forum for the prosecution of crimes against the environment.

I. Attempts to Criminalise Crimes against the Environment under International Law

The possible criminalisation of crimes against the environment will now be addressed in terms of two distinct but related subject matters: environmental crimes (or crimes against the environment), and crimes that contribute to climate change.

It is beyond the scope of this exploratory article to analyse fully the elements of crimes against the environment as crimes under international law. The aim here is to outline the most important aspects and basic elements to the extent that they are relevant for the purposes of a discussion about the general theme of international criminal justice and climate change.

1. Crimes against the Environment

It was noted above that the International Law Commission prepared a Document on Crimes against the Environment in the context of the preparatory work that included a draft statute for an international criminal court. While the ICC eventually materialised (in terms of the Rome Statute of the International Criminal Court), crimes against the environment were not part of the package.

The short history of the Document on Crimes against the Environment (henceforth DCAE) underscores the fact that the normative underpinnings of international criminal law always (or at least since Nuremberg) seemed to have favoured the *protection of the human person directly*. Indeed, Tomuschat pointed out that at Nuremberg, no charges were brought on account of the immense damages to the natural environment during the Second World War. Even the ban on “poison or poisoned weapons” in terms of the so-called Law of The Hague on the Rules and Methods of Warfare sought to prevent the immediate impact on military personnel, not on the natural

environment – even though these weapons could have lasting damaging effects on the environment.⁴⁰

The lack of substantive and enforcement jurisdiction with respect to crimes against the environment at Nuremberg resulted in the fact that the International Law Commission, which was tasked to codify the principles of Nuremberg after the completion of the Nuremberg Trials, also did not address the issue of crimes against the environment. The Nuremberg Principles are therefore silent on the matter, and the subsequent first Draft Code of Offences against the Peace and Security of Mankind (1954) also did not include any new crimes that were not mentioned in the Nuremberg Principles.

Decades later, in 1986, however, environmental awareness and the work of a special rapporteur resulted in the submission that the list of crimes against humanity should include a category of crimes against the environment. This form of crime against humanity would be: “any serious breach of an international obligation of essential importance for the safeguarding and preservation of the human environment”.⁴¹

During the debates at the International Law Commission’s thirty-eighth session, the majority of speakers supported the notion of crimes against the environment (as crimes against humanity). Some offered caution on the basis that crimes against the environment do not fit within the structure and normative foundations of crimes against humanity. Others warned that more clarity is needed (also important from a legality point of view). In terms of the general principles of criminal liability, it was noted that intent (*dolus*) will be required for liability for crimes against the environment. Following the debate, and following the further work of the Special Rapporteur, a revised article on crimes affecting the environment made it into the seventh report (that preceded the adoption of the 1991 Draft Code of Crimes against the Peace and Security of Mankind). The definition of crimes affecting the environment in the seventh report (1989) thus provides that the following constitute crimes against humanity: “Any serious and intentional harm to a vital human asset, such as the human environment”.⁴²

40 Tomuschat (1996:para. 3.).

41 *Yearbook of the International Law Commission*, 1986, Vol II (Part One), 85–86, cited in Tomuschat (1996:para. 5).

42 *Yearbook of the International Law Commission*, 1989, Vol II (Part One), 86, cited in Tomuschat (1996:para. 7).

In the 1991 Draft Code of Crimes against the Peace and Security of Mankind, crimes against the environment were eventually not listed as crimes against humanity, but rather as a new crime, namely, causing wilful and severe damage to the environment: “An individual who wilfully causes or orders the causing of widespread, long-term and severe damage to the natural environment shall, on conviction thereof, be sentenced to...”⁴³ It should be mentioned that this crime could be committed in times of peace or during an armed conflict. It was not supposed to be linked to an armed conflict. However, by 1996 the independent crime of causing wilful and severe damage to the environment was not listed in the Draft Code. Article 20 of the Draft Code of Crimes against the Peace and Security of Mankind (1996)⁴⁴ provided for a war crime in the form of the use of methods or means of warfare not justified by military necessity with the intent to cause widespread, long-term and severe damage to the natural environment and thereby gravely prejudicing the health or survival of the population. The notion of crimes against the environment thus moved from a form of crime against humanity (the reports preceding the 1991 Draft Code), to an independent crime of causing wilful and severe damage to the environment (1991 Draft Code), and back to a more limited notion of crime against the environment as a war crime during an armed conflict (1996 Draft Code).

As noted above, none of the modalities for the criminalisation of crimes against the environment (as an independent group of crimes under international law) were eventually adopted at the Rome Diplomatic Conference on the International Criminal Court in 1998. The Rome Statute of the ICC provides, in line with the approach adopted for purposes of the 1996 Draft Code, for the war crime (in the context of an international armed conflict) of intentionally launching an attack in the knowledge that such an attack will cause incidental loss of life or injury to civilians or damage to civilian objects or “widespread, long-term and severe damage to the natural environment

43 Article 26 Draft Code of Crimes against the Peace and Security of Mankind (1991) *Report of the International Law Commission*, 43d Session, UNGAOR, 46th Session, Supplement No. 10, A/46/10 (1991), reproduced in van den Wyngaert (2005:323–329).

44 Draft Code of Crimes against the Peace and Security of Mankind (1996), *Yearbook of the International Law Commission*, 1996, Vol II(2), available at <http://www.un.org/law/ilc/texts/dcodefra.htm>, last accessed 14 October 2012.

which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated.”⁴⁵

It is thus clear that the Rome Statute of the ICC is much more restricted in terms of the substantive notion of crimes against the environment. It is a form of war crime in the context of an international armed conflict. It is a far cry from the more progressive view of crimes against the environment as either a stand-alone international crime or as a crime against humanity – committed during times of peace or during an armed conflict.

Next, the possibility is briefly considered of reviving the debate about crimes against the environment for inclusion in the Rome Statute (that is, during a future revision conference), or to provide for crimes against the environment in a separate convention (comparable to the Genocide Convention⁴⁶ or the four Geneva Conventions⁴⁷).

2. *A More Comprehensive Criminalisation of Crimes against the Environment (Incorporating the Dangers of Climate Change)*

Any discussion of the possible criminalisation of crimes against the environment, incorporating the element of climate change, must take due notice of the normative context and developments of the past twenty years. A prominent development was the adoption of the United Nations Framework Convention on Climate Change (1992).⁴⁸ The primary aim of the Framework Convention is the stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame

45 Article 8(2)(b)(iv) Rome Statute of the International Criminal Court, 1998.

46 Convention on the Prevention and Suppression of the Crime of Genocide (1948) *UN Treaty Series*, Volume 78, 227.

47 Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field (1949) *UN Treaty Series*, Volume 75, 31; Convention for the Amelioration of the Condition of the Wounded, Sick and Shipwrecked Members of the Armed Forces at Sea (1949) *UN Treaty Series*, Volume 75, 85; Convention Relative to the Treatment of Prisoners of War (1949), *UN Treaty Series*, Volume 75, 135; Convention Relative to the Protection of Civilian Persons in Time of War (1949), *UN Treaty Series*, Volume 75, 287.

48 United Nations Framework Convention on Climate Change (UNFCCC), 1992, 31 *ILM* 849. For commentary on the subject of climate change and the normative impact of the Framework Convention, see Dryzek et al. (2011); Vinales (2011).

sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.⁴⁹

The very broad normative and policy objectives reflected in the Framework Convention can at best be the *starting point* for a discussion on the elements of a future international crime against the environment. With reference to the crime of causing harm to the environment, as provided for in the 1991 Draft Code of Crimes against the Peace and Security of Mankind, the Government of the United States, for instance, reacted as follows:

This article, dealing with damage to the environment, is perhaps the vaguest of all the articles. The article fails to define its broad terms. There is no definition of 'widespread, long-term and severe damage to the natural environment'. Similarly, the term 'wilfully' is not defined, thereby creating considerable confusion concerning the precise volitional state needed for the imposition of criminal liability. The term 'wilfully' could simply mean that the defendant performed an act voluntarily, i.e. without coercion, that had the unintended effect of causing harm to the environment. 'Wilfully' could also be construed to impose criminal liability only when the defendant acted for bad purpose, knowingly, and intending to cause serious harm to the environment. As presently drafted, the meaning of 'wilfully' is subject to a variety of interpretations. This confusion is magnified by the draft Code's failure throughout to specify the necessary mental and volitional states needed for the imposition of criminal liability.

The reaction quoted above is indicative of an approach that emphasises the strict application of general principles of criminal law. Aspects like the legality principle (which was discussed earlier as one of the key features of the international criminal justice system) demarcate and limit the criminal law content of broader normative (policy-oriented) propositions. A number of considerations in the context of the criminalisation of crimes against the environment should be considered:

a) The Protected Interest: The Environment

It is clear from the debates, reports and various draft texts and other international instruments informing the various Draft Codes of Crimes against Peace and Security of Mankind that 'environment' connotes 'human environment' as well as 'natural environment'. The 15th International Congress

49 Article 2 of the UNFCCC.

of Penal Law, which was held in Rio de Janeiro in 1994, adopted the following description of environment in its resolution on crimes against the environment:

Environment means all components of the earth, both abiotic and biotic, and includes air and all layers of the atmosphere, water, land, including soil and mineral resources, flora and fauna, and all ecological inter-relations among these components.⁵⁰

Thus, *natural* environment is the emphasis. Other aspects of the environment in which we live (including our cultural spaces) are best protected under a separate framework, as indeed is the case with war crimes, which criminalises wanton destruction of cultural property.

b) Gravity and Scale: Requirements of Seriousness

Crimes under international law, especially the so-called atrocity crimes (genocide and crimes against humanity) and the crime of aggression, usually become relevant for the international criminal justice system because of their gravity and scale. Thus, for instance, the Rome Statute of the International Criminal Court proclaims that it has jurisdiction over persons for the most serious crimes of international concern (Article 1), and further, that the ICC shall determine that a case is inadmissible where it is not of sufficient gravity to justify further action by the court (Article 17).

To the extent that one can say that climate change (caused by the increase of greenhouse gas concentration in the atmosphere)⁵¹ affects the environment in such a way as to cause, for instance, wholesale destruction of ecosystems, it must be viewed as serious and of sufficient gravity for purposes of international criminal justice action.

The requirement of seriousness for purposes of international criminal justice is in line with international instruments that criminalise crimes under international law. Article 55 of Additional Protocol I to the Geneva Con-

50 Reproduced in *Yearbook of the International Law Commission*, 1986, Vol II (Part One), 85–86, cited in Tomuschat (1996:para. 25).

51 Article 2 UNFCCC.

ventions (1949),⁵² for instance, refers to the protection of the natural environment against widespread, long-term and severe damage.

c) Harm to the Environment: An International Dimension

The types of crimes relevant for international criminal justice are those that affect the whole of humankind. This is a normative perspective. It is not a factual question of territorial impact. ‘International’ in this context does not mean ‘more than one jurisdiction’ or ‘more than one state’. The inherent nature of crimes like genocide and crimes against humanity is that they affect and shock the whole of humanity, hence the term *international crime*.

It has been suggested that an international element is present in a crime when the “commons of humankind have been affected”.⁵³ The environment, climate and complex ecosystems are, to the author’s mind, commons of humankind and any severe, serious or long-term damage to the environment (including as a result of climate change) is, at least as a matter of principle, worthy of international action, including via the system of international criminal justice.

d) An Autonomous Crime against the Environment (Not Linked to Armed Conflict or Crimes against Humanity)

It was noted that, at present, the environment is a protected aspect for purposes of war crimes law. Crimes against the environment were not adopted as crimes against humanity or as autonomous crimes under the Rome Statute of the International Criminal Court, or any other international criminal tribunal. There is, at present, no comprehensive treaty that provides for crimes against the environment.

The aim here is not to provide the content of a comprehensive instrument on crimes against the environment. This is a subject for future research. It must be noted that there are certain pointers in this regard. Some of them are briefly mentioned here.

52 Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (1977) (Protocol I), UN Doc A/32/144, 15 August 1977, reproduced in van den Wyngaert (2005:455–494).

53 Tomuschat (1996:para. 32).

First, attempts to codify and provide for a comprehensive framework on the criminalisation of crimes against the environment (or ecocide) are not new. In the 1970s a draft International Convention on the Crime of Ecocide was prepared by the international law scholar Richard Falk. This draft convention was proposed and discussed in the context of an evaluation of the effectiveness of the Genocide Convention of 1948.⁵⁴ The spirit of the draft text is today kept alive by the Ecocide Project at the Human Rights Consortium, School of Advanced Study, University of London.⁵⁵ The project's concept of ecocide rests on two key notions:

Ascertainable ecocide is a crime of consequence, primarily arising out of corporate damaging and destructive activity which is primarily governed by ineffectual and nominal civil legislation. In the case of *non-ascertainable ecocide* (other causes – e.g., tsunamis, rising sea levels – climate change-driven) there is currently no coherent international mechanism in place to help territories that are rendered unable to self-govern and are in need of emergency assistance. Instead, we deal with each disaster on a 'case by case' basis after the event.

The concept of ecocide, together with the work that was done by the International Law Commission in the context of the Draft Codes of Crimes against Peace and Security of Mankind, provides a solid basis for further research and proposals on a comprehensive international criminal justice response to crimes against the environment, including the consequences of climate change. To criminalise an autonomous crime against the environment is an important (indeed, vital) step, but one must also take into consideration the necessary enforcement regime. A few points in this regard are given below.

II. *A Framework for Enforcement*

1. *National Level: States as Agents of the International Community*

Serious crimes against the environment affect the whole of humankind. A global (or, in legal terms, *international*) response is required. It is not enough to leave enforcement to individual states. It is an open question whether states are always willing or able to prosecute violations of environmental

54 Falk (1973).

55 See <http://www.sas.ac.uk/hrc/projects/ecocide-project>, last accessed 14 October 2012.

laws. South Africa is a case in point. A 2012 report⁵⁶ noted that, while the National Environmental Management Act⁵⁷ provides for a number of criminal offences, individuals and companies often apply to the relevant ministry for *ex post facto* authorisation of relevant parts of the law that were violated. The Act does indeed provide for such *ex post facto* authorisation, but an almost institutionalised practice of this nature seems to be an abuse and violation of the letter and spirit of the Act. It reflects poorly on the political and institutional will to combat violations of environmental laws. It furthermore underscores the point that states alone cannot be trusted with matters affecting the environment – especially if the impact goes beyond the local environment. An international or transnational approach is needed. The eventual criminalisation of crimes against the environment at international level might help to force states to take seriously their custodial duties as protectors of the environment on behalf of all humanity.

2. *Regional Level*

In terms of geography and political pragmatism, it might make sense to advance an agenda of criminalisation of crimes against the environment at regional level. This might, at least in the short or medium term, be more realistic than to push for a true international regime on criminal liability for crimes against the environment.

The Council of Europe Convention for the Protection of Environment through Criminal Law⁵⁸ does not create a direct or vertical supranational or international enforcement regime. It rather focuses on the creation of certain obligations (contracting states must, for instance, introduce certain specific criminal provisions into their domestic criminal laws) and (horizontal) international cooperation in criminal matters.

In the context of the European Union (EU), a number of so-called euro-crimes have developed. A number of EU instruments provide for the criminalisation of certain protected interests. These include crimes against fair competition, crimes against the integrity of the financial sector, crimes against human dignity, crimes against the democratic society and crimes

56 See <http://www.legalbrief.co.za/>, last accessed 11 October 2012.

57 Act 107 of 1998.

58 CETS No. 172, available at <http://conventions.coe.int/Treaty/en/Html/172.htm>, last accessed 15 October 2012.

against the environment. In terms of EU Directives,⁵⁹ member states must criminalise various forms of conduct related to the environment.

The Draft Protocol on Amendments to the Protocol on the Statute of the African Court of Justice and Human Rights (African Union) provides for the creation of an African Court with international criminal law jurisdiction over certain crimes of regional and international concern. These include the classic 'core' crimes under international law (genocide, war crimes, crimes against humanity), as well as other crimes of concern such as drug trafficking, human trafficking, and corruption. The Draft Protocol also provides that the Court shall have jurisdiction over the crime of trafficking in hazardous wastes. This is the closest that the Draft Protocol gets to the criminalisation of crimes against the environment.

At first glance, the regional examples (Council of Europe, EU, and African Union) mentioned above seem to be steps in the right direction – namely, a regional approach to crimes that clearly affect more than just national or parochial interests.

It is beyond the scope of this article to analyse fully these proposed regional instruments. Regarding developments in the African Union, the following can be noted. The creation of a criminal chamber in the African Court of Justice and Human Rights, with jurisdiction over persons responsible for serious international crimes or crimes that affect the African region as a whole, should in principle be a commendable development to end impunity for these crimes. The problem is that many observers see the creation of this 'African Criminal Court' as a political stunt aimed to undermine or disrupt the jurisdictional regime of the International Criminal Court.⁶⁰ More than 30 African states are also states party to the Rome Statute of the International Criminal Court. It is thus not clear how the proposed African Criminal Court will fit into the complementarity regime of the ICC. Since the ICC does not have jurisdiction over crimes such as drug trafficking, corruption and the (limited) crime against the environment of trafficking in hazardous waste, the African Criminal Court may yet prove to be a useful supplementary criminal regime to the ICC. A possible consequence might be that a (relatively) successful regional criminal regime can serve as impetus for an expanded substantive jurisdiction of the ICC over crimes such as human traf-

59 For instance Directive 2008/99. For a discussion see Klip (2012:218).

60 Manirakiza (2010).

ficking and environmental crimes. Of course, it could also lead to nothing. Only time will tell.

3. *International Level*

The International Criminal Court is the best available vehicle for the direct application of international criminal law at international level. It is, of course, complementary to national criminal justice systems. The emphasis is thus on the national application and enforcement of international criminal law. The ICC has limitations as well. It does not have jurisdiction over legal persons (corporations). Its substantive jurisdiction is, at present, limited to crimes against humanity, war crimes, and genocide. The Rome Statute of the ICC provides for amendment procedures and the first Review Conference on the Rome Statute (held at Kampala in 2010) proved that it is indeed possible to expand the substantive jurisdiction of the ICC. However, the inclusion of the crime of aggression, long recognised as one of the core crimes under international law and indeed described as the “supreme international crime” at Nuremberg, was perhaps less difficult in the end precisely because of the historical basis for the criminalisation of aggression. Crimes against the environment, let alone crimes in the context of climate change, are yet to be regarded as universally recognised criminal notions. It is not only at the substantive level that environmental crimes or crimes in the context of climate change might prove to be problematic in terms of the ICC regime. As pointed out above, the ICC has jurisdiction only over natural persons. Any expansion of the substantive jurisdiction of the ICC to include crimes against the environment or crimes in the context of climate change, must also be accompanied by an expanded jurisdiction of the ICC to include corporate criminal liability.

E. Concluding Remarks

If one accepts, as one should, that climate change affects the whole of humankind, then one also needs to accept that a global strategy to address this phenomenon is needed. The paradigm of global governance is an appropriate context for a debate about the best strategies and responses to climate change and global environmental calamities.

International criminal law, and the evolving system of international criminal justice, has the potential to be a key “piece” of global governance. Climate change and environmental changes can only be addressed in terms of a global response. States on their own, with territorial or parochial approaches to law enforcement (including criminalisation of crimes against the environment) cannot effectively address the challenges of climate change. Regional approaches seem to underscore the national implementation of environmental laws but do not present a real transnational enforcement regime. This author therefore argues that the international criminal justice system, with the International Criminal Court as a key role-player, has the potential to be an important legal response to a changing environment. Much work needs to be done in terms of the substantive and enforcement jurisdiction of the ICC. But if that can be achieved, the transformational impact will be that many states will be able to act as agents of a truly global response to climate change via the complementarity enforcement regime provided for in the Rome Statute of the International Criminal Court.

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Abstract

The field of climate change litigation is developing rapidly. The cases are abundant, mainly in the United States and Australia, but also in other countries. Already, numerous climate change cases have been decided by international organisations and by national courts. At the international level, climate change litigation faces barriers which are typical of international environmental disputes. There are no adequate international organisations which have compulsory jurisdiction. At the national level, the cases are grouped into two categories: civil cases against companies that are major greenhouse gas (GHG) emitters, and administrative cases against governments or administrative agencies. At the national level, civil lawsuits against GHG emitters still need to clear considerable hurdles, such as providing proof of negligence, causality or harm, before effective remedies can be advanced. The administrative litigation is likely to be more effective. *Massachusetts v Environmental Protection Agency* (EPA) culminated in a landmark decision because it forced the EPA to regulate GHGs as air pollutants. Some decisions in Australia based on general environmental principles were effective in making the administrative decisions more low-carbon-oriented. Although it has hitherto often been unsuccessful, litigation can in future also provide a path to enforce climate change policies.

A. Introduction

Twenty years ago, in 1992, Principle 10 of the Rio Declaration remarked that “environmental issues are best handled with the participation of all concerned citizens, at the relevant level”. To put this into practice, the member countries of the United Nations Economic Commission for Europe in 1998 adopted the Convention on Access to Information, Public Participation in

Decision-making and Access to Justice in Environmental Matters (Aarhus Convention).

The objective of this convention is to guarantee three pillars of environmental rights: access to information, public participation in decision-making, and access to justice (collectively referred to as “Green Access Rights”). These pillars are now embedded in national legislation and judicial decisions in many countries. The access to justice plays a direct and important role in promoting environmental policy and providing citizens with the means to ensure their meaningful participation in decision-making relating to environmental matters.¹

Recently, local governments, environmental non-governmental organisations (NGOs) and affected individuals have been increasingly promoting litigation in this regard, either via lawsuits or via alternative dispute resolution (ADR). The cases abound, mainly in the United States (US) and Australia.² But the numbers are growing in Asia (Thailand and Nepal), Europe (Germany and the United Kingdom (UK)), Africa (Nigeria), and Latin America (Belize and Peru).³ In short, the present global expansion of climate change litigation is recognised.

In Japan, the climate change policy has depended mainly on “voluntary approaches”,⁴ in cooperation with actors in various sectors. Nonetheless, there are some cases seeking access to data kept by the government about greenhouse gas (GHG) emissions of each factory unit in the country. Recently, environmental lawyers, NGOs, individuals and polar bears⁵ went to conciliation against power companies, demanding GHG cuts from their factory units. That is the so-called Polar Bear case.

Compared with other environmental litigation, climate change litigation is a brand-new phenomenon. Notwithstanding the many challenges to be overcome, the number of cases is increasing. What are the main reasons for that? And to what extent is this kind of litigation successful and effective?

1 The number of environmental courts and tribunals is increasing. There are over 350 in 41 countries, see Pring & Pring (2009).

2 Preston (2010).

3 For documentation on some of these cases, see <http://www.climatelaw.org/cases>, last accessed 25 January 2013.

4 Okubo (forthcoming 2013).

5 Polar bears (*Ursus maritimus*) are indeed parties in this conciliation. See also Morath (2008:23-40).

What kind of impacts could it have on climate change policy and related legislation reform? There are still many uncertainties and hurdles to clear.

These climate change cases have been decided by international organisations and by national courts.⁶ At the national level, the cases are grouped into two categories: civil cases against companies that are major GHG emitters (e.g. power plants) and administrative cases against governments or administrative agencies.

While it is likely that civil lawsuits, typically in tort, need to clear considerable hurdles, such as proving negligence, causality or harm, before resulting in effective remedies, some administrative lawsuits challenging administrative decisions or acts have been relatively successful. The *Massachusetts v Environmental Protection Agency* (EPA) is a landmark decision. It has triggered and inspired further litigation all over the world.

In fact, litigation could also provide a path to enforce climate change policies.⁷ Also, it might sharpen policymaking by pushing two core issues: adaptation (preparing for the unavoidable and foreseeable effects of climate change) and mitigation (reducing GHG emissions in order to curb climate change). That will directly and indirectly influence governmental decision-making, company behaviour and public awareness.

B. Climate Change and Human Rights

The modern human rights system can be traced back to the Universal Declaration of Human Rights, adopted by the United Nations on 10 December 1948. Since then, human rights have been developing through treaties, such as the International Covenant on Economic, Social and Cultural Rights, which details its scope.

Despite the recent recognition of human rights implications arising from climate change, most countries still address such matters as an exclusive ecological problem. The human rights lens can also be helpful in approaching climate change.⁸

6 Osofsky (2005).

7 Osofsky (2007b); Posner (2007).

8 International Council on Human Rights Policy (2008).

The Human Rights Council has adopted some resolutions⁹ linking human rights and climate change. Reiterating this concern, the Council in 2011 remarked that “climate change poses an immediate and far-reaching threat to people and communities around the world, and has adverse implications for the full enjoyment of human rights”.¹⁰ Also, it remarks that the climate-change-related impacts have a range of implications for the effective enjoyment of internationally accepted human rights, including the rights to life, to food and water, and to a healthy environment, and the rights of indigenous people, particularly.

It is especially important to consider the above-mentioned rights from the perspective of climate victims and the most climate-vulnerable countries. However, these rights are difficult to enforce. One of the difficulties is that climate-change damages can be attributed only indirectly to their perpetrators.

Considering the interconnections between human rights and climate change, any enforcement instrument one might have will be mutually beneficial for both issues. This is why litigants have started to bring suits arguing that damages caused by climate change are concrete violations of human rights. On the other hand, public interest litigation aiming at protecting a healthy environment and promoting environmentally sustainable development could also contribute to guarantee human rights.

C. Climate Change Cases at the International Level

Until the present, there has been no adequate international organisation for settling environmental disputes, including climate change cases. Perhaps that is why there have been only a few cases at the international level.¹¹

9 UN Human Rights Council Resolutions on Human rights and climate change, 7/23 of 28 March 2008 and 10/4 of 25 March 2009.

10 UN Human Rights Council Resolution on Human rights and climate change, A/HRC/18/L26/Rev. 1 (30 September 2011).

11 Sands (1999); Burns (2008); Preston (2011a:256-262).

I. Inter-American Commission of Human Rights – The Inuit Case

The *Inuit* case is one of the first involving climate change litigation.¹² In December 2005, an alliance of Inuit from Canada and the US filed a petition on behalf of all Inuit people before the Inter-American Commission of Human Rights. They alleged that the human rights of the Inuit had been violated owing, in large part, to the failure of the US to curb its GHG emissions.

The petitioners contended that the effects of global warming constitute violations of Inuit human rights for which the US are responsible.¹³ In fact, the petitioners argued that each state is responsible either jointly or severally.¹⁴ The most challenging aspect was to demonstrate the causality between the omissions of the US government and the suffering of particular local people in climate-sensitive areas. In 2006, the Commission rejected the petition as unmotivated.

In 2008, the Inuit village of Kivalina and the City of Kivalina, Alaska, jointly took action at national level against 22 energy companies, including big oil companies such as ExxonMobil Corporation, BP Private limited company, Chevron Corporation and Shell Oil Company.¹⁵ Kivalina alleged a breach of the federal common law of public nuisance for unreasonable emission of GHGs. It asserted that the city is being forced to relocate itself since global warming had diminished the ice cap, bringing about a sea-level rise. Therefore, a pecuniary compensation was sought.

After the District Court dismissed the proceedings,¹⁶ the Court of Appeals for the Ninth Circuit held on 21 September 2012 found that the Clean Air Act, its respective EPA regulations and the EPA action that the Act authorised displaced the appellants' common law nuisance claims.¹⁷ Circuit Judge Sidney R. Thomas recognised that “[o]ur conclusion obviously does not aid Kivalina, which itself is being displaced by the rising sea. But the solution to Kivalina’s dire circumstance must rest in the hands of the legislative and executive branches of our government, not the federal common law”.

12 Goldberg & Wagner (2004); Osofsky (2007a).

13 International Council on Human Rights Policy (2008:41).

14 (ibid.:42).

15 Breakfield (2011).

16 *Kivalina v ExxonMobil* 663 F.Supp.2d 863, NDCal September 2009.

17 *Kivalina v ExxonMobil Co.*, No. 09-17490, 2012 U.S. App. LEXIS 19870, 9th Cir. 21 September 2012.

II. *International Court of Justice – The Tuvalu Case*

The Small Island States are the most climate-vulnerable countries. They have tried to force the developed countries to take adequate action to reduce GHGs through various measures. In 2002, Tuvalu threatened to take action against Australia and the US in the International Court of Justice (ICJ).¹⁸ At that time Australia was the biggest per capita producer of GHGs. The US are the world's single biggest polluter by means of such gases. Both had refused to ratify the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC).¹⁹

However, Tuvalu has never commenced any proceeding. The first hurdles were jurisdiction and standing. Although state parties to the United Nations Charter may bring disputes before the ICJ against any other member state, it is further required that both parties accept the jurisdiction of the court. The US rescinded their acceptance of the compulsory jurisdiction in the 1980s and it is unlikely that the US would agree to bring a case before the ICJ.²⁰ As to standing, Tuvalu has, in addition, to demonstrate not only that it has suffered a violation of its legal rights, but also that it has suffered as a result of a breach of the obligations under the UNFCCC.²¹

III. *European Court of Justice*

The *Inuit* case and the *Tuvalu* case mentioned above involved certain communities struck by global warming and their pursuit of compensation. It is however worth emphasising that climate change litigation comprises an even wider range of demands than those which thwarted these plaintiffs.

Not only climate-sensitive people figure as plaintiffs. Also big corporations, blamed for a big share of GHG emissions, have been playing the role of petitioner. However, in such cases, they challenge governmental regulation on climate change. Several cases of this nature have been brought before the European Court of Justice (ECJ).

18 Okamatsu (2005). For further articles see <http://www.tuvaluislands.com/warming.htm>, last accessed 22 April 2013.

19 Australia ratified the Kyoto Protocol on 3 December 2007.

20 Preston (2011a:259).

21 Okamatsu (2005:5).

In Europe, if a national court is in doubt about the interpretation or validity of a certain EU law, it may ask for the advice of the ECJ. This advice is called a *preliminary ruling*. Such an expediency is often used in climate change litigation cases in Europe, as is demonstrated below.

1. *Arcelor Cases*

Cases involving the Emission Trade Scheme (ETS) constitute typical examples of climate change cases brought to the ECJ. The steel company Arcelor has brought a series of litigation challenging the Directive 2003/87/EC (ETS Directive) and its implementation by member states. Arcelor firstly filed a lawsuit in France. It argued that the Directive infringes on its fundamental rights to property and the freedom to pursue an economic activity by requiring it to operate its plants under unsustainable economic conditions. Arcelor also insisted that the Directive infringes on the principle of equal treatment by making the ETS compulsory to the steel sector and voluntary for the chemical and non-ferrous metal sectors.

The French court referred only to the issue of breach of the principle of equal treatment to the ECJ and dismissed the other requests. In 2008, the ECJ held that the Directive did not infringe on the principle of equal treatment by treating comparable situations differently:²²

In view of the novelty and complexity of the scheme, the original definition of the scope of Directive 2003/87 and the step-by-step approach taken, based in particular on the experience gained during the first stage of its implementation, in order not to disturb the establishment of the system were within the discretion enjoyed by the Community legislature.

2. *Aviation Case*

In 2008, the EU introduced an ETS specific for aviation under the Directive 2008/101/EC. Then, the UK issued a regulation in order to enforce this Directive within its boundaries. Based on the allegation that such further regulation is, in fact, an infringement of the Chicago Convention, the Air Trans-

22 C-127/07, *Soci t  Arcelor Atlantique et Lorraine and Others v Premier Ministre and Others*, 2008, paras. 61, 73, 74.

port Association of America, the United Airlines and the American Airlines filed a petition before the British Justice.

The administrative court in the UK referred the case to the ECJ. Some environmental NGOs, such as WWF-UK and Earthjustice, intervened in the process. On 21 December 2011, the ECJ decided for the validity of the 2008 Directive. As for the Chicago Convention, it concluded that (a) since the EU had never actually ratified such a convention, the Directive was not bound to it; and (b) the Directive 2008/101 was also not invalid in the light of Article 15(3) of the Open Skies Agreement, inasmuch as it provided in particular for the application of the ETS in a non-discriminatory manner to aircraft operators established both in the EU and in third States.²³

Even if binding only EU countries, the ECJ plays an important role as an international forum for climate change litigation. Other organisations still have to overcome many obstacles to achieve the same status. Some motions were proposed at the Rio+20 Conference to establish an International Environmental Court.²⁴ However, it does not seem to be an easy task.

D. Lawsuits against Emitters at the National Level – Tort

Recently, there have been more cases targeting major emitters of GHGs based on public nuisance grounds.²⁵ Private litigants have brought civil actions to enforce environmental legal provisions by making major emitters mitigate GHG emissions. They have also sought compensation for losses and damages caused by the effects of these gases in the atmosphere.

23 C-366/10, *Air Transport Association of America and Others v Secretary of State for Energy and Climate Change*, 2011, paras. 71, 155-157.

24 See ex. BOND-DEG – UK NGO’s Joint Rio+20 Narrative, 2011, http://icecoalition.com/wp-content/uploads/2011/11/20111101_-_BOND-DEG_-_UK_NGO_Rio_Joint_Narrative_-_FINAL-1.pdf, last accessed 3 February 2013. See Call for action from lawyers and environmental law organizations, http://www.petitions24.com/rio20_call_from_lawyers_and_organizations, last accessed on 3 February 2013.

25 Grossman (2003); Harper (2006:672–698); Farber (2008); Hunter & Salzman (2007); Preston (2011a:3–14).

I. Not a Judicial Question, but a Political One?

The most famous case is said to be *American Electric Power v Connecticut*. Twelve states, a municipality and three environmental NGOs sued five electric power companies, alleging that the fossil fuels burnt by the defendants represented around 10% of all carbon dioxide in the US.

The plaintiffs sought injunctive relief aiming at establishing a cap on the defendants' GHG emissions, with annual reductions over the next ten years. The plaintiffs alleged that the companies' contribution to climate change constituted a public nuisance.

The District Court dismissed both suits, remarking that they were actually non-justiciable political questions.²⁶ The Second Circuit reversed the sentence and held that the political question doctrine did not bar the suits and that the plaintiffs had standing.²⁷ In other cases, such as *California v General Motors*,²⁸ some district courts dismissed cases, holding that it was impossible to decide the matters without making an initial policy determination which is not subjected to judicial discretion.²⁹ Therefore, the fact that the Second Circuit denied the application of the "non-justiciable doctrine" represented an important precedent.

However, in 2011, the Supreme Court turned down the request.³⁰ Although it reaffirmed the plaintiffs' standing, it held that the Clean Air Act displaces any federal common law right to seek abatement of carbon dioxide emissions from power plants fired by fossil fuels.³¹

II. Requirements of Ordinary Tort and Specificities of Climate Change Litigation

If the litigants overcome the "non-justiciable doctrine" encumbrance, they still have to succeed in complying with tort requirements. In this case, the

26 *Connecticut v American Electric Power*, 406 F. Supp. 2d 265 (S.D.N.Y. 2005).

27 *Connecticut v American Electric Power*, 582 F. 3d 309 (2d cir.2009).

28 *California v General Motors*, 2007 U.S. Dist.LEXIS 68547 (N.D.Cal. 17 September 2007). State of California voluntarily dismissed its appeal on 19 June 2009.

29 Thorpe (2008).

30 *American Electric Power v Connecticut*, 131 S.Ct.2527 (2011).

31 Osofsky (2012); O'Connell Miller (2012).

main hurdles are to answer the following questions – and substantiate their answers:

- What is the damage?
- What is the duty of care and what is the breach of duty?
- What risks are reasonably foreseeable and when does such foreseeability arise?
- How may the causation be identified?

In another famous case, *Comer v Murphy Oil*, victims of Hurricane Katrina sued oil and coal companies, among others. The plaintiffs insisted that the defendants had a duty to conduct their businesses in such a way as to avoid unreasonably endangering the environment, public health, as well as the citizens of Mississippi. The defendants argued that the causal link between the emissions, the sea-level rise and Hurricane Katrina was too attenuated, and that the defendants were but some of many contributors to climate change.

The District Court dismissed the request in 2007 on the grounds that the plaintiffs lacked standing and that their claims presented non-justiciable political questions.³² In 2009, the Court of Appeals rejected the defendants' contention and found that the plaintiffs had shown that the injuries were fairly traceable to the defendants' actions.³³ The case was immediately remanded to the District Court. However, the reversal was vacated when the Fifth Circuit agreed to rehear the appeal en banc. Before the rehearing, the Appellate Court lost its quorum, which triggered, by the appellate rules, the rehearing dismissal. Because the Fifth Circuit's opinion had already been vacated, the dismissal by the District Court in 2007 was reinstated. Because the Supreme Court denied the plaintiffs' request for a writ of mandamus,³⁴ they filed *Comer II* in 2011. The Southern District of Mississippi dismissed it on 20 March 2012.³⁵

Although some of the difficulties have been partially cleared in several cases, there are still many barriers for injunction and compensation claims against GHG emitters.³⁶

32 *Comer v Murphy Oil*, No.1:05-cv-436 S.D. Miss., 18 April 2006.

33 *Comer v Murphy Oil*, 585 F.3d 855, 5th Cir 2009.

34 *In re Ned Comer*, 131 S. Ct. 902 (2011).

35 *Comer v Murphy Oil*, No. 1:11CV220-LG-RHW, Slip op., S.D. Miss. 20 March 2012.

36 Butti (2011).

E. Administrative Cases against Governments or their Agencies

Not only individuals who were victims of climate change effects are seeking legal countermeasures or compensation. In countries where an open standing approach is adopted, local governments and NGOs have also been taking action in the courts. In this area, there have been some remarkable cases that were successfully concluded.

In Australia, where standing requirements are quite flexible, climate change litigation cases, including several successful ones, are increasing.³⁷ In this sense, the Land and Environment Court (LEC) in New South Wales deserves special attention.

Climate change cases against governments fall into two categories: (a) mitigation of GHG emissions; and (b) adaptation to the consequences of climate change.

I. Administrative Cases Relating to Mitigation

1. Massachusetts v EPA

The most famous and remarkable climate change litigation case is *Massachusetts v EPA*.

Section 202 of the *Clean Air Act* requires the EPA to prescribe the standards applicable to the emission of any air pollutant from any class of new motor vehicle. The EPA rejected the rule-making petition to regulate the emissions of GHGs because such gases were not to be considered air pollutants. The State of Massachusetts, along with 11 other states, three cities and several environmental NGOs sought in court a review of the EPA's decision.

Firstly, the Supreme Court³⁸ upheld the standing of the State of Massachusetts because Massachusetts had suffered actual harm as the owner of the state's coastal land which is affected by sea-level rise and storms resulting from climate change.³⁹

37 Bach & Brown (2008); Preston (2011b); Millner & Ruddock (2011).

38 *Massachusetts v EPA*, 549 U.S. 497 (2007).

39 Abate (2008).

Secondly, and the most important point, the Supreme Court found that GHGs are air pollutants and, therefore, the statutory provision authorised the EPA to regulate GHG emissions.

Thirdly, the EPA argued that GHG emissions from new motor vehicles contribute so insignificantly to the petitioners' injuries that the agency cannot be hauled into federal court to answer for them. The Supreme Court ruled against the EPA's contention and, in addition, stated that the EPA administrator must determine how new motor vehicle GHG emissions will endanger public health in the future.

Finally, the Supreme Court held that EPA regulation on GHGs might not reverse global warming, but there was a great likelihood that it would reduce emissions, thus reducing the effects of GHGs as a consequence.

In response to the Supreme Court's ruling, the EPA on 7 May 2010 issued a regulation establishing greenhouse gas emission standards for light-duty vehicles.⁴⁰ On 13 May 2010, the EPA issued the final GHG Tailoring Rule.⁴¹ This rule stipulates that projects that substantially increase GHG emissions (e.g. power plants and boilers) will require a specific permit.⁴²

The decision in the *Massachusetts v EPA* case that GHGs are indeed air pollutants has inspired other cases in the US and in other countries. In Japan, in 2011, environmental lawyers, NGOs, individuals and polar bears went to conciliation in the Environmental Dispute Coordination Commission against power companies. That is the so-called Polar Bear case.

The Environmental Dispute Coordination Commission, established in 1972, provides mediation, conciliation, arbitration and adjudication services. It consists of a chairman and six commissioners appointed by the prime minister, subject to the consent of the Diet.

The petitioners of the Polar Bear case required the companies to reduce carbon dioxide emissions. However, the Commission dismissed this case. One of the reasons is that the Commission deals with environmental pollution disputes, and climate change was not considered to be such. The Basic Environmental Law distinguishes environmental pollution and other environmental problems. The definition of environmental pollution includes air pollution, but it does not expressly refer to climate change. On 11 May 2012,

40 EPA, Final Rulemaking: Model Year 2012-2016 Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards.

41 Final Rule: Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule.

42 Hwang (2009).

the applicants sued the government, seeking judicial review of this dismissal.⁴³

2. *Gray v Minister for Planning*

In the case *Gray v Minister for Planning*, the plaintiffs sought a sentence declaring void the decision of the director-general which considered as adequate the environmental impact assessment (EIA) of an open-cut coalmine in New South Wales. The applicant argued that EIA should have considered not only the GHG emissions of the mine itself, but also emissions downstream, i.e. those resulting from the burning of the coal yet to be mined.

The assessment of GHGs in the EIA was conducted by the entrepreneur's consultants principally in accordance with the GHG Protocol 2004, issued jointly by the World Business Council for Sustainable Development and the World Resources Institute (WRI), namely the WBCSP GHG Protocol. This protocol refers to three scopes of assessment. Scope 3 is an optional report category that comprises all other indirect GHG emissions. In other words, the scope of the assessment is the emissions of the company itself, but those occurring in sources not owned or not controlled by the company. In this case, Scope 3 was ignored in the EIA of the coalmine.

Also, according to the Environmental Planning and Assessment Act (EPA Act) of New South Wales, entrepreneurs must provide the Environmental Authority with a detailed GHG assessment. Based on that, the applicant alleged that it was mandatory for the director-general to require a Scope 3 report in the EIA.

The Land and Environment Court (LEC) of New South Wales held that the discretion of the director-general must be exercised in accordance with the purposes of the EPA Act which includes the encouragement of ecologically sustainable development. Furthermore, particularly considering the principle of intergenerational equity and the precautionary principle, the court held that GHG downstream emissions (e.g. coal burning) were a matter of relevance and should have been included in the EIA of the mine. On that basis, the director-general's decision was sentenced null and void.⁴⁴

43 See plaintiff's HP [Kikoteki Seigi wo motomete] (only in Japanese) at <http://climateg-j.org/>, last accessed 3 February 2013.

44 *Gray v Minister for Planning* (2006) 152 LGERA 258.

This decision has influenced the development of case law,⁴⁵ strengthening the importance of the principle of ecologically sustainable development. It also forced the government of New South Wales to introduce the State Environmental Planning Policy 2007 and to ensure that indirect emissions are considered in the decision-making processes.⁴⁶

3. *Drake Brockman v Minister for Planning*

There are some cases that were not successful, but led to change of policy or projects. In *Drake Brockman v Minister for Planning*,⁴⁷ the applicant challenged the minister's approval of a concept plan for urban redevelopment in central Sydney.

The applicant claimed that: (a) the available GHG emission information would not be sufficient to enable the minister to carry out a careful evaluation to avoid relevant damage to the environment; (b) the minister failed to make the entrepreneur bear the onus of proving that the redevelopment would have no or negligible impacts on climate change; and (c) the minister neither undertook a risk-weighted assessment of the various options for redevelopment of the site, nor considered alternatives that could reduce impacts on climate change.⁴⁸

In view of the alleged failure of the minister to demand or properly assess GHG emissions impacts, the applicant, based on experts' reports, also argued that GHG emissions from the project would be substantial and equivalent to 0.45% of the total emissions in the City of Sydney.

The LEC turned down the request. The court found that there was no factual basis for suggesting that the minister had failed to consider ecologically sustainable development when approving the project.⁴⁹

Nevertheless, there was significant pressure on the entrepreneur, who then redesigned the concept plan of the development.⁵⁰ According to the new

45 (ibid.); Preston (2011b).

46 (ibid.:495).

47 *Drake Brockman v Minister for Planning* (2007) 158 LGERA 349.

48 (ibid.:at 7).

49 (ibid.:at 129).

50 (ibid.); Preston (2001b:508).

plan, the developer adopted innovative sustainable initiatives, including striving for 100% carbon neutrality in operation.⁵¹

II. Cases Relating to Adaptation to the Consequences of Climate Change

There are several cases relating to adaptation. *Gippsland Coastal Board v South Gippsland Shire Council*⁵² is one such case relating to the denial of permission for development. It involved six permit applications for dwellings on lots of 2 to 4 hectares in a coastal area of the State of Victoria, Australia. The case is of particular interest because of the potential sea-level rises resulting from climate change.

The Victorian Civil and Administrative Tribunal held that, owing to the possibility of more severe storms and sea-level rises as effects of climate change, the risk of future inundation of the land is reasonably foreseeable. Therefore the land is unsuitable for residential development. The Tribunal applied the precautionary principle and refused to grant the permit for the development. The Tribunal concluded that increases in the severity of storm events coupled with rising sea levels create a reasonably foreseeable risk of inundation of the subject land and the proposed dwellings, and that this is unacceptable.⁵³

This decision has influenced the state planning policy. On 18 December 2008, the State of Victoria introduced a new Department competent to manage coastal hazards and coastal impacts of climate change.⁵⁴ Now, the State Planning Policy Framework requires decision-makers to apply the precautionary principle to planning and management decisions by considering the risks associated with climate change.⁵⁵

Although the Victorian Justice decision represents an important precedent, the relevance of climate change to the urban planning process and decision-making process in general is still in an evolutionary phase. Other countries also provide examples of climate change administrative litigation

51 See <http://www.frasersbroadway.com.au/broadway/sus2.htm>, last accessed 3 February 2013.

52 VCAT 1545, 29 July 2008.

53 (*ibid.*:at 46–48).

54 Direction No.13, Managing Coastal Hazards and the Coastal Impacts of Climate Change Based on Section 12(2)(a) of Planning and Environment Act 1987.

55 15.08 of the Amendment VC 52 to Victoria Planning Provisions under Planning and Environment Act.

related to adaptation. In Thailand, after the 2011 flood, more than 300 plaintiffs, including some environmental NGOs, sued the government for compensation based on state liability to avoid flood damages. Such cases are expected to increase, especially in climate-vulnerable developing countries.

F. Conclusion

Climate change litigation is a new and often contentious field, but is developing rapidly. It has not always been successful; or rather it has often been unsuccessful. However, this is no surprise. Since we still rely on traditional legal systems and theories, there are many hurdles yet to be cleared. It is recognised that litigation is an important measure of participation of the public as watchdog. From this perspective, there are signs that climate change litigation is likely to be fruitful.

Climate change litigation at the international level faces barriers which are common for international environmental disputes. There are no adequate international organisations that have compulsory jurisdiction. The ECJ however plays an important role. It has competence both to ensure that the member states comply with obligations under the EU treaties and also to interpret EU law at the request of the national courts.

At national level, civil lawsuits against GHG emitters are still likely to face considerable obstacles, even if the emitters have had direct or indirect effects on government and companies. If the litigants overcome the “non-justiciable doctrine”, they still have to succeed in complying with tort requirements, such as to establish causation. At present, the administrative litigation is likely to be more effective. It includes litigation relating to, among others, disclosure of information, regulation of GHGs, review of EIAs or permission for development plans, and adequate adaptation measures.

In particular, it is remarkable that some decisions in Australia based on general environmental principles (e.g. ecologically sustainable development and precaution) were effective in making the ensuing administrative decisions more low-carbon-oriented. Additionally, the decision of the Supreme Court in *Massachusetts v EPA* in the US also has significance because it forced the EPA to regulate GHGs as air pollutants and has inspired other litigation not only in the US, but also in other countries.

Climate change litigation could promote and strengthen climate change policy as well as contribute to guarantee human rights. At the same time,

peculiarities of the climate change issue, such as the relatively long-term effects and global impacts, require a more strategic and integrated approach with other measures, such as alternative dispute resolution, access to information and citizens' participation in government decision-making processes.

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Abstract

International climate-change-related litigation is a topic that receives considerable academic and media attention. However, somewhat surprisingly, although the international climate regime turned 20 in 2012 and anthropogenic climate change is an international environmental concern, there are, in fact, hardly any climate-change-related disputes before international judicial and quasi-judicial bodies. Only the Compliance Committee established under the Kyoto Protocol, the Inter-American Commission on Human Rights, the International Centre for Settlement of Investment Disputes, the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Committee, and the National Contact Points set up under the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises have dealt with international *cases* with bearing on climate protection. Neither the International Court of Justice, nor the dispute settlement bodies of the World Trade Organization, nor the International Tribunal for the Law of the Sea have as yet heard a climate case. The outcomes of the few international climate cases that have actually taken place are rather disappointing. Only the decisions of the Kyoto Compliance Committee support the interests of climate protection as laid out in the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (KP). None of the other bodies have so far contributed to strengthening the international climate regime or to clarifying protection duties of states under general international law.

There is an obvious lack of legal mitigation commitments by states considering the acute problem of climate change and Intergovernmental Panel on Climate Change (IPCC) projections of severe changes in our natural environment with corresponding damage being experienced by states and people alike. The authors have some belief that international dispute settlement and compliance control bodies – drawing on the language agreed to in the UNFCCC and the KP as well as international customary law – could and

should set objective ‘markers’ in the ongoing debate on the international climate regime and thereby help to bridge the political gap and drawbacks the climate regime is experiencing. For example, a court like the International Court of Justice could be asked a question such as: What are the obligations of states under international law in relation to preventing the causes of climate change, minimising its adverse effects and providing compensation for climate change damage? Adjudication in this sense might provide a service to the global commons, i.e. our atmosphere, irrespective of country specifics.

In this article, therefore, the authors not only give an overview on climate change cases dealt with in the international sphere, but also present a list of existing bodies with jurisdiction for all manner of potential disputes, and look at whether and to what extent these bodies can set their *objective marker* with a view to protecting the global climate. To clarify which types of cases might be dealt with by which body, the authors also look at the question of *who has access* to these institutions, given that states have been so reluctant to make use of international bodies in the interest of environmental protection.

A. Introduction and Structure

I. Intention and Scope

This article intends to give an overview of a topic that receives academic and media attention, but for which there is in fact only very little practical experience to draw from: dispute settlement and compliance control, or, possibly, litigation related to anthropogenic climate change in the international sphere.

The past years have seen quite some literature on the topic,¹ yet mostly related to the question in what form national jurisdictions can or are responding to this *new* issue (new in the sense of courts having to deal with it; not so new in the sense that the international climate regime turned 20 in 2012). There are, to date, also quite some interesting court cases to look at in this national setting – especially in the United States of America (USA), but also in other countries – which give a glimpse of the disputes that might

1 Lord et al. (2011); Faure & Peeters (2011).

lie ahead. Yet, a case busying an international tribunal or court with issues of general mitigation duties, damage prevention or even a damage claim has only been brought once – and only if the petition filed by the Inuit to the Inter-American Commission on Human Rights (IACoMHR) in 2005² is considered *a case* before a dispute settlement body. This will be discussed further in Section II.

This of course does not imply that the compliance system of the Kyoto Protocol has been idle – and depending on the definition of dispute settlement or litigation, these cases will be counted as *international climate cases*. The same is true for the two cases brought to the attention of the so-called National Focal Points under the OECD Guidelines for Multinational Enterprises. These will be discussed in some detail in Section C.VIII.

Still, given the obvious lack of legal mitigation commitments by states considering the acute problem of climate change and Intergovernmental Panel on Climate Change (IPCC) projections of severe changes in our natural environment with corresponding damage to be experienced by states and people alike, it is almost surprising to see that an initiative to involve the International Court of Justice (ICJ) has only been officially started in 2012. This will be discussed further in Section C.I.2.

So what can we actually do when asked to describe international institutions and avenues for dispute settlement for climate change when there seems to be little international dispute? There is a need to ‘craft’ types of cases – possible scenarios that might be presented for dispute settlement – to set the scene for discussion of the aptitude of existing international bodies. The authors do this with some belief that international dispute settlement bodies (the definition of these terms will be discussed in the next section) have the opportunity to set an *objective marker* in the ongoing debate in the international climate regime, where states, despite being told of the urgency of the matter by bodies such as the IPCC, still refrain from accepting adequate mitigation (i.e. reduction) obligations for their greenhouse gas emissions. Adjudication in this sense might provide a service to the global commons, i.e. the atmosphere, irrespective of country specifics. A court like the ICJ might be asked a question such as –³

2 For an overview and the petition see http://www.ciel.org/Climate_Change/Inuit.html, last accessed 29 March 2013.

3 See for this and other options FIELD (2011).

What are the obligations of States under international law in relation to preventing the causes of climate change, minimizing its adverse effects and providing compensation for climate change damage?

If this question were asked, it could to some extent help bridge the political gap and drawbacks the climate regime is experiencing. With this in mind, the authors also look at the question of *who has access* to these institutions, given that civil society or individuals may be more willing to entice an international body to work, than states as such, which are the original actors in international law.⁴ In the following sections, we therefore present existing bodies with jurisdiction for all manner of potential disputes, and look at whether and to what extent they can set their *objective marker* with a view to protecting the global climate.

II. International Judicial and Quasi-judicial Institutions

The starting point of this paper is the existing international judicial and quasi-judicial institutions that can serve to settle climate-related disputes. The authors will not dwell too much on the question of what litigation is in legal practice,⁵ but cling to an institutional focus instead. The authors' understanding of 'quasi-judicial' is very broad: it encompasses arbitration and compliance control.

In a study conducted in 2004, the Project on International Courts and Tribunals (PICT) counted more than 80 active international judicial, quasi-judicial, implementation control, and other dispute settlement bodies.⁶ Here the main focus is on international judicial and quasi-judicial bodies that are or could be especially relevant for the enforcement of international climate change law or rules that could serve the protection of the global commons. According to the authors' understanding, an international dispute involves either states or nationals of several states and has its substantive legal basis in international treaty or customary law.

4 For an in depth study of access of environmental NGOs to international judicial and quasi-judicial proceedings see Zengerling (forthcoming 2013).

5 See for some insight Lord et al. (2011); Faure & Peeters (2011) but also – for the USA as jurisdiction the website of the Columbia University Law School at <http://web.law.columbia.edu/climate-change>, last accessed on 29 March 2013.

6 See overview on PICT synoptic chart Version 3.0, November 2004, available at http://www.pict-pecti.org/publications/synoptic_chart/synop_c4.pdf, last accessed 29 March 2013.

1. Judicial Dispute Settlement

According to the definition of the Project on International Courts and Tribunals, an international judicial body is a permanent institution, composed of independent judges, adjudicating disputes between two or more entities, at least one of which is either a state or an international organisation, works on the basis of predetermined rules of procedure, and renders decisions that are binding.⁷ Inter-state dispute resolution has its origins in international arbitration, and some authors argue that on the international level there is no significant difference between judicial settlement and arbitration. However, the authors of this article share the view that over time international judicial settlement before permanent international courts and tribunals has become a separate category of dispute resolution. Arbitration is far more flexible. For example, parties to a dispute are free to determine the arbitrators, procedure and applicable law. In judicial settlement, these decisions have been taken by all states parties to the international treaty on which the court is based. Therefore international judicial procedures are more responsible to the community of states parties as a whole and consequently more appropriate to influence the further development of international law than arbitral tribunals whose mere focus is on the settlement of a dispute within the framework of case-specific rules set by the respective parties to a dispute on a case-by-case basis.

The above-mentioned characteristics of international judicial bodies make them most appropriate for the development of a coherent international legal order. Additional crucial features are that they usually provide for some control of the implementation of their judgments and that their hearings and judgments are open to the public. Such characteristics enhance independence, predictability, and transparency and thus crucial elements of judicial control. To this extent, international judicial dispute settlement bodies are also most appropriate for the application and development of international climate change law. However, there are several constraints that prevent them from playing a crucial role in the enforcement of international climate change law. The main constraint is that traditional access rules prevent climate change cases from reaching such bodies in the first place. Usually, only states have standing before international judicial dispute settlement bodies and the case law shows that states very rarely bring cases before an inter-

7 (ibid.:2).

national judicial or quasi-judicial body in order to protect environmental interests. Other constraints are the types of remedies available under dispute settlement.

The international judicial institutions discussed in this study are the International Court of Justice, the International Tribunal for the Law of the Sea, the three regional human rights courts, and the dispute settlement bodies of the World Trade Organization.

2. Arbitration

International arbitration is an alternative form of international dispute settlement that produces legally binding decisions. Article 37 of the 1907 Hague Convention for the Pacific Settlement of International Disputes states that international arbitration –

has for its object the settlement of disputes between States by Judges of their own choice and on the basis of respect for law. Recourse to arbitration implies an engagement to submit in good faith to the Award.

Arbitral proceedings are of special interest in this analysis for several reasons. Firstly, inter-state arbitration played a significant role in the development of international environmental law. For example, the *Pacific Fur Seals Arbitration* (1893), the *Trail Smelter* case (1935/1941) and the *Lac Lanoux* case (1957) were inter-state disputes settled via arbitration.⁸ Secondly, in many Multilateral Environmental Agreements (MEAs), including the UNFCCC and the United Nations Convention on the Law of the Seas (UNCLOS), dispute settlement clauses establish ad hoc or institutional arbitration as the form of dispute settlement chosen by the parties to the agreement in the event of conflict.⁹ Thirdly, arbitration is a relevant form of dispute settlement in this context because a growing number of bi- and multi-lateral investment treaties provide for investor-state arbitration and such disputes often involve public, including environmental, interests. Furthermore, investor-state arbitration, especially as provided for by the International Centre for the Settlement of Investment Disputes (ICSID) Convention,

8 These cases have often been discussed; for an overview see Sands (2003:213) with further references.

9 See for example arbitration according to Annex VII under the 1982 United Nations Convention on the Law of the Sea.

is a notable development with regard to direct access of non-state actors to international dispute settlement procedures. There are also rules of international arbitration for conflicts between private parties. However, in this context the analysis focuses on inter-state and investor-state international arbitration.

Two bodies of international arbitration are discussed here: The Permanent Court of Arbitration (PCA) is interesting in this context because it is the oldest forum of international arbitration and has been suggested by some authors as a suitable basis for an international environmental court. The ICSID is an international arbitral tribunal located at the World Bank which settles disputes between private investors and states. Both bodies have already dealt with climate change litigation. The choice of ICSID as an arbiter is offered in treaties such as the Energy Charter Treaty, and many others, including bi- and multilateral investment agreements.

3. *Compliance Control*

In addition to judicial dispute settlement and arbitration, there is also the concept of compliance control, which is a treaty-based concept and thus here mainly relevant in the context of the Kyoto Protocol. The concept of compliance control was developed in the late 1980s and 1990s as a means to enhance implementation and compliance control within international law, for example in the fields of arms control, human rights, and international labour law. Compliance theory is based on the assumption that there is a general propensity for states to comply with international law.¹⁰ It further assumes that the main reasons for non-compliance are unclear treaty language, lack of capacity to implement obligations under a treaty appropriately, and the temporal dimensions of treaty obligations. A “managerial model” based on a cooperative and non-confrontational approach is considered more apt to address such cases of non-compliance.¹¹ Especially in the field of environmental law, compliance control mechanisms have several advantages compared to traditional means of dispute settlement, and the compliance system of the Kyoto Protocol will be looked at not so much in detail but in terms of what its role can become.

10 For further information on compliance theory see Chayes & Handler (1998).

11 (*ibid.*:3, 22ff.).

The Kyoto Protocol is considered an innovative testing ground for compliance theory and is equipped with a facilitative and an enforcement branch. To the authors, it is a quasi-judicial institution because it almost fulfils the PICT definition of an international judicial body. Multilateral environmental agreements usually contain both a clause on dispute settlement and a clause on compliance control, and so does the climate regime. Article 18 of the Kyoto Protocol empowers the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (CMP) to approve a compliance mechanism and Article 19, referring to the UNFCCC, provides for settlement of disputes at the ICJ or an arbitral tribunal. Compliance control is thus not meant to replace dispute settlement but to complement it.

Finally, included in this analysis are two institutions with an administrative rather than a quasi-judicial character, but which also serve to resolve disputes of application and implementation of international rules: the World Heritage Committee and the National Contact Points established under a quasi-legal instrument, the OECD Guidelines for Multinational Enterprises.

III. Types of Cases

There are many different types of cases that could be imagined for the purpose of this article. They will be grouped and categorised according to numbers and letters below.

1. State – State

Naturally, the starting point is a classical state-to-state conflict about the scope or limitations of the legal obligations relating to climate change. These could be based on both treaty law and customary law, i.e. the no harm rule.¹² The remedy sought could be geared at prevention, i.e. seeking stronger mitigation action such as was done in the nuisance case of many US cities and states against electricity utilities in the national courts of the USA¹³ (Type A.1). The remedy could also be prevention in the sense of direct protection measures, i.e. adaptation assistance such as sea walls, re-

12 As for example discussed in the second Volume of this publication by Khan; see comprehensively Verheyen (2005).

13 See Verheyen & Lührs (2009).

forestation or resettlement of communities at risk from extremes (floods, droughts, or storms), or slow onset changes such as sea-level rise, permafrost thawing or water scarcity (Type A.2). The remedy could also – at some point – be reparation through granting land for loss of territory (a very real threat to small island states) or by affording monetary compensation (Type A.3).

2. *Individual – State*

There is the important category of cases which can be called *human rights* cases, where an individual is entitled under international treaty or customary law to invoke an international dispute settlement or quasi-judicial body to ensure the state's obligations with respect to that individual are upheld. Again, the remedy would either be mitigation (B.1) or damage prevention (B.2) or compensation (B.3).

3. *Public Trigger – State*

A type of case which is less common in international law, yet exists today is that the common interest, for example through an NGO or another public trigger, such as an (quasi) administrative body, argues against a state that the state has violated obligations owed to the common interest or certain treaty rules (C). An example would be the compliance control procedure established under the Kyoto Protocol where expert review teams may initiate compliance control procedures against states.

4. *Private Entity/Investor – State*

Today's international law also provides opportunities for investors to initiate proceedings against states before dispute settlement bodies, such as in the case of Vattenfall arguing a breach of the Energy Charter against Germany before ICSID (D). The Permanent Court of Arbitration also deals with investor-state disputes.

5. *NGO/Individual – Multinational Corporation (MNC)*

Very rarely will there be an opportunity for an NGO or an individual to argue a case based on international law before an international body against a multinational corporation, but to some extent this can be done through the system under the OECD Guidelines for Multinational Enterprises. (E.)

B. Climate Regime

Owing to its density of rules and given that the international climate regime is the pertinent treaty regime with respect to the problem of climate change, the authors set the treaty regime aside and discuss its options, which fall in the categories A, B and C, and deal with these institutions (conciliation, arbitration and compliance) first.

I. Dispute Settlement, Conciliation and Arbitration under United Nations Framework Convention on Climate Change

The UNFCCC is the treaty framework for climate change law and has an almost universal membership. The UNFCCC is discussed in many chapters of this publication¹⁴, therefore we will restrict analysis to the two relevant conciliation/dispute settlement provisions. While the UNFCCC foresees a specific dispute settlement provision, there has not been any use made of this option. Article 13 UNFCCC contains the following provision:

RESOLUTION OF QUESTIONS REGARDING IMPLEMENTATION

The Conference of the Parties shall, at its first session, consider the establishment of a multilateral consultative process, available to Parties on their request, for the resolution of questions regarding the implementation of the Convention.

Article 13 set the framework for the establishment of a compliance mechanism, which was thought to be useful in parallel to the mechanism under the Ozone regime.¹⁵ Such a consultative process for the UNFCCC parties

14 See, e.g., the contribution on international climate change policy by von Bassewitz in the second Volume of this publication.

15 Yamin & Depledge (2004:384ff.) who also describe the process of negotiations to arrive at the draft rules in Dec. 10/CP.4.

has been developed and its rules for the most part adopted in 1998,¹⁶ but have never been put in action, while the Kyoto Protocol's compliance mechanism constitutes the much more detailed and effective parallel to Article 13 UNFCCC.

Generally, it is worthwhile contemplating activating this process, as "questions regarding the implementation of the Convention" could, for example, concern the specific duties of states flowing directly from Article 2 and Article 4.2 UNFCCC, rather than from the negotiated reduction targets under the Kyoto Protocol of 1997. The process could help parties agree on criteria for implementation, such as an objective target under Article 2 (e.g. the 2°C threshold)¹⁷ with criteria of allocation of reduction commitments.

However, the constitution of the conciliation commission has not been agreed. The draft rules seem promising as it "shall be composed of persons nominated by Parties who are experts in relevant fields, such as those of science, socio-economics and the environment. The Committee may draw upon such outside expertise as it deems necessary",¹⁸ but until geographical representation has been agreed upon, no commission would be constituted.

The process is expressly not be contingent on a dispute, but shall serve to prevent a dispute and depends on the will of parties to bypass ineffective negotiations and/or dispute settlement in the interest of prompt action. Naturally, it is questionable whether parties which have been unable to agree of Rules of Procedure for the annual meetings (Conference of the Parties) or on an alternative to unanimous voting since 1992 might agree on an effective process under Article 13 UNFCCC. Yet, it might be perceivable to use such a process to move climate negotiations just a little away from political considerations, for example assigning the IPCC a more regime-focused task in such a consultative process. If a process would involve scientific fora, or a real review process of scientific findings, this might be an important step forward to set an objective marker.

16 Decision 10/CP.4.

17 For more details, see the contribution on dangerous anthropogenic climate change from the perspective of adaptation by Kristie Ebi and Ian Burton in the second Volume of this publication; Burton et al. (forthcoming 2013).

18 Decision 10/CP. 4, para. 8.

Article 14 UNFCCC¹⁹ contains the rules on dispute settlement and provides parties with a step-wise approach to be followed, as in most multilateral environmental agreements. As with Article 13 UNFCCC, this provision has not been used in practice in the 21 years of the Convention, even though some parties have made declarations of jurisdiction upon ratification as requested in Article 14 II.

19 Article 14: Settlement of Disputes:

1. In the event of a dispute between any two or more Parties concerning the interpretation or application of the Convention, the Parties concerned shall seek a settlement of the dispute through negotiation or any other peaceful means of their own choice.

2. When ratifying, accepting, approving or acceding to the Convention, or at any time thereafter, a Party which is not a regional economic integration organization may declare in a written instrument submitted to the Depository that, in respect of any dispute concerning the interpretation or application of the Convention, it recognizes as compulsory ipso facto and without special agreement, in relation to any Party accepting the same obligation:

(a) Submission of the dispute to the International Court of Justice, and/or

(b) Arbitration in accordance with procedures to be adopted by the Conference of the Parties as soon as practicable, in an annex on arbitration.

A Party which is a regional economic integration organization may make a declaration with like effect in relation to arbitration in accordance with the procedures referred to in subparagraph (b) above.

3. A declaration made under paragraph 2 above shall remain in force until it expires in accordance with its terms or until three months after written notice of its revocation has been deposited with the Depository.

4. A new declaration, a notice of revocation or the expiry of a declaration shall not in any way affect proceedings pending before the International Court of Justice or the arbitral tribunal, unless the parties to the dispute otherwise agree.

5. Subject to the operation of paragraph 2 above, if after twelve months following notification by one Party to another that a dispute exists between them, the Parties concerned have not been able to settle their dispute through the means mentioned in paragraph 1 above, the dispute shall be submitted, at the request of any of the parties to the dispute, to conciliation.

6. A conciliation commission shall be created upon the request of one of the parties to the dispute. The commission shall be composed of an equal number of members appointed by each party concerned and a chairman chosen jointly by the members appointed by each party. The commission shall render a recommendatory award, which the parties shall consider in good faith.

7. Additional procedures relating to conciliation shall be adopted by the Conference of the Parties, as soon as practicable, in an annex on conciliation.

8. The provisions of this Article shall apply to any related legal instrument which the Conference of the Parties may adopt, unless the instrument provides otherwise.

Recently, the Foundation for International Environmental Law and Development (FIELD) published a briefing note suggesting that Article 14 be activated, and in particular the conciliation mechanism as stipulated in para. 6, under which a conciliation commission *shall* be tasked with the dispute if one party requests this.²⁰ A precondition is a dispute between two or more parties “concerning the interpretation or application” of the UNFCCC or the Kyoto Protocol, and where an attempt has been made to reach settlement amongst parties within a period of 12 months. If this attempt has been unsuccessful, one party may request conciliation. Article 14 VI has some rudimentary rules on the conciliation commission to be formed (equal members from both parties to the dispute, and a jointly chosen chair). Any award flowing from the commission’s work will be a recommendation, and not legally binding, but under international law it has been common for states to follow such recommendations.

It is possible that a whole group of parties (such as small island states) can launch such a dispute, specifically raising issues of interpretation or implementation, i.e. specific obligations under the UNFCCC towards others. Thus, to some extent, such a process could involve setting important objective markers towards existing or necessary obligations to protect the global climate system. A conciliation commission could go as far as suggesting credible quantified obligations needed for fulfilling the aim set by Article 2 UNFCCC.

In the light of increasing evidence of damage beyond adaptation, and specifically enormous losses to particular countries, including loss of territory, it has been suggested that the dispute settlement provisions of the UNFCCC be used also for matters concerning loss and damage.²¹

II. Compliance Control under Kyoto Protocol

In December 2005, based on the mandate in Article 18 KP, the Conference of the Parties, serving as the Meeting of the Parties to the Protocol (CMP), established a non-compliance mechanism to facilitate the successful implementation of the commitments under the Kyoto Protocol, in particular to support the credibility of the carbon market and the transparency of ac-

20 FIELD (2012).

21 Hyvarinen (2012). See on this concept: Verheyen (forthcoming 2013).

counting by parties.²² At the end of the first commitment period, the Kyoto Protocol had 192 parties and thus an almost global membership that had signed on to what is said to be one of the most progressive international procedures of compliance control.²³

Reflecting the principle of common but differentiated responsibilities, the Compliance Committee established under the Kyoto Protocol comprises two different branches. The enforcement branch (EB) identifies cases of non-compliance and determines the consequences regarding Annex I parties (developed countries with emission reduction commitments under Annex I). Non-Annex I parties may only be subject to a compliance review procedure before the facilitative branch (FB), which advises and assists parties in complying with their commitments.

1. Scope of Review and Access

The Compliance Committee is established to facilitate, promote and enforce compliance with the commitments under the Protocol.²⁴ Among the main tasks of the enforcement branch²⁵ is to determine whether Annex I parties are not in compliance with their emission reduction targets under Article 3(1) KP; the methodological and reporting requirements under Article 5(1), (2) and 7(1), (4) KP; the eligibility requirements under Articles 6 (Joint Implementation), 12 (Clean Development Mechanism), and 17 (international emissions trading).²⁶

Depending on the type of non-compliance, the enforcement branch may apply non-punitive “consequences”.²⁷ For example, if a party is not in compliance with the eligibility requirements, the enforcement branch shall suspend the eligibility of that party.²⁸ If a party is not in compliance with its emission target, the enforcement branch shall declare the party’s non-com-

22 Procedures and mechanism relating to compliance under the Kyoto Protocol, Decision 27/CMP.1, FCCC/KP/CMP/2005/8/Add.3, 9–10 December 2005 (Compliance Procedures). The implementation of Decision 27/CMP.1 is still ongoing.

23 Brunnée (2003:255, 280).

24 Article 18 KP; Compliance Procedures at I.

25 For a detailed description of responsibilities of both branches see Oberthür & Lefeber (2010).

26 Compliance Procedures at V(4).

27 Compliance Procedures at V(6) and XV.

28 Compliance Procedures at XV(4).

pliance, deduct from the party's assigned amount for the second commitment period of a number of tonnes equal to 1.3 times the amount in tonnes of excess emissions, request the development of a compliance action plan, and suspend the party's eligibility to sell emission units.²⁹ However, it is important to note that the enforcement branch will not review compliance with the parties' emission reduction commitments under Article 3(1) KP before the second half of 2015.³⁰ Decisions of the Compliance Committee are not legally binding.

Compliance procedures may be triggered in three different ways. Any party may initiate a procedure with respect to itself (self-trigger) or with respect to another party (party-to-party trigger). Furthermore, expert review teams indicate questions of implementation in their reports under Article 8 KP and the Secretariat refers them to the Compliance Committee (public trigger).³¹ Competent intergovernmental and non-governmental organisations may submit relevant factual and technical information to the relevant branch.³² However, as far as the authors know, no NGO has yet tried to participate in a compliance procedure.

2. *Questions of Implementation*

As at March 2013, the facilitative branch has dealt with one and the enforcement branch with eight questions of implementation.³³ In May 2006 South Africa filed a question of implementation before the facilitative branch on behalf of the Group of 77 and China with respect to fifteen developed countries alleging that they failed to comply with their reporting obligations under Article 3(2) KP. The facilitative branch did not proceed against two countries because they had submitted their reports in the meantime. With respect to the other countries, the facilitative branch could not agree on a

29 Compliance Procedures at XV(5).

30 The first commitment period ended in 2012; the last inventories are due in April 2014. The ERTs must review the inventories within one year and then parties may transfer emission units during a additional period of 100 days in order to meet their emission reduction targets, Compliance Procedures at XIII.

31 Compliance Procedures at VI(1).

32 Compliance Procedures at VIII(4).

33 The cases are documented at http://unfccc.int/kyoto_protocol/compliance/question_s_of_implementation/items/5451.php, last accessed 29 March 2013.

decision during the three-week preliminary examination period.³⁴ Among the critical issues were the questions whether a submission by a party on behalf of other parties was in accordance with section VI(1) of the Annex to decision 27/CMP.1, whether it was admissible although it did not explicitly name the parties alleged to be in non-compliance and although it did not substantiate the allegations.³⁵ This stalemate experience led to the amendment of the Rules of Procedure, which now provide for certain standards for submissions.

All cases dealt with by the enforcement branch were initiated by the expert review teams through the Secretariat. Exemplarily, the non-compliance procedure against Greece is briefly outlined below. After reviewing the initial report and considering information it had gained during an in-country review, the ERT initiated a compliance procedure against Greece. The ERT found that the national system of Greece was not in full compliance with the guidelines for national systems under Article 5(1) KP and the guidelines for the preparation of the information required under Article 7 KP.³⁶

In particular, the ERT concludes that the maintenance of the institutional and procedural arrangements; the arrangements for the technical competence of the staff; and the capacity for timely performance of Greece's national system is an unresolved problem, and therefore lists it as a question of implementation.

In its Preliminary Examination the enforcement branch decided to proceed with the question of implementation and requested expert advice in the matter.³⁷ After hearing four experts and representatives of Greece the EB adopted a preliminary finding.³⁸ It determined that —³⁹

Greece is not in compliance with the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol (decision 19/CMP.1) and the guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol (decision 15/CMP.1). Hence, Greece does not yet meet the eligibility requirement under Articles 6, 12 and 17 of the Kyoto Protocol to have in place

34 Report on the third meeting of the Facilitative Branch, CC/FB/3/2006/2, 6 September 2006 at 5 and 6 and Annex I Report to the Compliance Committee on the deliberations in the facilitative branch relating to the submission entitled Compliance with Article 3.1 of the Kyoto Protocol (CC/3/2006/5).

35 *Ibid.* at Annex I at 4. A more detailed analysis is provided by Doelle (2010:240).

36 Report of the review of the initial report of Greece, FCCC/IRR/2007/GRC, 28 December 2007, at 244.

37 Decision on Preliminary Examination, CC-2007-1-2/Greece/EB, 22 January 2008.

38 Preliminary Finding, CC-2007-1-6/Greece/EB, 6 March 2008.

39 (*ibid.*:17).

a national system in accordance with Article 5, paragraph 1, of the Kyoto Protocol and the requirements in the guidelines decided thereunder.

The EB ordered that Greece shall develop a plan to come back into compliance within three months, and it stated that Greece was not eligible to participate in the three Kyoto mechanisms (emissions trading, joint implementation, and clean development mechanism).⁴⁰ After a second hearing the EB fully confirmed the preliminary finding in its final decision.⁴¹ Greece timeously submitted a first and a revised compliance plan and requested the reinstatement of eligibility under the three Kyoto mechanisms.⁴² The EB accepted the revised compliance plan. It found that Greece is no longer in non-compliance and that it is now fully eligible to participate in the Kyoto mechanisms.⁴³

3. *Conclusions and Outlook*

The compliance control mechanism established under the Kyoto Protocol is designed to ensure the functioning and the credibility of the Kyoto Protocol and thus, more specifically, its emission reduction obligations and its three core instruments: emissions trading, joint implementation, and the clean development mechanism. The scope of review of the Kyoto Compliance Committee is tailored to the states parties' obligations under the Kyoto Protocol such as emission reduction, reporting and eligibility requirements. Since such obligations aim at preventing climate change, the Kyoto Compliance Committee is accessible for types of cases of categories A.1 (state – state, prevention) and C (as the ERT can safely be considered a public trigger – state).

From an institutional point of view, the Kyoto Compliance Committee has several strong features and seems well equipped to set objective markers with respect to the specific obligations arising under the KP. Most importantly, compliance review procedures can be initiated through a non-state trigger. In practice, till the present time, all admissible cases have been brought before the enforcement branch of the Compliance Committee via

40 (ibid.:18).

41 Final Decision, CC-2007-1-8/Greece/EB, 17 April 2008, at 4 and 5.

42 Request for reinstatement of eligibility, CC-2007-1-12/Greece/EB, 27 October 2008.

43 Decision under paragraph 2 of section X, CC-2007-1-13/Greece/EB, 13 November 2008, at 13.

the ERTs. The public trigger has proved crucial for the activity of the compliance control body. Furthermore, the existence of a facilitative and an enforcement branch is a positive feature of the compliance control mechanism, since it reflects well the principle of common but differentiated responsibilities. However, in practice the facilitative branch only dealt with one case, which it deemed inadmissible, and did not actually fulfil its task as envisaged.

The non-punitive “consequences” that the enforcement branch may apply also appear to be suitable for effective compliance control, considering that several parties came back into compliance after consequences had been applied. Another strength of the mechanism is its openness for *amici curiae*⁴⁴, although to date no IGO nor NGO has participated in a procedure. Finally, it has to be stressed that the Kyoto compliance mechanism is one of the most transparent and publicly accessible international compliance procedures. All core documents are available online and all hearings held so far have been public and webcasted.

Yet, the cases dealt with by the Compliance Committee were – due to its setup and mandate – Kyoto-specific and highly technical. In all cases the EB drew on expert advice. It delivered decisions which were well-reasoned and in good time. As regards the types of cases dealt with by the Committee, it has to be pointed out that compliance with emission reduction obligations – maybe the most important measure of the credibility of the Kyoto regime – will only be reviewed from the second half of 2015. Accordingly, the related “consequence” for non-compliance with emission reduction obligations, namely the deduction of certain assigned emission amounts for the second commitment period, has not been applied yet.

Given the reluctance of states to proceed against other states before judicial and quasi-judicial bodies, it seems rather unlikely that in the future there will be more cases of category A.1 before the Kyoto Compliance Committee. The ERTs will remain the crucial path to activate the compliance control mechanism. The future influence of the Committee will also largely depend on the emission reduction scheme states parties agree to for the second commitment period. Negotiations are still pending. Especially the review of Annex I parties’ emission reduction obligations under the first commitment period will – from the second half of 2015 – generate new cases for the

44 Freely translated: Friendly Submission. This is the term used by tribunals in mostly anglo-american tradition allowing for submissions to be made with respect to a particular case by non-parties to the dispute.

Compliance Committee. How the enforcement branch is going to deal with these cases will be highly relevant for the effectiveness and strengths of the Kyoto compliance review mechanism.

C. Other International Judicial and Quasi-judicial Bodies

I. International Court of Justice

Both, the UNFCCC as well as the Kyoto Protocol provide for dispute settlement before the International Court of Justice.⁴⁵ However, no case concerning a climate change issue has been referred to the ICJ yet. As the principal judicial organ of the United Nations,⁴⁶ the only court on a global scale with a general subject matter jurisdiction and a court which has decided about environmental issues on several occasions, the ICJ could play a crucial role in future climate change litigation.

1. Jurisdiction and Access

The ICJ could deal with climate change issues in contentious or advisory proceedings.

Only states may be parties in contentious cases before the ICJ.⁴⁷ According to Article 36(1) ICJ Statute –

[t]he jurisdiction of the Court comprises all cases which the parties refer to it and all matters specially provided for in the Charter of the United Nations or in treaties and conventions in force.

Article 14(2)(a) UNFCCC as well as Article 19 KP provide for the jurisdiction of the ICJ. Under the UNFCCC, parties were invited to accept jurisdiction of the ICJ, which has scarcely been done.⁴⁸ Furthermore, according to Article 36(2) ICJ Statute, states parties can declare at any time that they

45 Article 14(2)(a) UNFCCC, Article 14 KP.

46 Article 7 and chapter XIV of the Charter of the United Nations.

47 Article 34(1) ICJ Statute.

48 See http://unfccc.int/essential_background/convention/items/5410.php, last accessed 29 March 2013. Cuba for example expressly does not accept compulsory dispute settlement, while e.g. the Netherlands will accept jurisdiction if the other Party involved does so.

recognise the jurisdiction of the ICJ as compulsory in all legal disputes concerning the interpretation of a treaty, any question of international law, the existence of any fact that would constitute a breach of an international obligation, or the nature or extent of the reparation to be made for the breach of an international obligation. So far 69 states have committed to this *compulsory* jurisdiction under Article 36(2), mostly with certain restricting conditions.⁴⁹

Advisory opinions on legal questions may be requested by the General Assembly, the Security Council, or other organs of the United Nations and specialised agencies, which are duly authorised by the General Assembly, if the legal questions arising lie within the scope of their activity.⁵⁰ Generally, advisory opinions have a consultative character and are not binding on the requesting bodies. However, certain regulations can stipulate in advance that the advisory opinion shall have a binding effect.

In contentious as well as advisory proceedings, the ICJ may apply international conventions, establishing rules expressly recognised by the contesting states; international customary law, the general principles of law, and, subject to Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.⁵¹ Thus, rules of the UNFCCC and the KP are applicable in cases before the ICJ if they are binding upon the parties to a dispute. Furthermore, international customary law, such as the no-harm rule, may be applied by the ICJ.

Chapter 39.10 of Agenda 21 encourages states to resolve disputes relating to sustainable development through recourse to the ICJ. Following the 1992 UNCED, in 1993, the ICJ set up a seven-member Chamber for Environmental Matters to rule on environmental disputes that fall within its jurisdiction. A case is brought before the Chamber for Environmental Matters rather than before the plenary Court upon agreement of the parties to a dispute. However, not a single case has been referred to the Environmental Chamber and since 2006 it has not been reconstituted.

ICJ rules do not contain *amicus curiae* provisions. However, on a few occasions the ICJ accepted submissions of International NGOs in advisory

49 See list of declarations recognising the jurisdiction of the court as compulsory at <http://www.icj-cij.org/jurisdiction/index.php?p1=5&p2=1&p3=3>, last accessed 29 March 2013.

50 Article 96 UN Charter, Article 65 ICJ Statute.

51 Article 38 ICJ Statute.

proceedings. The ICJ is free to draw on expert advice. Hearings are usually public and have been webcast since 2009. The ICJ publishes applications, documents of written proceedings, transcripts of oral proceedings, orders, and judgments on its website.

2. Case Studies

So far, the ICJ has not decided on any legal question regarding climate change. However, on a few occasions it has dealt with cases related to environmental protection.⁵² It also contributed to the development of certain principles which may be applied in climate change litigation.

In 1929, the Permanent Court of International Justice (PCIJ), predecessor of the ICJ, supported the ‘community of interest’ rule for shared access to international rivers in the *Territorial Jurisdiction of the International Commission of the River Oder* case.⁵³ This rule is still the basis for sustainable and equitable management of watercourses.⁵⁴ As the atmosphere is – in some sense – a common and shared resource, it might be possible to use some of the principles established here for an objective criterion for carbon budgets, which have been so difficult to negotiate. As with other shared resources, the atmosphere has a ‘user’ limit, which is legally and universally defined in Article 2 UNFCCC.

In the *Corfu Channel* case of 1947 the ICJ held that every state has an obligation “not to allow knowingly its territory to be used for acts contrary to the rights of other States”,⁵⁵ which has to some extent the same basis as the no-harm rule.

In the *Barcelona Traction* case it recognised the principle of *erga omnes* obligations:

In particular, an essential distinction should be drawn between the obligations of a State towards the international community as a whole, and those arising vis-à-vis another State in the field of diplomatic protection. By their very nature

52 For a comprehensive survey of cases related to environmental protection see Zengerling (forthcoming 2013).

53 *Territorial Jurisdiction of the International Commission of the River Oder (Czechoslovakia, Denmark, France, Germany; Great Britain, Sweden/Poland)* [1929] PCIJ (ser. A) no. 23, 5.

54 (ibid.:29).

55 *Corfu Channel (United Kingdom of Great Britain and Northern Ireland v Albania)*, Judgment of 9 April 1949, ICJ Reports 1949, 22.

the former are the concern of all States. In view of the importance of the rights involved, all States can be held to have a legal interest in their protection; they are obligations *erga omnes*. Such obligations derive, for example, in contemporary international law, from the outlawing of acts of aggression, and of genocide, as also from the principles and rules concerning the basic rights of the human person, including protection from slavery and racial discrimination.⁵⁶

Clearly, the protection of the global climate system – in particular to prevent the so-called tipping points – is in the interest of all mankind and it could well be argued that limiting greenhouse gases in the atmosphere is an *erga omnes* obligation, given the universal acceptance of the UNFCCC.

In *Gabcikovo-Nagymaros*⁵⁷ Hungary and Slovakia brought a case before the ICJ regarding the construction and operation of a hydroelectric dam, a joint investment between the two states. With respect to environmental matters the ICJ stated:⁵⁸

[The] need to reconcile economic development with protection of the environment is aptly expressed in the concept of sustainable development. For the purposes of the present case, this means that the Parties together should look afresh at the effects on the environment of the operation of the Gabcikovo power plant. In particular they must find a satisfactory solution for the volume of water to be released into the old bed of the Danube and into the side-arms on both sides of the river.

In this statement, the ICJ charges the parties with the task of negotiating rather than offering *objective markers*.

In *Pulp Mills on the River Uruguay* the ICJ for the first time stated that it considers an environmental impact assessment a requirement under general international law in cases of transboundary industrial activities.⁵⁹ The ICJ did not define a minimum content of an environmental impact assessment.⁶⁰ The judges considered several technical and scientific issues, for example the production technology used in the pulp mill, the impact of discharges on the water quality, as well as effects on biodiversity and air pol-

56 *Barcelona Traction, Light and Power Company, Limited (Belgium v Spain)*, Judgment, ICJ Reports 1970, 32.

57 *Gabcikovo-Nagymaros Project (Hungary v Slovakia)*, Judgment, ICJ Reports 1997, 7.

58 (ibid.:75).

59 *Pulp Mills on the River Uruguay (Argentina v Uruguay)*, Judgment of 20 April 2010 at para 204.

60 (ibid.:para 205).

lution in a rather detailed manner.⁶¹ However, they did not seek independent expert advice on these highly complex technical and scientific issues and decided the case applying burden of proof rules.⁶²

While this case turned on environmental law, it offers little insight into a potential climate case. In parts, it could even be said to obstruct such a case given its reluctance, for example, to use the precautionary principle as an argument to reverse the burden of proof. Also, the case is an example of how the ICJ refrains from setting objective markers.

The option of tasking the ICJ with an advisory opinion has been mentioned before. It has been contemplated many times, and a recent round table looked at specific questions, which have also been formulated by the Government of Palau in the UN General Assembly on 11 September 2011.⁶³ This move was supported by the Leaders of Pacific Islands Forum in October 2012⁶⁴. Yet, there has been no vote in the General Assembly, and it seems as if the initiative has not been pursued with much vigour, or even been abandoned.

3. *Conclusions and Outlook*

The ICJ could naturally deal with climate cases of category A (state – state; mitigation, adaptation, reparation, even with regard to affording damages) in contentious and category C (public – state) in advisory proceedings (as the UN General Assembly is a body serving the interest of all mankind). From an institutional point of view, among the strengths of the Court are its central role at the United Nations, its general jurisdiction, its wide range of applicable remedies, its transparent decision-making, and its theoretical option to seek expert advice. The main institutional drawback for climate cases to reach the ICJ is its limited accessibility. For state-to-state litigation seek-

61 (ibid.:paras 228, 265).

62 See also criticism in joint dissenting opinion of Judges Al-Khasawneh and Simma at paras 2, 3, 6, 14, and 28 available on the ICJ's website as part of the case file.

63 See <http://www.un.org/apps/news/story.asp?NewsID=39710&Cr=pacific+island&Cr1=#.UVngfjetZ70>, last accessed 29 March 2013. See also the comment by the Climate Justice Programme available at <http://theconversation.com/see-you-in-court-the-rising-tide-of-international-climate-litigation-3542>, last accessed 29 March 2013.

64 See <http://www.un.org/News/Press/docs/2012/sg2191.doc.htm>, last accessed 29 March 2013.

ing mitigation and adaptation measures, the political pressure not to initiate proceedings against other states has so far been too high. At the moment, it even seems that the initiative in the General Assembly to seek an advisory opinion has been stalled. An advisory opinion could also be requested by a specialised agency such as the WHO or the FAO. Unfortunately, there is no UN agency explicitly tasked with environmental protection, UNEP still only having the status of a programme. Yet, since the impacts of climate change touch on many aspects including health and food security, the two agencies could well decide to launch an advisory opinion in principle.

The environmental case load of the ICJ has been rather low. In the *Pulp Mills on the River Uruguay* case, the ICJ considered for the first time several environmental issues in a comparably detailed manner. Thus, despite the critique that the Court should have considered the technical and scientific issues in more depth, there is at least a tendency in ICJ case law towards more openness for environmental arguments. However, if a climate case is to reach the Court it would probably need to make use of *amici curiae* and expert advice, especially on climate science.

In the authors' view, the ICJ could play an important role in, for example, interpreting and adjudicating UNFCCC terms like "common but differentiated responsibilities" or "dangerous climate change" (Article 2), which are not yet fully defined.⁶⁵ Furthermore, the ICJ could contribute to the development of treaty provisions into general law. As discussed elsewhere, it also seems possible to contemplate concrete cases based on the no-harm rule.⁶⁶ Given the abundance of cases of the ICJ which had some dealing with territorial conflicts, this is even more possible considering the projections of loss of land, or at least loss of habitable land under the recent climate change scenarios.

II. *International Tribunal for the Law of the Sea*

No climate change litigation has been brought before the International Tribunal for the Law of the Sea (ITLOS) up to the present time. However, more than half of the 20 cases ITLOS has dealt with since it took up its work in 1996 relate in some way to the protection of the marine environment. Con-

65 See also Guruswamy (1997:423).

66 See Verheyen (2005).

sidering that climate change has a crucial impact on the world's seas, ITLOS might be in a position to contribute to the interpretation and further development of climate change law.⁶⁷

1. Jurisdiction and Access

The ITLOS, which is located in Hamburg, Germany, is composed of 21 independent members, and adjudicates disputes arising out of the interpretation and application of the United Nations Convention on the Law of the Sea (UNCLOS) and its subsequent agreements.⁶⁸ Part XII of the UNCLOS specifically regulates the protection and preservation of the marine environment. Currently, there are ten further multilateral agreements conferring jurisdiction on the ITLOS.⁶⁹ For example, the United Nations Fish Stocks Agreement (UNFSA) could be especially relevant for future climate change litigation.⁷⁰ Among the special chambers of the ITLOS are the Chamber for Marine Environment Disputes and the Chamber for Fisheries Disputes. A dispute is referred to any of these special chambers if parties agree to this. However, so far no case has been submitted.

The ITLOS provides for contentious and advisory proceedings.⁷¹ Law of the sea disputes may be settled before the ITLOS, ICJ or an arbitral tribunal.⁷² So far 32 out of 162 parties to the UNCLOS have chosen the ITLOS as a possible forum for the settlement of disputes.⁷³ A special Seabed Dis-

67 See for an overview of the material law parallels and perspectives Boyle (2012).

68 Article 288(1) UNCLOS; see also Articles 21 and 22 of the ITLOS Statute.

69 Article 288(2) UNCLOS. A list of such provisions is available at http://www.itlos.org/fileadmin/itlos/documents/basic_texts/Relevant_provisions.12.12.07.E.pdf, last accessed 29 March 2013.

70 United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA). According to Article 30 UNFSA the provisions of Part XV of UNCLOS regarding the settlement of disputes apply *mutatis mutandis*.

71 Articles 279–299 UNCLOS regulate the settlement of disputes, Articles 286–296 UNCLOS refer to compulsory procedures with binding decisions. For advisory opinions see Article 138(1) ITLOS Rules.

72 Article 287 UNCLOS.

73 See table on choice of procedure under Article 287 UNCLOS at http://www.un.org/Depts/los/settlement_of_disputes/choice_procedure.htm, last accessed 29 March 2013.

putes Chamber adjudicates disputes arising from activities in the Area.⁷⁴ The Assembly or the Council of the International Seabed Authority, not states parties, may request advisory opinions before the Seabed Disputes Chamber.

Generally, only state parties to the UNCLOS may be parties in proceedings before the ITLOS.⁷⁵ Certain non-state parties may act as plaintiffs or defendants before the Seabed Disputes Chamber.⁷⁶ Intergovernmental organisations, but not NGOs, may submit *amici curiae* statements in proceedings before ITLOS.⁷⁷ If disputes involve scientific or technical matters, ITLOS may seek expert advice.⁷⁸

Proceedings before ITLOS are rather transparent. In contentious⁷⁹ and advisory⁸⁰ proceedings, documents are usually made available to the public. Also hearings before the Tribunal are generally open to the public⁸¹ and transmitted via a live webcast.

2. Case Studies

For future climate change litigation, the first and so far only advisory opinion issued by the Seabed Disputes Chamber of the ITLOS can be considered the most relevant decision.⁸² Following a proposal made by Nauru, a developing country sponsoring mineral exploration activities of two corporations in the Area, the Council of the International Seabed Authority requested an advi-

74 Articles 186–191 UNCLOS.

75 Article 291(1) UNCLOS and Article 20(1) ITLOS Statute. Exceptions are provided for in Article 291(2) UNCLOS, Articles 20, 37 ITLOS Statute, and Article 187 UNCLOS. For example, the Assembly or the Council of the International Seabed Authority may ask the Seabed Disputes Chamber for an advisory opinion.

76 Article 187 UNCLOS. Such entities comprise the International Seabed Authority, the Enterprise, natural or juridical persons referred to in Article 153(2)(b) of the UNCLOS, or a state enterprise.

77 Articles 84(1)(2) and (4), 107, 115, 133 ITLOS Rules.

78 Article 289 UNCLOS, Article 82 ITLOS Rules.

79 Article 67(2) ITLOS Rules.

80 Article 134 ITLOS Rules as regards written statements and annexes.

81 Article 26(2) ITLOS Statute, Article 74 ITLOS Rules.

82 Case No. 17, Responsibilities and obligations of States sponsoring persons and entities with respect to activities in the International Seabed Area (Request for Advisory Opinion submitted to the Seabed Disputes Chamber), Advisory Opinion of 1 February 2011. All decisions are available at <http://www.itlos.org/index.php?id=35&L=0>, last accessed 29 March 2013.

sory opinion regarding legal responsibilities and obligations and possible liability of states sponsoring exploration and exploitation activities in the Area.⁸³

The Seabed Disputes Chamber held, among others, that sponsoring states have two kinds of obligations under the UNCLOS and related instruments. Firstly, sponsoring states have an obligation to ensure compliance by sponsored contractors with the terms of contract and the obligations set out in the Convention and related instruments (“due diligence obligation”).⁸⁴ Secondly, sponsoring states have so-called “direct obligations”:⁸⁵

Among the most important of these direct obligations incumbent on sponsoring States are: the obligation to assist the Authority in the exercise of control over activities in the Area; the obligation to apply a precautionary approach; the obligation to apply best environmental practices; the obligation to take measures to ensure the provision of guarantees in the event of an emergency order by the Authority for protection of the marine environment; the obligation to ensure the availability of recourse for compensation in respect of damage caused by pollution; and the obligation to conduct environmental impact assessments.

Importantly, the Chamber considers the precautionary approach also as part of the due diligence obligations of sponsoring states.⁸⁶ With respect to the status of the precautionary approach in international law, it states that –⁸⁷

the precautionary approach has been incorporated into a growing number of international treaties and other instruments, many of which reflect the formulation of Principle 15 of the Rio Declaration. In the view of the Chamber, this has initiated a trend towards making this approach part of customary international law.

Also regarding environmental impact assessment, the Chamber underlines –⁸⁸

83 Decision ISBA/16/C/13 of 6 May 2010 of the Council of the International Seabed Authority, 16th session.

84 (ibid.:110, 242 no. 3 lit A).

85 (ibid.:121, 242 no. 3 lit B).

86 (ibid.:131). To support its finding the Tribunal refers to the *Southern Bluefin Tuna* orders of 27 August 1999 and also to the contractual obligation in the Sulphides Regulations Annex 4, section 5.1, (ibid.:132, 133).

87 (ibid.:135).

88 (ibid.:145). Giving reasons for its opinion, the Chamber again refers to the *Pulp Mill* judgment of the ICJ; it considers it appropriate to apply the ICJ’s opinion on the status of the EIA, which was focused on the role of an EIA in the context of industrial activities likely to cause transboundary pollution of shared natural re-

that the obligation to conduct an environmental impact assessment is a direct obligation under the Convention and a general obligation under customary international law.

This case points to a progressive interpretation of customary environmental law by the Chamber which might be used in the climate context as there is a certain parallel between the sea bed as a common heritage of mankind (Article 136 UNCLOS) and the UNFCCC referring to a similar concept as a first item of its preamble (acknowledging that change in the Earth's climate and its adverse effects are a “common concern of humankind”). While, naturally, much could be written on the difference between “common heritage of mankind” and “common concern of humankind”, as well as the parallels in detail, this case law of ITLOS could provide a starting point of interpretation of the pollution prevention duties under UNCLOS with respect to the need to reduce greenhouse gas emissions.

Nine of the 19 contentious cases that the ITLOS dealt with are so-called prompt release cases: in five cases the ITLOS ordered provisional measures, and in only two cases it decided on the merits. The *Swordfish* case might have become the first environmental case to be decided on the merits, but it was settled out of court.⁸⁹

The prompt release procedure is especially provided for under UNCLOS and may be initiated by a state party to seek the release of a vessel detained by authorities of another state party (mostly because that vessel is caught fishing in the EEZ or territorial waters of the arresting state without license or quota).⁹⁰ In eight out of the nine prompt release cases, the vessels were detained for alleged illegal fishing. However, the prompt release procedure is not designed to address issues of illegal fishing appropriately. The ITLOS

sources, to the case at hand regarding resource exploitation in an area beyond national jurisdiction and space and resources that are considered the common heritage of humankind, (ibid.:147, 148). In contrast to the ICJ in the *Pulp Mill* case, the Chamber is in a position to further clarify the scope and content of an EIA referring to Article 206 of the Convention, the Mining Regulations and, most importantly, to the Recommendations for the Guidance of the Contractors for the Assessment of the Possible Environmental Impacts Arising from Exploration for Polymetallic Nodules in the Area, issued by the Authority's Legal and Technical Commission in 2002 pursuant to Regulation 38 of the Nodules Regulations (ISBA/7/LTC/1/Rev. 1 of 13 February 2002), (ibid.:149, 144).

89 Case No. 7, *Case concerning the Conservation and Sustainable Exploitation of Swordfish Stocks in the South-Eastern Pacific Ocean (Chile v European Union)*, Order 2009/1 of 16 December 2009.

90 Articles 292, 73 UNCLOS.

merely determines the amount of a reasonable bond or another security. The alleged violations of UNCLOS environmental law are only cursorily assessed and not remedied.

In four out of five provisional measures cases, the ITLOS prescribed provisional measures also with a view to protect the marine environment.⁹¹ The strongest language can be found in the order on the *Southern Bluefin Tuna* cases. In these cases the Tribunal adopted provisional measures under Article 290(1) UNCLOS to prevent serious harm to the marine environment. It ordered Japan to “refrain from conducting an experimental fishing programme involving the taking of a catch of southern bluefin tuna”,⁹² unless the catch is deducted from Japan’s annual national allocation. The Tribunal used the language of the precautionary principle without mentioning the term itself. However, it is important to note that this decision on provisional measures was overturned by a later decision because of lack of jurisdiction.⁹³

3. *Conclusions and Outlook*

The cases above have nothing to do with climate change or its consequences. Yet, given impacts such as acidification of the ocean, temperature increase or an increase of rough sea events, as expected with increasing levels of greenhouse gases, it can well be imagined that the law of the sea regime might be asked to provide legal guidance by affected states. Moreover, UNLCOS sets forth its own obligations on member states regarding the protection of the marine environment, which could well be said to be infringed with unabated greenhouse gas emissions.⁹⁴

Generally, ITLOS has jurisdiction to decide on climate cases of category A only. The Seabed Disputes Chamber could, in addition, deal with cases of categories C (public – state, in advisory opinions) and D (corporation –

91 Cases No. 3 and 4, *Southern Bluefin Tuna* cases (*New Zealand v Japan; Australia v Japan*), Provisional Measures, Order of 27 August 1999; Case No. 10, *MOX Plant* case (*Ireland v United Kingdom*), Provisional Measures, Order of 3 December 2006; Case No. 12, *Case concerning Land Reclamation by Singapore in and around the Straits of Johor* (*Malaysia v Singapore*), Order of 8 October 2003.

92 Cases No. 3 and 4, *Southern Bluefin Tuna* cases (*New Zealand v Japan; Australia v Japan*), Provisional Measures, Order of 27 August 1999, at 90(1)(d).

93 *Southern Bluefin Tuna* cases, Award on Jurisdiction and Admissibility, 4 August 2000.

94 A case study with these provisions in mind contains Tol & Verheyen (2004).

state), but the jurisdiction of this special Chamber is so narrowly defined (“disputes arising from activities in the Area”) that the authors can think of no scenario how a climate case could be tried there.

UNCLOS protects the high seas and the Area as global commons. However, only the Area is to a certain degree protected through a system of rules and judicial safeguards which may be triggered in the public interest. If, for example, the marine ecosystem in the high seas is damaged as a result of climate change, there are no such institutional safeguards in place to protect the global common, but only general substantive obligations such as Article 194 and 212 UNCLOS.

With regard to the effects of climate change on straddling and highly migratory fish stocks, UNFSA might become especially relevant. Under UNFSA, states parties agreed to adopt and implement measures ensuring long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks.⁹⁵ They further agreed to apply the precautionary approach.⁹⁶ Thus, for example, a state party could initiate a contentious procedure against another state party, arguing that the climate change policy of the latter threatens conservation and sustainable use of straddling and highly migratory fish stocks.⁹⁷

III. Regional Human Rights Courts

None of the three human rights courts has dealt with a climate case to date. Most prominently, however, the Inter-American Commission for Human Rights (IACoMHR) decided on a petition filed by indigenous peoples of the Arctic region against the United States because of its failure to limit its GHG emissions (*Inuit* case). Considering the severe impact climate change has had, and will have, on individuals’ lives and the courts’ case law in environmental litigation, the human rights courts can well be expected to hear climate cases in the future.

95 Articles 2 and 5 UNFSA.

96 Articles 5(c) and 6 UNFSA.

97 See also Preston (2010).

1. *Jurisdiction and Access*

The Inter-American Court of Human Rights (IACtHR) and the Inter-American Commission on Human Rights (IACoMHR) adjudicate cases regarding the 1969 American Convention on Human Rights (ACHR) and related instruments.⁹⁸ So far 25 Latin American countries have ratified the American Convention on Human Rights and recognised the jurisdiction of the IACtHR. The United States signed the Convention in 1977, but never ratified it. Other than the European Convention on Human Rights (ECHR), the Protocol of San Salvador to the ACHR provides for a right to a healthy environment.⁹⁹ Any person, group of persons, or legally recognised NGO may initiate proceedings before the IACoMHR against a state party alleging a violation of the ACHR.¹⁰⁰ Access to the IACtHR is more limited. Only states parties and the IACoMHR may initiate contentious proceedings before the Court.¹⁰¹ At the request of member states of the Organization of American States (OAS) or specific organs of the OAS, the IACtHR may also issue advisory opinions.¹⁰² The IACtHR accepts submissions of *amici curiae*¹⁰³ and its hearings are generally public.¹⁰⁴

Contentious and advisory proceedings based on the African Charter on Human and Peoples' Rights (African Charter or AfCHPR) and related instruments are adjudicated by the African Commission on Human and Peoples' Rights (AfComHPR) and the African Court on Human and Peoples' Rights (AfCtHPR).¹⁰⁵ Currently, 25 African states have recognised the Court's jurisdiction. The African Charter provides for a "peoples' right to a general satisfactory environment".¹⁰⁶ The AfComHPR, states parties, and African intergovernmental organisations may bring contentious cases before

98 Article 33 ACHR.

99 Article 11 of the Protocol of San Salvador.

100 Article 44 ACHR.

101 Article 61 ACHR. NGOs may act as advisors to the Commission during Court sessions if the Commission so allows, see Taillant (2001:25–27).

102 Article 64(1) ACHR.

103 Article 2(3) and 41 Rules of Procedure of the IACtHR.

104 Article 15 Rules of Procedure of the IACtHR.

105 With regard to the scope of jurisdiction of the AfCtHPR see Articles 3 and 7 Protocol to the African Charter. The relationship between Commission and Court has been described as rather competitive and not yet clearly organised. See Mutua (1999) and Wachira (2008).

106 Article 24 AfCHPR. See also Boyle (2010:3ff.).

the AfCtHPR.¹⁰⁷ The AfCtHPR may also issue advisory opinions at the request of any member state of the African Union (AU), the AU, its organs, or any African organisation recognised by the AU.¹⁰⁸ *Amici curiae* are not explicitly mentioned in the rules of procedure of the AfCtHPR, but individuals and NGOs that participated in procedures before the AfComHPR may continue participating before the AfCtHPR.¹⁰⁹ Hearings at the AfCtHPR are generally held publicly.¹¹⁰

The European Court of Human Rights (ECtHR) has jurisdiction on contentious as well as advisory proceedings in all matters concerning the interpretation and application of the European Convention on Human Rights (ECHR) and its protocols.¹¹¹ As of March 2013, 47 states had ratified the ECHR.¹¹² Contentious cases may be initiated by a state party or by any person, NGO or group of individuals against a state party.¹¹³ It is important to note that the ECtHR may not hear altruistic claims. Admissibility requires that the applicant has suffered significant disadvantage.¹¹⁴ Advisory opinions may be requested by the majority of the representatives of the Committee of Ministers of the Council of Europe (COE) on legal questions concerning the interpretation of the Convention and its protocols, except questions relating to the content or scope of the rights or freedoms defined in Section I (Articles 1–18) of the Convention and the protocols thereto.¹¹⁵ *Amici curiae* statements may be submitted to the ECtHR.¹¹⁶ Generally, hearings at the ECtHR are open to the public.¹¹⁷

107 Article 5(1) Protocol to the African Charter.

108 Article 4 Protocol to the African Charter.

109 Article 55 of the African Charter. Rule 35(4)(d) of the Interim Rules of Court.

110 Article 10 Protocol to the African Charter and Rule 43 of the Interim Rules of Court.

111 Articles 19, 32 ECHR.

112 See current status of ratification at <http://conventions.coe.int/treaty/Commun/ChercheSig.asp?NT=005&CM=&DF=&CL=ENG>.

113 Articles 33, 34 ECHR, Rule 36 of the Rules of Court. Criteria for admissibility are defined in Article 35 ECHR.

114 Article 35(3)(b) ECHR.

115 Article 47 ECHR.

116 Article 36(2) ECHR. See also Rule 44 (3a) of the Rules of the Court.

117 Article 40 ECHR.

2. Case Studies

All environmental cases decided by the Inter-American Court of and Commission on Human Rights were initiated by indigenous communities who were significantly affected through industrial activities on their land.¹¹⁸ The Court and Commission usually found, among others, a violation of Article 4 (right to life) and Article 21 (right to property) of the ACHR. The IA-ComHR dealt with the first and so far only climate case tried under a human rights regime. In December 2005, the Inuit Circumpolar Conference filed a petition with the Inter-American Commission on Human Rights (IACHR). The petition sought relief from violations of the human rights of Inuit resulting from climate change (or global warming) caused by greenhouse gas emissions from the United States.¹¹⁹ The IACHR rejected the petition on November 16, 2006, without reasons on the merits.¹²⁰ Since then, the IACHR has discussed the linkages between human rights and climate change several times and it remains to be seen if and how further petitions will be brought.

The AfCtHPR has not dealt with an environment-related case so far. However, the 2001 *Ogoniland* decision of the AfComHPR is a landmark decision in human and environmental rights law.¹²¹ Two human rights NGOs filed a communication against Nigeria alleging that the Nigerian government participated in oil production operations which contaminated the environment among the Ogoni People and led to serious health problems. The Af-ComHPR found a violation of, among others, Articles 4 (respect for life and integrity), 14 (right to property), 16 (right to health), and 24 (right to a general satisfactory environment) of the African Charter.

Although the ECHR does not provide for a right to a healthy environment, the ECtHR heard about 14 environmental cases. In almost all industrial pol-

118 See, for example, *Mayagna (Sumo) Awas Tingni Community v Nicaragua*, IACtHR, judgment of 31 August 2001; *The Kichwa Indigenous People of the Sarayaku and its members v Ecuador*, IAComHR, Case No. 167/03, Merits Report No. 138/09, of 18 December 2009; *Maya indigenous community of the Toledo District v Belize*, IAComHR, Case No. 12.053, decision of 12 October 2004.

119 The petition is available at http://www.ciel.org/Publications/ICC_Petition_7Dec05.pdf, last accessed 29 March 2013.

120 See Revkin (2006). No official record of the dismissal could be found.

121 *The Social and Economic Rights Action Center and the Center for Economic and Social Rights v Nigeria* (2001), AfComHPR, case no. 155/96, decision of 27 May 2002 (*Ogoniland* case).

lution cases the Court found a violation of Article 8 of the ECHR (right to respect for private and family life) and awarded between 3,000 and 24,000 Euros just satisfaction for non-pecuniary damage.¹²² Air pollution was an issue in almost all of these cases. For example, in *López-Ostra v Spain* (1994) the plaintiff and her family suffered serious health problems due to emissions from a tannery waste-treatment plant. The ECtHR found a violation of Article 8 ECHR and held that –¹²³

severe environmental pollution may affect individuals' well-being and prevent them from enjoying their homes in such a way as to affect their private and family life adversely, without, however, seriously endangering their health.

In *Tatar v Romania* (2009), a case concerning the January 2000 accident at the Baia Mare gold mine with transboundary effects in Hungary, Serbia and Montenegro, the ECtHR explicitly referred to Principle 21 of the Stockholm Declaration and Principle 14 of the Rio Declaration, which both stipulate the duty of states to ensure that local industrial activities do not cause any transboundary harm.¹²⁴

3. Conclusions and Outlook

The main strength of the regional human rights courts and commissions is their accessibility for individuals and partly indigenous communities and NGOs (case group B). However, standing always presupposes that the plaintiff has already suffered significant harm. Thus, climate change cases can only be successfully brought before court if significant damage has already occurred. Prevention and mitigation claims will therefore hardly be tried before human rights courts.

122 Article 41 ECHR. The industrial pollution cases were *Lopez Ostra v Spain*, App. No. 16798/90, judgment of 9 December 1994; *Guerra and Others v Italy*, App. No. 14967/89, judgment of 19 February 1998; *Taskin and Others v Turkey*, App. No. 46117/99, judgment of 10 November 2004; *Öneryildiz v Turkey*, App. No. 48939/99, judgment of 30 November 2004 (here, the ECtHR only found a violation of Articles 2 and 13 ECHR); *Fadeyeva v Russia*, App. No. 55723/00, judgment of 9 June 2005; *Giacomelli v Italy*, App. No. 59909/00, judgment of 2 November 2006. In *Tatar v Romania*, App. No. 67021/01, judgment of 27 January 2009 (here, the ECtHR dismissed the claim for just satisfaction).

123 *Lopez Ostra v Spain*, App. No. 16798/90, judgment of 9 December 1994 at 51.

124 *Tatar v Romania*, App. No. 67021/01, judgment of 27 January 2009 at 111.

Another barrier to successful climate change litigation before human rights courts is the limited regional scope of their jurisdiction. People and states more severely affected by climate change do often not belong to the same region as the states mainly responsible for greenhouse gas emissions. The international judiciary of human rights has not tackled a complex environmental phenomenon such as climate change. Given the fact that a signatory to one of the human rights treaties will always ‘only’ contribute to climate change and would not be solely responsible for an infringement of rights, it is difficult to imagine how and where these procedures can be used. Still, given the linkages between human rights law and refugee law and the fact that climate change will most probably contribute to forced migration,¹²⁵ these fora might well see more cases, especially in the African system – while an international system will not be at the disposal of other affected regions such as Southeast Asia.

IV. Dispute Settlement Bodies of the World Trade Organization

After the adoption of the Kyoto Protocol, there was much discussion about whether the climate and the trade regime were compatible, and about whether trade-related measures were justified to reach Kyoto targets.¹²⁶ This discussion seems to have worn out, and to date, there has been no climate-change-related dispute tried before the otherwise well-used World Trade Organization (WTO) dispute settlement mechanism.¹²⁷ The main objective of the dispute settlement mechanism is “to preserve the rights and obligations of Members under the covered agreements, and to clarify the existing provisions of those agreements in accordance with customary rules of interpretation of public international law”.¹²⁸ The covered agreements encompass, for example, the WTO agreement itself, and the three core multilateral trade agreements such as the 1947 General Agreement on Tariffs and Trade (GATT)¹²⁹, and the 1994 Agreement on Trade-Related Aspects of Intellec-

125 See McAdam (2012:52ff.).

126 See in lieu of many: World Bank (2007).

127 The first WTO climate dispute could arise from the European Union’s policy measure to integrate international aviation into its carbon trading scheme. However, so far no complaint has been filed in this matter.

128 Article 3(2) 1994 Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU), 1994 Marrakesh Agreement, Annex 2.

129 1994 Marrakesh Agreement, Annex 1A.

tual Property Rights (TRIPS),¹³⁰ but also special agreements such as the Agreement on Subsidies and Countervailing Measures (SCM).

The WTO dispute settlement bodies do not have jurisdiction on international law outside the WTO regime. However, with respect to interpretation of WTO norms, the Appellate Body has held in the *Reformulated Gasoline* case that the “General Agreement [was] not to be read in clinical isolation from public international law.”¹³¹

Only WTO members may be parties to a WTO dispute. Panels and the Appellate Body may consider submissions of *amici curiae*,¹³² but, as yet, have never formally done so. Proceedings before the WTO dispute settlement bodies are confidential,¹³³ while panel and Appellate Body reports are published.

The substantive law of the WTO regime does not contain any norms actively seeking environmental protection. WTO law does, however, provide for several norms of collision, such as Article XX GATT, allowing members under certain conditions to enact environmental policies although they result in trade barriers. All cases related to environmental protection have been tried under these types of norms.¹³⁴ The first *Shrimp-Turtle* case¹³⁵ serves as a good example of how the WTO Appellate Body referred to international environmental law in interpreting Article XX GATT:

130 (ibid.:Annex 1C).

131 *United States – Standards for Reformulated and Conventional Gasoline*, WT/DS2/AB/R, adopted 20 May 1996, at III.B. See also Marceau (1999).

132 *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R, adopted 6 November 1998, 105-108.

133 Articles 14(1), 17(10), and 18(2) DSU.

134 See *United States – Restrictions on Imports of Tuna*, GATT Doc. DS21/R (1991) and *United States – Restrictions on Imports of Tuna*, GATT Doc. DS29/R (1994); *United States – Standards for Reformulated and Conventional Gasoline*, WT/DS2/AB/R, adopted 20 May 1996; *European Communities – Measures Concerning Meat and Meat Products*, WT/DS26/AB/R, WT/DS48/AB/R, adopted 13 February 1998; *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R, adopted 6 November 1998; *European Communities – Measures Affecting Asbestos and Asbestos-Containing Products*, WT/DS135/AB/R, adopted 5 April 2001; *European Communities – Measures Affecting the Approval and Marketing of Biotech Products*, WT/DS291/R, WT/DS292/R, WT/DS293/R, adopted on 21 November 2006. For a concise environment-related overview of the WTO dispute settlement body see Sands (2003:220ff.).

135 *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R, adopted 6 November 1998.

From the perspective embodied in the preamble of the WTO Agreement, we note that the generic term “natural resources” in Article XX(g) is not “static” in its content or reference but is rather “by definition, evolutionary”. It is, therefore, pertinent to note that modern international conventions and declarations make frequent references to natural resources as embracing both living and non-living resources. For instance, the 1982 United Nations Convention on the Law of the Sea ... repeatedly refers in Articles 61 and 62 to “living resources” in specifying rights and duties of states in their exclusive economic zones. The Convention on Biological Diversity uses the concept of “biological resources”. Agenda 21 speaks most broadly of “natural resources” and goes into detailed statements about “marine living resources”.¹³⁶

We hold that, in line with the principle of effectiveness in treaty interpretation, measures to conserve exhaustible natural resources, whether living or non-living, may fall within Article XX(g).¹³⁷

Thus, although due to the nature of WTO law climate protection arguments are likely to be brought forward on the respondent’s side only, the WTO dispute settlement bodies are in a good position to contribute to the strengthening of international climate change law. For example there is still the chance that a country might take trade-related measures to reduce energy consumption or border-tax products from states where energy taxes do not apply. In such a case, climate policy considerations would be used by the respondent state as justification. Another pertinent scenario could be a state violating TRIPS standards to improve adaptation or mitigation technologies, arguing the need to achieve the overall goal of the UNFCCC as codified in Article 2 UNFCCC.¹³⁸

V. Permanent Court of Arbitration

The Permanent Court of Arbitration (PCA) is briefly mentioned here because it recently dealt with an arbitration between a private investor and Ukraine, regarding a Joint Implementation Project under the Kyoto Protocol.

Jurisdiction of an arbitral forum is agreed upon in a case-specific arbitration agreement between the parties to a dispute or in the dispute settlement

136 (ibid.:130).

137 (ibid.:131).

138 See on this issue in depth: Rimmer (2011).

clause of a treaty.¹³⁹ In arbitral proceedings parties may agree upon the applicable law. In the absence of such an agreement, a tribunal applies general international law or applicable law according to choice of law rules. In 2001 member states of the PCA adopted optional Environmental Arbitration Rules and Environmental Conciliation Rules.¹⁴⁰ Parties to arbitral proceedings before the PCA may be states, international organisations or private parties. There is no record of *amici curiae* participation in proceedings before the PCA. Arbitration proceedings and awards are confidential unless parties to a dispute agree otherwise.¹⁴¹

According to the information available on the PCA's website, the PCA has dealt with five environmental disputes.¹⁴² As far as is known to the authors, the first climate-related dispute and, at the same time, the first dispute to which the Environmental Arbitration Rules have been applied is the investor-state arbitration *Naftac v Ukraine*.¹⁴³ The PCA does not provide for any official information on this case. According to information available on the internet, the case arose from a Joint Implementation Project under the Kyoto Protocol. The investor Naftac claimed a compensation payment of \$185 million and definition of GHG emission reduction units on his behalf under a Collateral Custody Agreement.¹⁴⁴ Both parties alleged violations of

139 Several international environmental agreements refer to the PCA in their dispute settlement clauses, for example Annex 1(3) of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean or Article 1(2) of the Schedule to the 1991 Protocol to the Antarctic Treaty on Environmental Protection.

140 These rules are based on the UNCITRAL Arbitration Rules but specifically elaborated for environmental disputes. For example, arbitrators and experts may be chosen from a list of persons with special expertise in international environmental law, Articles 8(3) and 27(5) of the Environmental Arbitration Rules.

141 See, for example, Article 32(6) of the Environmental Arbitration Rules.

142 On the majority of the cases there is no information publicly available. The five cases relating to environmental issues are *United States/Great Britain (North Atlantic Coast Fisheries)*; award of 7 September 1910; *Netherlands/France*; award of 12 March 2004; *Ireland/United Kingdom (OSPAR Arbitration)*, award of 2 July 2003; *Ireland/United Kingdom (MOX Plant Case)*, documents on the proceedings are available on the PCA website; *Belgium/Netherlands (Iron Rhine Arbitration)*, award of 24 May 2005.

143 *Naftac Limited (Cyprus) v State Environmental Investment Agency of Ukraine*, award of 4 December 2012 according to a publication of the Ukrainian Bar Association for Foreign Affairs, available at <http://ukrinur.com/publications/?year=2013>, last accessed 29 March 2013. Full article only available in Ukrainian.

144 Perepelynska (2012).

certain obligations under the Collateral Custody Agreement. In the arbitral award the arbitral tribunal dismissed the monetary claim and partly granted the claim regarding the transfer of emission reduction units.¹⁴⁵

If proceedings and the award in an arbitration before the PCA are confidential, the arbitral tribunal is not in a position to set an objective marker on legal issues. Non-transparent proceedings and decisions cannot contribute to the interpretation and further development of international climate change law. For example, Joint Implementation (JI) is one of the three main instruments the Kyoto Protocol provides for to tackle climate change. The proper implementation of JI projects is vital for the functioning and credibility of the climate regime. Therefore, disputes regarding the practice of Kyoto mechanisms should not be dealt with behind closed doors, but in transparent judicial and quasi-judicial fora and proceedings.

VI. International Centre for Settlement of Investment Disputes

The International Centre for Settlement of Investment Disputes (ICSID),¹⁴⁶ linked to the World Bank, offers conciliation and arbitration of investment disputes between member states and nationals (private investors) of other member states.¹⁴⁷ Mutual consent to ICSID proceedings is usually not given on a case-by-case basis, but through a consent clause in an investment treaty between the host state and the investor's state of nationality. More than 2,000 bi- and multilateral treaties in force contain such consent clauses.¹⁴⁸ The arbitral tribunal may accept submissions of *amici curiae* at its discretion.¹⁴⁹ Hearings may be attended by third persons unless either party objects.¹⁵⁰ Documents of the proceedings, including the arbitral award, are generally confidential.¹⁵¹

145 (ibid.).

146 ICSID was established through the 1956 Convention on the Settlement of Investment Disputes between States and Nationals of Other States. The ICSID Convention has currently 147 member states, www.icsid.worldbank.org.

147 Article 1(2) ICSID Convention.

148 According to Orrego Vicuña (2006). No party may withdraw its consent unilaterally, Article 25(2) ICSID Convention.

149 Rule 37(2) of the Arbitration Rules (amendment of 2006).

150 Rule 32(2) of the Arbitration Rules.

151 Article 48(5) ICSID Convention, Regulation 22(2) of Administration and Financial Regulations.

Several cases dealt with by arbitral tribunals at the ICSID involved environmental interests.¹⁵² In all cases environmental protection arguments were brought forward on the defendant's (state) side to justify measures against an investor. The first and so far only climate-related case before an ICSID tribunal was the *Vattenfall/Germany* case.¹⁵³ The content of the proceedings and award are confidential. According to information drawn from the media, Greenpeace, and two minor interpellations in the German federal parliament, the Swedish energy corporation Vattenfall owned by the Swedish state claimed €1.4 billion of damages based on an alleged breach of the 1994 Energy Charter Treaty, a multilateral investment protection treaty.¹⁵⁴ As part of the permit of a Vattenfall coal-fired power plant in Hamburg-Moorburg, based on German water law, Hamburg authorities issued permit conditions that required Vattenfall to undertake certain expensive environmental protection measures. Vattenfall argued that such permit conditions violate the clauses on expropriation and fair and equitable treatment of the Energy Charter Treaty.

Confidential proceedings and awards are in the authors' opinion not suitable to deal with public interests such as climate change. Within such procedural settings, ICSID tribunals will not be in a position to contribute to the climate regime in a positive sense, or set *objective markers*. The Vattenfall case has shown that there is an acute danger that the tribunal will interpret national environmental law rules, bypassing the judiciary in participating countries. In the case of the Vattenfall dispute, a recent judgment by the High Administrative Court of Hamburg has actually shown that the settlement reached under ICSID procedures is not valid under applicable environmental law. Given the context of ICSID and the underlying agreements conferring jurisdiction, the authors see no sign that ICSID will contribute to climate protection in a case where, for example, expropriation or investment regulations were justified through climate protection rules.

152 For example, *Metalclad Corp. v United Mexican States*, ICSID Case No. ARB(AF)/97/1, Award of 25 August 2000; *Biwater Gauff (Tanzania) Ltd. v United Republic of Tanzania*, ICSID Case No. ARB/05/22, Award of 24 July 2008.

153 *Vattenfall AB, Vattenfall Europe AG, Vattenfall Europe Generation AG v Federal Republic of Germany*; ICSID Case No. ARB/09/6; award of 11 March 2011, embodying the parties' settlement agreement.

154 Knauer (2009); see also two minor interpellations (Kleine Anfragen), Bundestagsdrucksachen 17/510 and 17/971; most detailed information available at Greenpeace website http://www.greenpeace.de/themen/klima/nachrichten/artikel/vattenfall_will_sparen_wir_sollen_zahlen/ansicht/bild/, last accessed 29 March 2013.

VII. *UNESCO World Heritage Committee*

The Intergovernmental Committee for the Protection of the Cultural and Natural Heritage of Outstanding Universal Value (World Heritage Committee) established under UNESCO¹⁵⁵ dealt with several petitions regarding the protection of the following world heritage sites from the impacts of climate change: Blue Mountains (Australia), Great Barrier Reef (Australia), Barrier Reef (Belize), Sagarmatha National Park (Nepal), Huascarán National Park (Peru), and Waterton-Glacier Peace Park (USA). All petitions were initiated by several NGOs and individuals requesting to inscribe the world heritage sites threatened by climate change on the List of World Heritage in Danger and issue corrective measures.¹⁵⁶ As part of the corrective measures petitioners also claimed the reduction of GHG emissions.¹⁵⁷

The World Heritage Committee did not follow these requests. In its decision it encouraged “all States Parties to seriously consider the potential impacts of climate change within their management planning ... and to take early action”. It further requested an expert group, including the petitioners, to “jointly develop a strategy to assist States Parties to implement appropriate management responses” and prepare a joint report on “Predicting and managing the effects of climate change on World Heritage”.¹⁵⁸ The strategy describes general mitigation and adaptation measures, but does not require specific action.¹⁵⁹

155 See Articles 8ff. UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) 15 UNTS 511, Article 4 (Opened for signature 16 November 1972, entered into force 17 December 1975).

156 For a detailed documentation of such cases see <http://www.climatelaw.org/cases/topic/unesco>, last accessed 29 March 2013. For an overview on world heritage sites affected by climate change see Colette (2007).

157 See, for example, Blue Mountains Petition, paras 62f., available at <http://www.climatelaw.org/cases/country/intl/cases/case-documents/unesco/unozblmtns/body.pdf>, last accessed 29 March 2013. The claim was based on Article 4 of the World Heritage Convention where states parties agreed to do all they can, to the utmost of their own resources, to ensure, among others, the protection and conservation of their cultural and natural heritage sites.

158 World Heritage Commission, Decision 29COM 7B.a (Threats to World Heritage Properties), paras 6, 7, and 9, available at <http://whc.unesco.org/en/decisions/351/>, last accessed 29 March 2013.

159 Strategy and report are available at <http://whc.unesco.org/en/climatechange/> last accessed 29 March 2013.

Given the severe impacts climate change already has, and will increasingly have in the future, on the respective world heritage sites, the decision of the World Heritage Committee appears disappointing. Thus, despite an appropriate mandate and a substantive legal basis in the World Heritage Convention the past practice of the World Heritage Committee indicates that it is not ready to contribute to the strengthening of the climate regime in a meaningful way. Despite the fact that the Committee is not a dispute settlement body as such, it could contribute to setting *objective markers* by ordering countries to protect specific species and ecosystems, paving the way towards an objective interpretation of what “dangerous” might mean with respect to ecosystems in Article 2 UNFCCC. The case studies on impacts of climate change on world heritage sites¹⁶⁰ might provide a slim chance of setting *objective markers*, but they might become more pronounced if sites are actually destroyed such as parts of the Great Barrier Reef in Australia.

VIII. OECD Guidelines for Multinational Enterprises

Two climate cases have been dealt with by the German National Contact Points (NCPs), established under the 1976 OECD Guidelines for Multinational Enterprises (OECD Guidelines). The OECD Guidelines comprise a set of voluntary principles and standards for responsible business conduct. Chapter V specifies such principles and standards with a view to environmental and public health protection. Since a reform of the Guidelines in 2000, they are not only applicable to companies operating within the OECD countries, but also on those operating from OECD member states in non-OECD member states. As control mechanism the OECD Guidelines establish NCPs, located in national government offices, to handle enquiries that may be initiated by parties concerned, including representatives of the business community, labour organisations, environmental organisations, and other members of the public.¹⁶¹ It is important to note, however, that the whole procedure is voluntary. The OECD Guidelines are soft law among states and may not compel companies to respond to enquiries instituted against them.¹⁶² Proceedings are generally confidential.

160 See <http://whc.unesco.org/en/activities/473/>, last accessed 29 March 2013.

161 OECD Guidelines for Multinational Enterprises, Part II, Implementation Procedures at I.B.3. See also Part III, Commentary on the Implementation Procedure, 8.

162 Freeman et al. (2006:17).

In the first climate-related complaint, the German NCP rejected a complaint instituted by Germanwatch against Volkswagen.¹⁶³ Germanwatch argued that product range and business strategy are climate damaging and therefore incompatible with the OECD Guidelines.¹⁶⁴

In the other case, Greenpeace filed a complaint against Vattenfall alleging that the high level of CO₂ emissions from Vattenfall's coal-fired power plant under construction in Hamburg-Moorburg is incompatible with the OECD Guidelines.¹⁶⁵ Greenpeace also argued that Vattenfall's request for arbitration against Germany before ICSID is not in accordance with the Guidelines.¹⁶⁶ The German NCP rejected the complaint.

In the brief reasoning of its decisions, the German NCP basically argued that it does not accept the complaints because neither Vattenfall nor Volkswagen violated any national or international laws. If this were the rationale behind the OECD Guidelines, they would be meaningless. However, the practice of national NCPs varies greatly and there are other examples where NCPs dealt appropriately with environmental cases brought to their attention.¹⁶⁷ Thus, the NCPs established under the OECD Guidelines are still considered to be in a good position to contribute to the strengthening of the climate regime, not least by forcing economic and finance ministries to deal with issues usually reserved for environmental departments.

D. Conclusions

Considering the lack of negotiated success in establishing an effective regime for reducing greenhouse gas emissions, there is a clear need for a 'court order' establishing objective markers. Yet, as our analysis has shown, there is hardly any international jurisdiction for an institution actually to look at climate change in a broad sense. There is practically no avenue for the general public (category C), despite the Kyoto Protocol's compliance sys-

163 *Germanwatch v Volkswagen*, Statement of NCP Germany of 20 November 2007.

164 For the details of the complaint see *Germanwatch v Volkswagen*, Complaint of 7 May 2007.

165 *Greenpeace Germany v Vattenfall*, Statement of NCP Germany of 15 March 2010. Complaint of 29 October 2009, 5–9.

166 (*ibid.*:9–12).

167 See, for example, *Survival International v Vedanta Resources plc*, Statement of NCP UK of 25 September 2009, case file available at http://oecdwatch.org/cases/Case_165, last accessed 29 March 2013.

tem, to engage a court or tribunal. In fact, other than states, private investors have the most direct access to international fora such as IDSID, even though the set of substantive law rules they can apply is not more differentiated than the rules that could be applied by states or public triggers (such as the no-harm rule or general obligations under the UNFCCC).

The truth is that, even though over the past 15 years states have shown a great reluctance to act in earnest to protect the global climate, while predictions of damage as a result of climate change have risen, there have been no international cases to speak of, in any category set forth in the beginning. Yet, this does not necessarily mean that such cases *could* not be brought to court. However, given the reluctance of states to seek objective markers, it might be wise to contemplate more options for public or NGO triggers in fora such as ITLOS or conciliation under the UNFCCC. While this may be a long way off, it seems to the authors that at least using Article 14 UNFCCC might have the potential to engage an international quasi-judicial forum with little diplomatic damage. Whether a state party will make use of this avenue remains to be seen – and it will also depend on the results on the table after 2015.

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Public Interest Litigation and Climate Change – An Example from Kenya

Collins Odote

Abstract

Addressing the environmental challenge that climate change poses requires a multipronged approach, of which the use of the law and legal tools is only one. Despite its limits, litigation provides measures to deter actions that cause climate change and also provides a framework for compensating victims of climate change action and punishing those responsible for climate change. Public interest litigation has been applied in the past in Kenya to address several environmental challenges and to provide relief not just to those who go to court but also to members of wider society. This article explores the importance and applicability of public interest litigation as a tool for addressing climate change and its impacts in Kenya, and argues for its utility. It opines that the Constitution of Kenya 2010, with its progressive environmental provisions and expansion of the framework for public interest litigation, provides a solid foundation for public interest litigation regarding climate change issues.

A. The Climate Change Challenge

Environmental problems remain a key challenge to Kenya's efforts towards sustainable development. One of these problems is climate change. The fact that global climate conditions have been changing beyond natural variability is now well established.¹ It remains one of the most critical threats facing the global community in the modern era. It is a global problem, but is experienced very differently in the so-called developed and developing

1 Okoth-Ogendo (2012).

worlds.² The Stern Report indicated that “while all regions will eventually feel the effects of climate change, it will have disproportionate harmful effects on the developing countries – and in particular poor communities who are already living at or close to the margins of survival.”³ The Intergovernmental Panel on Climate Change in its 2007 assessment report⁴ finally settled the debate on the anthropogenic causes of climate change. It concluded that “warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.”⁵

The impacts of changing global climate conditions are dire to the entire world. While the exact nature and scope varies across countries and continents, and affects different populations differently, there are common consequences. These include increased temperatures, threats to species, reduced crop productivity, changes in wind and its effect on precipitation patterns; sea level rises, coastal flooding and erosion, extreme weather events, and health impacts such as malnutrition and the spread of contagious diseases, as well as the concurrent impacts on economic and social well-being that these effects entail.⁶

For a long time, climate change was not a serious environmental issue in Kenya, at least not in public policy discourse. However, this has changed dramatically in the recent past, making climate change amongst the top environmental challenges confronting the country currently.

B. The Legal and Policy Framework Governing Climate Change

While climate change poses many complex and varied challenges to society, responding to these challenges requires a variety of tools and approaches ranging from scientific, social, economic, cultural, political and legal. The law exists to serve society, and has accordingly evolved to meet the changing needs and challenges of society.⁷ With climate change this evolution involves the application of existing legal concepts, from some ancient doc-

2 Richardson et al. (2011:1).

3 Stern (2007:92).

4 IPCC (2007).

5 (ibid.:30).

6 Richardson (2011:3).

7 Lord et al. (2012:3).

trines generally to new emerging issues and the development of new legal concepts.⁸

The legal regime regulating climate change issues in Kenya span both international and national law. Kenya's constitution provides the framework for the legal system of Kenya. On the question of international law, the adoption of a new constitution in August 2010 explicitly addresses the relationship between international law and national law within Kenya. It provides for the supremacy of the constitution;⁹ and consequently all other laws, including international law dealing with climate change, must be applied only to the extent that they do not contradict the constitution.¹⁰

Before the adoption of the constitution, there was debate on the place of international law within Kenya's legal sphere. The position adopted then was that international law was applicable in Kenya. As a dualist state, that application only came into effect after the international law had been domesticated through the preparation of a national law incorporating the content of the international law and the same having been taken to the Kenyan courts for discussion and adoption. This was followed by the ratification process by the executive. This position was given judicial affirmation in a case involving a conflict between the provisions of the Kenyan Constitution and the Treaty for the Establishment of the East African Community (EAC).¹¹ The Courts in that case, *Okunda v Republic*¹² ruled that the Constitution of the Republic of Kenya was superior to EAC laws. Importantly, on the relationship between national and international law, the courts held that –

the provisions of a treaty entered into by the Government of Kenya do not become part of the municipal law of Kenya save in so far as they are made such by the law of Kenya. If the provisions of any treaty, having been made part of the municipal law of Kenya, are in conflict with the Constitution, then to the extent of such conflict such provisions are void.¹³

8 (ibid.).

9 Article 2(1), Constitution of Kenya (Government Printer, Nairobi, 27 August 2010).

10 Article 2(4), Constitution of Kenya, 2010.

11 Treaty for the Establishment of the East African Community, 1967.

12 1970 EA 453.

13 EAC: Republic (1970) EA 457 at 460. This was an appeal to the East African Court of Appeal from the decision of the Kenyan High Court in the case of *Okunda v Republic*.

The position above confirmed Kenya as a dualist country. On adoption of the constitution in 2010, it was provided first that general rules of international law would form part of the laws of Kenya.¹⁴ This is based on the internationally recognised principle that customary international law is automatically applicable to all nations. On the question as to whether Kenya is dualist or monist, the constitution directs that “any treaty or convention ratified by Kenya shall form part of the law under [the] Constitution.”¹⁵ This provision has since been litigated in the Kenyan courts in a matter involving the relationship between Kenya’s Civil Procedure Act, which provided for jailing of judgment debtors in case they failed to pay their debts and the provisions of the International Civil and Political Rights which disallows civil jail for matters whose cause action arise from contractual matters.

The case confirms the position that the adoption of the constitution has moved Kenya from a strict dualist position to one which only requires ratification of treaties for them to be applicable in Kenya. This is close to the monist approach, save that one should also take into account the procedures for ratification in light of the Constitution of Kenya 2010.

I. The Constitution

The Constitution of Kenya provides the legal basis for public interest litigation in climate change issues. Firstly, the constitution addresses environmental management as a constitutional issue. Preambles to a constitution sets the overall context within which the constitution is adopted and needs to be read and applied. Kenya’s constitution, in its preamble, recognises the importance of the environment and acknowledges that the people of Kenya, by adopting the constitution, commit themselves to being “respectful of the environment, which is [their] heritage, and determined to sustain it for the benefit of future generations”.¹⁶

Conserving the environment, including dealing with challenges posed by climate change, aims at promoting sustainability within the ecosystem. Since its elaboration by the World Commission on Environment and Development in 1987 as “development that meets the needs of the present without com-

14 Article 2(5), Constitution of Kenya, 2010.

15 Article 2(6), Constitution of Kenya, 2010.

16 Preamble of the Constitution of Kenya, 2010.

promising the ability of present generations to meet their own needs”,¹⁷ the concept of sustainable development has been the key organising principle for environmental management worldwide. It provides a basis for international and national instruments governing various aspects of the environment. For instance, the 1992 United Nations Framework Convention on Climate Change and the Kyoto Protocol both refer to sustainable development as an integral objective of combating climate change.¹⁸ The Constitution of Kenya, in recognition of the importance of sustainable development, identifies it as a national value and principle of governance, applicable in all efforts at applying or interpreting the constitution, and any law or policy.¹⁹ The principle of sustainable development is therefore important for litigation relating to climate change issues.

The constitution further entrenches the right to a clean and healthy environment²⁰ as part of the fundamental human rights to which every Kenyan is entitled. Its inclusion in the Bill of Rights means that whenever individuals go to court to litigate on climate change issues arguing that climate change issues impact on their right to a clean and healthy environment, they can, just like in the case of all other human rights, go to court whether it is their right or the right of anybody else that has been violated.²¹ In any case, the constitution stipulates that, in applications relating to the right to a clean and healthy environment, the traditional rules of *locus standi* have been relaxed since “an applicant does not have to demonstrate that any person has incurred loss or suffered injury”.²² Courts are further required to ensure that substantive justice is dispensed. This involves the chief justice making rules to address the strictures that have in the past hindered public interest litigation. Litigation of human rights issues required to be addressed include keeping formalities to a minimum and, if necessary, empowering courts to entertain proceedings based on informal documentation; and not charging fees to file applications and showing lack of regard to procedural technicalities.²³

Although the constitution does not expressly mention the world climate change, the environmental obligations it places on the government and citi-

17 World Commission on Environment and Development (1987:43).

18 Beyerlin & Marauhn (2011:74).

19 Article 10, Constitution of Kenya, 2010.

20 Article 42, Constitution of Kenya, 2010.

21 Article 22, Constitution of Kenya, 2010.

22 Article 70(3), Constitution of Kenya, 2010.

23 Article 23(3), Constitution of Kenya, 2010.

zens arguably extend to addressing climate change. This includes provisions relating to land tenure, use of land and land reform,²⁴ provisions relating to working to achieve a tree cover of 10%,²⁵ especially looked at against the importance of forest conservation in combating climate change;²⁶ sustainable exploitation, utilisation, management and conservation of environment and natural resources; and eliminating processes and activities that are likely to endanger the environment.²⁷

The judiciary plays a key role in dispensing justice in environmental matters. It is for this reason that the discourse on environmental management focuses on access to justice as one of the critical pillars in guaranteeing sustainable development.²⁸ In Kenya the judiciary was for a long time viewed as a hindrance to justice, including in the environmental field. Reform of Kenya's constitution consequently focused a great deal on reforms to the country's judiciary. The constitution has made tremendous progress in this regard, including the establishment of an independent Judicial Service Commission, creation of the office of a deputy chief justice, vetting of judicial officers, enhancement of the independence of the judiciary, and greater accountability of judicial officers.²⁹ This progress has already started bearing fruits, with the judiciary increasingly being reported as the most trusted public institution in Kenya. In the environment field, the positive jurisprudence emanating from the judiciary in recent years portends well for litigation in the environmental field. This is coupled with the requirements of the constitution for the establishment of a specialised court, with the status of the High Court, to deal with disputes relating to "the environment and the use and occupation of, and title to, land."³⁰ In furtherance to this provision, parliament in 2011 passed the Environment and Land Court Act,³¹ providing for the establishment of Environment and Land Courts at the level of the High Court and their existence in all 47 counties into which Kenya is divided, following the adoption of a devolved system of government. The law defines

24 See generally Chapter Five of the Constitution of Kenya, 2010.

25 Article 69(1), Constitution of Kenya, 2010.

26 (*ibid.*).

27 (*ibid.*).

28 See Principle 10 of the Rio Declaration, 1992.

29 Akech et al (2011).

30 Article 162(2)(b), Constitution of Kenya, 2010.

31 Act Number 19 of 2011.

environmental matters to include climate change,³² thus expressly making it possible to litigate climate change issues before these courts.

II. The National Climate Change Response Strategy

In the run up to 15th Session of the Conference of the Parties (COP15) held in Copenhagen in 2009,³³ there was heightened national action within Kenya on climate change. For the first time, the issue received extensive national attention, with political action being spearheaded by the office of the Prime Minister, and headlines in the mainstream media. Kenya also joined the raging debate pitting developing and developed countries against each other on whether focus should be on mitigation or adaptation. While “the integration of climate information into government policies is important because climate is a major driving factor for most of the economic activities in Kenya”,³⁴ in the past this had not happened. Against this background, the government developed the National Climate Change Response Strategy.³⁵ The strategy aims at strengthening and focusing nationwide action towards climate change adaptation and Green House Gas (GHG) emission mitigation.³⁶ This is to be achieved by ensuring the commitment and engagement of all stakeholders, while taking into account the vulnerable nature of Kenya’s natural resources.³⁷ To realise this mission, the strategy strives to achieve several objectives, including: enhancing the understanding of global climate change regimes and required action by Kenya so as to maximise beneficial effects of climate change; assessing evidence and impacts of climate change in Kenya; recommending robust adaptation and mitigation measures needed to minimise risks associated with climate change, while maximising opportunities; enhancing understanding of climate change and its impact nationally and in local regions; recommending vulnerability assessment, impact monitoring, capacity building framework needs, research and technological needs, and a conducive policy, legal and institutional

32 (ibid.:Section 13).

33 On the Copenhagen Accord see http://unfccc.int/meetings/copenhagen_dec_2009/meeting/6295.php, last accessed 26 March 2013.

34 Government of Kenya (2010).

35 (ibid.).

36 (ibid.:5).

37 (ibid.).

framework to combat climate change; and providing a concerted action plan and resource mobilisation plan, and a robust monitoring and evaluation plan to combat climate change.³⁸

The strategy identifies key areas that are vulnerable to climate change, including water, agriculture, forestry, energy, wildlife, rangelands, coastal infrastructure, livestock, health and energy.³⁹ It then proposes adaptation measures to be undertaken just like it does to mitigation measures. The strategy consequently formed the country's first integrated response to climate change.⁴⁰

III. The National Climate Change Action Plan

Following the adoption of the National Climate Response Strategy(NCCRS) in 2010, the country has a framework for policy response to the climate change challenge in Kenya. The strategy serves as the guide to policy making and implementation through “documented evidence of climate impacts on different economic sectors and proposed adaptation and mitigation strategies to enhance the country's climate change response.”⁴¹ In 2012, the government of Kenya, through the Ministry of Environment and Mineral Resources, led a process to develop a National Climate Change Action Plan. The action plan provides “Kenya's blueprint for dealing with climate change”.⁴² It provides the rational path for reducing the country's vulnerability to climate change and improving the country's ability to take the advantages that climate change offers,⁴³ and puts the country on a low-carbon climate resilient development pathway.⁴⁴ It also calls for the establishment of a National Climate Change Council and a Climate Change Secretariat to provide institutional mechanisms for addressing climate change impacts.

38 (ibid.:6).

39 (ibid.:50–64).

40 See, Troell & Odote (211:281).

41 Government of Kenya (2012b:4).

42 (ibid.).

43 (ibid.).

44 (ibid.).

IV. Kenya Vision 2030

The document, Kenya Vision 2030, was adopted in 2008 and is the country's long-term development blueprint. It aims to transform Kenya into "a newly industrializing, middle income country providing a high quality life to all its citizens in a clean and secure environment".⁴⁵ Vision 2030 identifies the challenges the country faces and proposes strategies for dealing with those challenges, thus propelling the country to its desired destination by 2030. The anticipated actions are grouped under social, economic and political pillars.

There is minimal reference to climate change in the document under the topic on environmental management as part of the social pillar. The Vision states that Kenya is signatory to the Kyoto Protocol, thus recommitting its obligations thereunder, including that of adaptation. It then discusses climate change and desertification, pointing out that climate change is having negative impacts on Kenya, including melting of glaciers on Mount Kenya and decline in water levels in the Athi and Tana Rivers and subsequent interruption of electricity generation. The Vision, however, indicates that Kenya's response to disasters as a result of climate change has largely focused on reaction, as opposed to disaster risk reduction.

To address environmental challenges, the country will, for the climate and the water relevant strategies, intensify conservation of strategic natural resources including water; insulate development from natural hazards, like El Nino and El Nina floods experienced in the past; build institutional capacity for environmental planning; and improve the impact of environmental governance. Specific short-term actions identified along these lines include attracting five clean development projects per year for five years; rehabilitating degraded catchment areas; intensifying research on impacts of climate change and developing appropriate policy responses; integrating climate change into development planning; establishing baseline on the state of the environment for future planning; and using economic and non-economic incentives and disincentives.

The policy recognises the challenge of climate change, but addresses it very marginally, especially within the context of adaptation measures.

45 Government of Kenya (2008:vii).

V. National Environment Policy and Law

Despite the numerous environmental challenges facing Kenya, the country does not have a National Environment Policy. This failure is particularly critical owing to the fact that the country has recognised, following international acknowledgement, that the environment is an overarching sector whose policy and legislative framework requires coordinated and integrated action. This is the basis upon which the country adopted a framework environmental law, the Environmental Management and Coordination Act in 1999.⁴⁶ The Act is useful for climate change response, including litigation. In the first instance, it identifies causes of environmental degradation and suggests action to deal with these causes, including conservation of wetlands, hilltops and rivers, environmental impact assessment, restoration and conservation – all important for dealing with climate change. The law also provides for an elaborate institutional mechanism for environmental management generally, which mechanism involves a National Environmental Management Authority and a National Environment Action Plan Committee, as well as institutions relevant for dispute resolution, being the Public Complaints Committee and the National Environment Tribunal. The Act remains the overall statute addressing environmental matters in Kenya and, in the absence of a specific climate change law, remains the main substantive law on climate change. Any litigation on climate change in Kenya will largely rely on its provisions, including the environmental management principles that it encapsulates. These principles include the principles of sustainable development: the polluter pays and the precautionary principle.⁴⁷

When the Environmental Management and Coordination Act (EMCA) was passed in 1999, a draft environmental management policy was drawn up. However, the draft was never passed. In recent years, the country embarked on a fresh initiative to develop a National Environment Policy. The process commenced in 2006 and culminated in a draft in 2012.⁴⁸ The 2012 policy was also produced taking into account the Constitution of Kenya, 2010. The policy identifies key issues and challenges affecting Kenya and includes climate change as one of these challenges. It argues that climate

46 Environmental Management and Coordination Act, Act Number 8 of 1999.

47 Section 3, Environmental Management and Coordination Act, Act Number 8 of 1999.

48 Government of Kenya (2012a).

change poses significant environmental implications for Kenya.⁴⁹ Increased frequency and intensity of extreme climate events continue to undermine the country's sustainable development.⁵⁰ In essence, the policy admits that climate change is real and bases its pronouncement on the IPCC reports and evidence of prolonged droughts and floods in Kenya. It consequently recommends several policy actions to address climate change, including implementation of the National Climate Change Strategy; strengthening of research capacity on climate change issues; development of an integrated early warning and response mechanism for disaster and climate risks; and the development and implementation of programmes and projects that encourage significant levels of investment and technology transfer for sustainable development.⁵¹

VI. The National Land Policy

How land is owned and managed is critical for climate change action and response. Evidence and impacts of climate change are felt on land. Actions to mitigate and adapt to climate change rely largely on land to be effected. Consequently, how land is managed and regulated impacts on climate change response strategies and action. Therefore, the lack of a policy framework for land in Kenya till 2009 was a gap in the country's regulatory regime for dealing with climate change. In August 2009, the country adopted, following a consultative process, the first ever National Land Policy since independence.⁵² The policy addresses critical land issues, such as land administration, access to land, land use planning, restitution of historical injustices, environmental degradation, conflicts, unplanned proliferation of informal urban settlements, outdated legal frameworks, institutional frameworks, and information management.⁵³

While the interface between land management and climate change response is clear, the country's national land policy does not mention the word climate change. Except for a single reference to the issue of desertification in the Arid and Semi Arid Lands as a driving factor for the development of

49 (ibid.:14).

50 (ibid.).

51 (ibid.:35f.).

52 See Government of Kenya (2009).

53 (ibid.:ix).

a policy, the National Land Policy notably excludes any mention of climate change and the impacts it might have upon land use planning and implementation.⁵⁴ Despite this lacuna in climate change action, the policy is still relevant. Its reform of the management and administration framework for land in Kenya and its recognition of the importance of addressing environmental peculiarities of specific lands, of addressing environmental impacts of land activities, and of ensuring sustainable land use and land use planning all provide a sound basis for climate change response as related to land and land-based activities.

C. Public Interest Environmental Litigation in Kenya: Antecedents

One of the hallmarks of the development of environmental law and litigation is the change of emphasis from private rights to public rights.⁵⁵ This change is particularly useful in protecting environmental interests, since by nature environmental issues lend themselves more easily to categorisation as public rights as opposed to private rights. Public interest litigation, an avenue through which public-spirited individuals bring matters to court seeking to litigate and enforce rights and seek protection on behalf of the larger society, is useful in the environmental field and especially in issues relating to climate change. Climate change mainly impacts on larger segments of societies and not particular individuals. It is for this reason that in causation, liability and *locus standi* may be very difficult questions when viewed from traditional private rights litigation. Despite this reality in Kenya, resort to public interest litigation is fairly new.

Kenya's environmental litigation framework can be discussed in three stages, i.e. the period before the enactment of the National Environmental Management and Coordination Act in 1999, the period up to 2002, and the period from 2002 onwards. In the period before the enactment of EMCA, Kenya's legal framework was sectorally based, scattered across over 77 statutes. The general approaches to the laws were command and control. Cases on environmental issues were generally locked out on the basis of lack of legal standing for the applicants. Courts adopted the position traditionally advocated in the famous English case of *Gouriet v Union of Post Office*

54 Troell & Odote (2011:279).

55 Makoloo et al. (2006).

Workers,⁵⁶ where the House of Lords took the position that generally it was the attorney general who has the right in law to bring cases to court where public rights, like the right to a clean and healthy environment, were concerned. The Court had held that –

.... The jurisdiction of a civil court to grant remedies in private law is confined to the grant of remedies to litigants whose rights in private law have been infringed or are threatened with infringement. To extend that jurisdiction to the grant of remedies to unlawful conduct which does not infringe any rights of the plaintiff in private law is to move out of the field of private law into that of public law with which analogies may be deceptive and where different principles apply.⁵⁷

Kenyan courts in most environmental cases required that environmental matters be litigated by the attorney general as the custodian of the public interest. Private individuals were allowed to come to court only in situations where they had suffered injury greater than other members of the public or in cases where they had a personal proprietary interest in the matter. This position is aptly demonstrated by two judgments of the High Court of Kenya against Kenya's renowned environmentalist and a Nobel laureate, the late Professor Wangari Maathai. In the first case, *Wangari Maathai v Kenya Times Media Trust*,⁵⁸ Maathai as the coordinator of an environmental pressure group and civil society organisation, the Green Belt Movement, went to court to challenge the decision made by the government to allow the ruling party KANU to construct a multi-storey complex in the main public recreational park in the city of Nairobi. Wangari complained that the construction would deny Nairobi residents space that they had hitherto used for recreational purposes and would therefore interfere with their environmental rights. She further argued that this was taking place without any consultation of the public. The court, however, dismissed her application on the basis that she could not demonstrate the personal harm that the decision was having on her as a person. The court ruled that in such matters, only the attorney general could bring an action on behalf of the public and not Professor Wangari, since she lacked *locus standi*. The court's ruling declared that Professor Wangari –

56 (1978) AC 435.

57 (ibid.).

58 HCCC 5403 of 1989 reported in 1 Kenya Law Reports (Environment and Land) 2006, 164–171.

has strong views that it would be preferable if the building of the complex never took place in the interests of many people who had not been directly consulted. Of course many buildings are being put up in Nairobi without many people being consulted. Professor Wangari apparently thinks this is a special case. Her personal views are immaterial. The Court finds that the Plaintiff has no right of action against the defendant company and hence she has no *locus standi*.”⁵⁹

The same position was followed in the second case of *Wangari Maathai and 2 others v City Council of Nairobi and 2 others*.⁶⁰ The case involved a suit by Professor Wangari Maathai against the sub-division, sale and transfer of a piece of land by the City Council of Nairobi to private individuals. She and her co-applicants further sought an injunction to restrain the beneficiary of the allocation by the City of Council of Nairobi from carrying out construction on the disputed land. The Court dismissed the application on the grounds that Wangari Maathai and her co-applicants had no *locus standi*, since their basis of complaint was a public right which could only be litigated either by the attorney general or with his express permission, through a relator action. The words of Justice Ole Keiwua were:

But in the present case, the transgressions of those limits inflicts no private wrong upon these plaintiffs and although the plaintiffs, in common with the rest of the public, might be interested in the larger view of the question yet the Constitution of the country has wisely entrusted the privilege with a public officer, and has not allowed it to be usurped by private individuals. That it is the exclusive right of the Attorney General to represent the public interest even where individuals might be interested in the larger view of the matter. It is not technical, not procedural, not fictional. It is constitutional.”⁶¹

With very few exceptions, this approach was the one obtaining within the Kenyan justice system until the enactment of the EMCA in 1999. With this enactment the Kenyan legal framework expanded the frontiers of justice, it being recognised in law that public-spirited individuals and groups could go to court to champion the protection of the environment without having to demonstrate personal interest or injury. Section 3 of EMCA provided that “every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment.”⁶² Through this provision a clean environment became an entitlement of everybody in

59 (ibid:170).

60 HCCC No. 72 of 1994 reported in 1 Kenya Law Reports (Environment and Land) 2006, 188–193.

61 (ibid.:191).

62 Act Number 8 of 1999, Section 3(1).

Kenya. Interestingly, the right was not just restricted to citizens, but to anybody within the borders of the country. The provision encapsulated not only the right to a clean and healthy environment, but also, following on the famous jural relations advanced by Hohfeld⁶³, captured the correlative of rights, being duties. Thus, people had both the right to a clean and healthy environment and the duty to protect the right to a clean and healthy environment. By this enactment, everybody henceforth had a legal right to go to court as part of meeting their duty to ensure a clean and healthy environment.

The provision mentioned above was buttressed by the express recognition that any person who felt that the entitlement under Section 3(1) of EMCA “has been, is being or is likely to be contravened in relation to him, then without prejudice to any other action with respect to the same matter which is lawfully available, that person may apply to the High Court for redress.”⁶⁴ To address the specific past obstacles through the *locus standi* rule, EMCA stipulated that a person approaching court to litigate the right to a clean and healthy environment would “have the capacity to bring an action notwithstanding that such a person cannot show that the defendant’s act or omission has caused or is likely to cause him any personal loss or injury”.⁶⁵ These provisions relaxed the rules of standing for environmental matters, including climate change cases. However, the cases that went to court in reliance of this provision were initially not all decided in favour of a relaxed rule of standing. While in some instances the court held that “EMCA says that the plaintiff does not need to show that he has a right or interest in the property environment or land alleged to be invaded”⁶⁶ in some cases the old position of requiring personal interest as a basis of granting standing was still evident in some judgments. A typical example of this latter position was a case by the Law Society of Kenya seeking to challenge an irregular allocation by the commissioner of Lands of a court building in Eldoret Town to a private individual. However, in dismissing the application, the judge took the position that the dispute, being about public land, could only be litigated by the attorney general as the custodian of public interest. The judge stated as follows:

63 Hohfeld (1913).

64 EMCA, Act Number 8 of 1999, Section 3(3).

65 (*ibid*:Section 3(4)).

66 *Nzioka and 2 others v Tiomin Kenya Ltd HCC* Number 97 of 2001 reported at 1 Kenya Law Reports (Environment and Land) 2006, 423–440.

... for a party to have *locus standi* in a matter he ought to show that his own interest particularly has been prejudiced or about to be prejudiced. If the interest in issue is a public one, then the litigant must show that the matter complained of has injured him over and above injury, loss or prejudice suffered by the rest of the public in order to have a right to appear in court and to be heard in the matter. *Otherwise public interest are litigated upon by the Attorney General or such other body as the law sets out in that regard.*⁶⁷ (emphasis supplied)

The third epoch starting from around 2005 has seen the High Court interpret the rule of *locus standi* progressively and in accordance with the provisions of EMCA. Courts have increasingly asserted and sought to protect the rights of every person to litigate in favour of the environment. Two cases demonstrate this progressive thinking.⁶⁸ The first case, relevant for climate change discussions involved members of a local community filing a case against the government owing to the latter's decision to introduce an invasive weed in their location, causing them serious environmental harm. In the case, *Samson Lereya and 800 others v the Attorney General and 2 others*⁶⁹, the applicants' suit was struck down on a technicality. They had sought orders to compel the government to eradicate an invasive weed, *Prosopis juliflora*, that they averred had been introduced with the approval of government in the Marigat Division by the Food and Agriculture Organisation in 1983 so as to control desertification. However, the weed had spread for over twenty years and continued to cause harm to human beings, livestock and the environment. While the original suit was struck down on the basis of a technicality, namely for want of notice to government in accordance with the law, the court was unwilling to hold that the applicants lacked *locus standi*. The Court dismissed this objection, reasoning that some of the cases cited before them in support of this objection were decided –

before the enactment of the Environmental Management and Coordination Act. There was at the time no specific statutory provision in Kenyan law addressing the issue of *locus standi* in matters environmental. The Environmental Management and Coordination Act subsequently filled the gap.... . on the basis of section 3(3) and (4) of the Environmental Management and Coordination Act, we hold that the preliminary objection based on the ground of lack of *locus standi* has no merit and it is hereby ... dismissed.⁷⁰

67 *Law Society of Kenya v Commissioner of Lands & two others* HCCC 464 of 2000 reported in 1 Kenya Law Reports (Environment and Land) 2006, 456–462 at 461.

68 For a more exhaustive discussions See, Makoloo et al. (2006).

69 HCCC number 115 of 2006 reported in 1 Kenya Law Reports (Environment and Land) 761–771.

70 (ibid:770).

D. *The Framework for Future Public Interest Litigation*

The enactment of a new constitution in Kenya sought to give strong foundation to the emerging jurisprudence in Kenya supportive of public interest litigation in environmental cases. This jurisprudence, demonstrated aptly by the *Lereya* case in the context of *locus standi*, is also supported by the second Kenyan case, that of *Waweru v Republic*.⁷¹ Peter K. Waweru and others, all property owners in Kiserian, a small town on the outskirts of the capital city of Nairobi, had been charged under the Public Health Act⁷² with the twin offences of discharging raw sewage into a public water course and failing to comply with a statutory notice from a public health authority. The applicants filed a constitutional reference challenging the charge on the grounds of discrimination, arguing that they had been selected from many other landlords who similarly discharged sewage. They further argued that complying with the health requirements would be cost prohibitive and was a task to be undertaken by the local county council. The court upheld their arguments and dismissed the charges against them.

The court in the *Waweru* case further discussed the implications of the offending action on sustainable development and held that the actions were against the right of the residents to a clean and healthy environment.⁷³ The case was brought under the former constitution, when there were no provisions relating to the environment. All that existed was the right to life, which was argued to include the right to a clean and healthy environment following the jurisprudence of the Pakistan case of *Shehla Zia v Wapda*.⁷⁴ The Judges held that, just like in Pakistan, “it is quite evident from perusing the most important international instruments on the environment that the words life and the environment are inseparable and the word life means much more than keeping body and soul together.”⁷⁵ The *Waweru* case has provided a sound jurisprudential basis for the Kenyan courts in addressing environmental cases.⁷⁶ It provides a good precedent for public interest litigation in climate change cases. It is thus arguable that a court could consider that

71 1 Kenya Law Reports (Environment and Land) 2006, 677–700.

72 Chapter 242, Laws of Kenya.

73 1 Kenya Law Reports (Environment and Land) 2006, 677–700 at 687.

74 PLD 1994 SC 693.

75 1 Kenya Law Reports (Environment and Land) 2006, 677–700 at 691.

76 Kameri-Mbote & Odote (2012:311).

climate change threatens the right to life and the right to a clean environment.⁷⁷

This is buttressed by very robust provisions in the constitution protecting the environment, including the inclusion of the right to a clean and healthy environment⁷⁸ as part of the Bill of Rights, the placing of obligation in respect of the environment on the state,⁷⁹ and the relaxation of the rules of *locus standi*.⁸⁰ In addition, the institution of the judiciary has undergone fundamental reforms since the enactment of the Constitution of Kenya, through a referendum on 4 August 2010. With this constitutional and legal framework, time is ripe for public interest cases to be brought before the Kenyan courts, seeking to argue climate change related matters. Such litigation will, however, require identifying appropriate parties to such an action, the nature of the relief sought and the challenging question of liability. These matters are generally a great hurdle in most public interest cases, but take on new significance owing to the complex nature of climate change matters.

E. The East African Community Landscape

Kenya is a member of the East African Community and as such duty bound to adhere to the EAC Treaty.⁸¹ The treaty identifies environmental management as one of the key areas of cooperation⁸²: “The Partner States recognize that development activities may have negative impacts on the environment leading to the degradation of the environment and depletion of natural resources and that a clean and healthy environment is a prerequisite for sustainable development”.⁸³ The EAC has consequently taken deliberate steps to address the environmental challenges facing the region.⁸⁴ These challenges include climate change.⁸⁵

77 (ibid.).

78 Article 42, Constitution of Kenya, 2010.

79 Article 69, Constitution of Kenya, 2010.

80 Article 70, Constitution of Kenya, 2010.

81 Treaty for the Establishment of the East African Community, 1999, amended 2007 (EAC Treaty).

82 (ibid.:Chapter 19).

83 (ibid.:Article 111).

84 See Jarso (2012).

85 See generally Wabunoha (2008:485ff.).

In addressing climate change, EAC has adopted protocols, made decisions and taken practical action that recognise that, as a region, the effects of climate change require collaborative efforts amongst the partner states.⁸⁶ In 2010, following a directive of the Summit of the Heads of State of the East African Community, the EAC developed an EAC Climate Change Policy.⁸⁷ The policy recognises that climate change has adverse effects which are already being felt in the East African region⁸⁸ and that these effects will make life in the future even more uncertain within the region.⁸⁹ It recognises national action already being taken to respond to these negative effects, underscoring the fact that four of the east African countries, namely Burundi, Rwanda, Uganda and Tanzania already have developed National Adaptation Programmes of Action, while Kenya has a Climate Change Response Strategy.⁹⁰ In addition, partner states have identified mitigation options to help reduce global greenhouse emissions while enhancing economic development.⁹¹ The policy recognises the requirement for regional policy and action to address climate change, captured in both Article 112(f) and (m) of the EAC Treaty, which calls for cooperation in the management of the environment, disaster preparedness and management, and protection and mitigation measures especially for the control of natural and man-made measures. Further, Articles 23v and 24 of the Protocol on the Environment and Sustainable Management of Natural Resources call for joint action to address climate change within the EAC. This is the background against which the EAC Climate Change Policy has been developed to provide a framework for adaptation and mitigation measures to respond to the climate change challenge within the region.

The East African Community Treaty has established a judicial organ, the East African Court of Justice,⁹² as an avenue for resolving disputes within the region. The court comprises a First Instance Division and an Appellate Division. The jurisdiction of the court is however fairly limited, with the court having the right to listen to cases relating to interpretation and appli-

86 See Seitz & Nyangena (2009).

87 See EAC (2011).

88 (*ibid.*).

89 (*ibid.*).

90 (*ibid.*).

91 (*ibid.*).

92 Article 23 EAC Treaty.

cation of the Treaty.⁹³ Questions relating to the environment can consequently be entertained by the court if they relate to the application and interpretation of the Treaty. In addition, the provision that the jurisdiction of the court may be extended to such original, appellate, human rights and other jurisdiction as shall be determined by the council and supported by the partner states through a protocol⁹⁴ offers a window for granting explicit and wider jurisdiction to the court to hear climate change cases. As it is, the Court has listened to very few cases, none of them dealing with environment, let alone climate change. However such prospects exist.

Except for the East African Court of Justice, which has not had occasion to determine a case of an environmental nature since its establishment, the national courts of East Africa have demonstrated their contribution and approach to sustainable development in general and to sound environmental management in particular.⁹⁵ While the courts have not had occasion to litigate many cases relating to climate change, their judgments in public interest cases on the environment signal their progressive jurisprudence,⁹⁶ a jurisprudence that can be relied on in public interest litigation on climate change. This is supported by the emerging legal and policy framework that the East African countries are developing to respond to climate change issues.

Uganda's constitution, just like Kenya's constitution, expressly contain references to sound management of the environment. The National Objectives and Directive Principles of State Policy of the Ugandan Constitution stipulate that "the State shall protect important natural resources, including land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of Uganda"⁹⁷ and also provides directive principles focusing on environmental management, which principles require the state to promote sustainable development and public awareness of the need to manage land, air and water resources in a balanced and sustainable manner for present and future generations.⁹⁸ In addition, the Ugandan Constitution gives every person the right to a clean and healthy environment⁹⁹ and the right to apply to court for

93 Article 27 EAC Treaty.

94 Article 27(2) EAC Treaty.

95 Kameri-Mbote & Odote (2009:34).

96 See generally Kameri-Mbote & Odote (2009).

97 Constitution of Republic of Uganda 1995, directive principle XIII.

98 (*ibid.*:principle xxvii).

99 Article 39 Constitution of Republic of Uganda, 1995.

redress in case the right is violated.¹⁰⁰ The country also has a National Environmental Act,¹⁰¹ which provides the overall framework for management of the environment and natural resources in Uganda. This law is useful for dealing with climate change issues and litigation thereof.¹⁰²

Uganda ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1993 and in 2007 prepared its national adaptation programme of action which sets out the country's priority activities that respond to the adaptation requirements to climate change in Uganda. Recently the country has commenced a process to develop a national climate change policy so as to provide a focused policy response and framework to the climate change challenge. This process has been spearheaded by the Climate Change Unit in the Ministry of Water and Environment.

The Ugandan judiciary has been the most progressive in East Africa in addressing environmental cases in the public interest. The case of *Environmental Action Network Ltd v Attorney General and National Environmental Management Authority*,¹⁰³ in which a public interest organisation filed a case in court against second-hand smoking as violating the right to a clean and healthy environment of non-smokers in Uganda and where the court overruled an argument by the respondents that applicants did not have *locus standi* to file the matter, stating that the organisation had the right to file a public interest case even if it had no direct interests, represents the majority position of the Ugandan courts. Thus, the Ugandan judiciary, in its decisions, has promoted public interest litigation and has provided a useful basis for litigating climate change cases in appropriate circumstances.

Tanzania's constitution does not have a provision including the right to a clean and healthy environment. Its Fundamental Objectives and Directive Principles of State Policy,¹⁰⁴ part of the constitution, urges the government and its agencies to direct their policies and programmes towards ensuring "that public affairs are conducted in such a way as to ensure that the national resources and heritage are harnessed, preserved and applied toward the

100 Article 50 Constitution of Republic of Uganda, 1995.

101 Chapter 153, Laws of Uganda.

102 For a discussion of the legal and policy framework for climate change see Thadeus (2008).

103 *Environmental Action Network Ltd v Attorney General and National Environmental Management Authority (NEMA)*, Application No. 39 of 2001, available at http://www.tobaccocontrollaws.org/files/live/litigation/235/UG_The%20Environmental%20Action%20Netwo.pdf, last accessed 04 April 2013.

104 Part II Constitution of the Republic of Tanzania, 1997.

common good and the prevention of the exploitation of one man by another.”¹⁰⁵ The country also has an Environmental Management Act.¹⁰⁶

While Tanzania’s constitution does not include the right to a clean and healthy environment, its courts have interpreted the right to life expansively to include the right to a healthy environment.¹⁰⁷ In addition the courts have ruled in favour of public interest litigation in environmental cases. In the case of *Christopher Mitikila v the Attorney General*¹⁰⁸ the court observed as follows:

The relevance of public litigation in Tanzania cannot be overemphasized. Having regard to our socio-economic conditions, these developments promise more hopes to our people than any other strategy currently in place. ... Public interest litigation is a sophisticated mechanism which requires professional handling. By reason of limited resources that the vast majority of our people cannot afford to engage lawyers even where they are aware of the infringement of their rights and the perversion of the constitution. Other factors could be listed but perhaps the most painful of all is that over the years since independence Tanzanians have developed a culture of apathy and silence.

Given all these and other circumstances, if there should spring up a public spirited individual and seek the Court’s intervention against legislation or actions that pervert the constitution, the Court, as a guardian and trustee of the Constitution and what it stands for, is under an obligation to rise-up to the occasion and grant him standing.¹⁰⁹

The only focused policy efforts on climate change in Tanzania is the National Adaptation Programme of Action. This is supplemented by sectoral policies including the National Environment Policy, the National Energy Policy and the National Land Policy¹¹⁰

Rwanda’s engagement on climate change issues traces back to 1992 when the country participated in the United Nations Conference on Environment and Development, where the UNFCCC was adopted. It then ratified the Convention in 1998 and the Kyoto Protocol in 2003. In 2006 it completed its national adaptation programme of action.¹¹¹ In 2009 it established the

105 (ibid.:Article 9(1)(c)).

106 Chapter 191, Laws of Tanzania.

107 *Joseph D. Kessy v Dar es Salaam City Council* High Court at Tanzania, Civil Case Number 29 of 1998.

108 Tanzanian Civil Suit Number 5 of 1993.

109 (ibid.).

110 Shemdoe & Mwanoyoka (2012).

111 For an overview of these developments, see generally Government of Rwanda (2010).

Climate Change and International Obligations Unit within the Rwanda Environmental Management Authority to coordinate climate change action within Rwanda.¹¹² The Country has also adopted a Climate Change Policy.

Burundi is one of the four least developed countries (LDCs) within EAC. It ratified the UNFCCC in 1997 and the Kyoto Protocol in 2001. As is required of LDCs, Burundi prepared and finalised its National Adaptation Programme of Action for Climate Change in 2007.¹¹³

The EAC landscape demonstrates ongoing efforts to develop a legal and policy environment to take adaptation and mitigation action against climate change. However, the legal and policy regime is still in its infancy. Courts will consequently have to rely on general environmental law provisions to provide relief in litigation before East African courts.

F. Conclusion

Climate change is an emerging challenge in Kenya and the wider East African region. Responding to it requires concerted policy and practical action. Litigation may not always be the best solution. Indeed, in the environmental field, greater focus should be on measures geared towards encouraging voluntary action to ensure conservation and sustainable management of the environment. However, it does not always happen that such action results in positive outcomes. At the international level, debates between developed and developing countries have dogged efforts to agree on a post-Kyoto protocol. In addition, there is a growing divide within many countries even in the industrialised world¹¹⁴ between victims of climate change and those who sit pretty, oblivious of the impacts that climate change portend for less fortunate countries. There is consequently a need for expanding the options and frontiers for seeking solutions to the challenges posed by climate change.

Litigation will provide useful avenues for achieving climate change justice. While in Kenya there has been no climate change case brought to courts thus far, the recent trends in public interest litigation in the environmental field, coupled with the adoption of a modern and progressive constitution, offers opportunities for using litigation as a tool to address climate change

112 (ibid.).

113 See Republic of Burundi (2007).

114 See for instance Arrighi et al. (2003).

problems and ensure justice for those affected by climate change. Successful litigation in the climate change arena will require innovation in overcoming the question of liability, with special focus on causation.¹¹⁵

The judiciary in Kenya and the rest of East Africa will require appreciating fully the technical nature of environmental issues. Colloquia held in Kenya for the judiciary in 2005–2007 and the recent establishment of a Judicial Training Institute for continuous training of judges are two avenues for creating awareness amongst the judiciary on the science and law of climate change. It is only through such awareness that the bench will play an effective role in supporting public interest litigation on climate change issues.

Owing to the transnational nature of climate change causes and impacts, greater regional efforts to support climate change legal response, including litigation, is essential. The EAC is starting to grapple with policy and legal responses to climate change. Greater synergies of ongoing national efforts will be necessary. This will involve sharing best practices; encouraging litigation within the five partner states on climate-change-related issues; and more fundamentally discuss possibility of expanding the jurisdiction of the East African Court of Justice to deal with environmental issues, including climate change.

While litigation is a useful tool, the challenges of climate change require multifaceted and multi-stakeholder approaches. Using the media to create awareness and highlight climate change issues; greater engagement by civil society; parliamentary action; and incisive research are a few avenues that should be explored and enhanced in Kenya as ways of dealing with climate change.

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115 See generally Lord (2012).

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Abstract

This article examines the possibilities of injunctive relief against activities that do or may contribute to climate change. Such remedies are of vital interest to states like Palau in the Pacific Ocean which are in danger of being flooded if climate change and the resultant rise of the sea level continues. The potential addressees of injunctive orders may be private natural or legal persons, or states and their entities. However, the article shows that the present possibilities for effective injunctive relief are limited: there is no single court competent for such cases; nor is one single law applicable if, for instance, Palau would wish to institute proceedings against other states or enterprises in foreign states. In particular, the present substantive law of many countries does not allow injunctive relief against possible contributors to global warming, because these courts regard problems of wrongfulness and causation as insurmountable hurdles.

A. Introduction

The state of Palau is an assembly of islands in the Western Pacific. The highest points of these islands are only a few metres above sea level. A significant rise of the sea level threatens the existence of the islands as well as the whole state and society of Palau. Although other countries¹ are also affected by any rise of the sea, the situation for islands like Palau concerns their very existence.²

1 For instance, Bangladesh or the Netherlands.

2 Many other islands like the Maldives, Marshall Islands, etc., will be concerned.

From January 1993 to April 2012 the world sea level rose at a rate of about 3.1 mm per year.³ That meant approximately 6 cm in 20 years. According to the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO), the rate of sea-level rise in the last two decades was more than 50% higher than the average rate over the whole 20th century.⁴ The rate has thus accelerated in the recent past. The respected and influential Intergovernmental Panel on Climate Change (IPCC) of the United Nations projected that until the end of the 21st century the sea level could rise further between 19 and 59 cm.⁵ Other estimates range from 50 to 190 cm.⁶ For Palau this would mean the inundation of most of its land. There is no doubt that the rising sea level is a consequence of global warming⁷ and there is little doubt that mankind at least contributes significantly to global warming.⁸

On 22 September 2011, Palau's President Johnson Toribiong urged the United Nations in a dramatic speech before the Plenary Meeting to ask the International Court of Justice (ICJ) to give an advisory opinion on the responsibility of states for the consequences of climate change.⁹ It is still open whether Toribiong's plea will find sufficient support and, if so, what the ICJ would decide and what impact any decision would have.

It is clear from the outset that it is of no great avail to Palau if the loss of land is compensated in terms of money after that loss has occurred; moreover, it is doubtful if any compensation – from whom? – would be granted at all. What is needed is the avoidance of a situation of inundation in advance. In law, it is injunctive relief that might be helpful.

Could President Toribiong, or, better still, the state of Palau also institute proceedings in one or more international or national courts and ask for an injunction against activities which cause the climate change? This may sound rather strange: Injunctions against whom? Against which activities? In which courts? Under which law? For which reason? After all, does such

3 See CSIRO www.cmar.csiro.au/sealevel/sl_hist_last_15.html, last accessed 19 October 2012; also Nicholls & Cazenave (2010).

4 See CSIRO www.cmar.csiro.au/sealevel/sl_hist_last_15.html, last accessed 19 October 2012.

5 See IPCC (2007b:322–324).

6 See Rahmstorf (2007); Vermeer & Rahmstorf (2009).

7 Global warming causes an increase in sea water and the progressive melting of the Arctic and Antarctic ice sheets and of the inland glaciers and snow fields.

8 See IPCC (2007a). See also the very recent and fair account by Spier (2012:11–25).

9 See Zimmermann & Bäumler (2012).

a legal possibility exist? These questions will be discussed, starting with what is actually meant by injunctive relief.

B. Meaning of Injunctive Relief

Injunctive relief is awarded to a plaintiff by means of a decision of court that orders the defendant to do or not to do a specific act – other than merely paying a sum for damages.¹⁰ For instance, an injunction can be used to order a person to refrain from doing or continuing to do a certain activity, such as emitting CO₂ beyond a defined threshold. It may even be possible that injunctive relief can be ordered against a state, for instance by means of an order that obliges a state to implement or enact legislation against climate change. It is evident that these kinds of orders may be particularly problematic because, as is discussed below, they interfere with the state's sovereign power to legislate.

Injunctive orders can be either provisional or final. The formalities and preconditions of both kinds of injunctions may vary considerably. Generally, the requirements for a preliminary decision are fewer than for the final judgment, as far as proof and certainty of risk are concerned.

In cases of the kind discussed here the claimants are probably most interested in a final decision that ultimately prohibits activities which cause or add to global warming or are at least likely to cause or add to that development. However, a provisional decision which forbids such activities until a final decision is awarded is also of considerable interest.

Since the damage that states like Palau fear has not yet (fully) occurred, the aim of any injunctive relief is to stop activities of possible contributors to global warming insofar and to the extent that these activities may lead to further global warming and to a further rise of the sea level. Preventive injunctions against threatened future damage regularly need to meet specific requirements, because the damage is not entirely certain.

10 See, for instance, Jowitt (1977:975).

C. Possible Defendants

In legal proceedings aiming at an injunction, the claimant must name a specific defendant. When one thinks of possible defendants against whom a climate change injunction may be ordered, the circle of potential defendants is almost unlimited. Actually, almost everybody is involved in activities which can be regarded as causing, or adding to, global warming and therefore almost everybody could be an eventual awardee of an injunction. This is not only true for natural or legal persons, but also for states which by their activities or omissions can influence the climate even more seriously.

However, with respect to states, the problem of state immunity must be borne in mind. If states act for public purposes and through means of public law in the exercise of their sovereign public powers (*acta iure imperii*), they can rely on their immunity in foreign courts.¹¹ This is an acknowledged principle of (public) international customary law and has become part of the law of nations.¹² Only where a claim against a state results from the state's commercial activities – where the state acts like a private natural or legal person (*acta iure gestionis*) – no immunity in foreign courts is granted.¹³ Nonetheless, even acts of states in pursuit of their public powers can be appealed against, although only in the courts of that state and to the extent foreseen there.

Thus, in principle, Palau could sue every individual whom it suspects of increasing global warming. It could even sue states – although it might be necessary to sue them in their countries if their activities were of a sovereign public and non-commercial nature.

D. Activities

In theory, it seems possible that injunctive relief could be sought against any kind of activity that adds to global warming. There is great unanimity that

11 See most recently ICJ, judgment of 3 February 2012 (*Germany v Italy*), available at www.icj-cij/docket/files/143/16883.pdf, last accessed 22 October 2012, paras 59ff.; further: Brownlie (2003:335ff.); Hailbronner & Kau (2010:181); Stein & von Buttlar (2005:270ff.); particularly with regard to the ICJ judgment: Hess (2012).

12 See ICJ, judgment of 3 February 2012 (*Germany v Italy*), available at www.icj-cij/docket/files/143/16883.pdf, last accessed 22 October 2012.

13 (*ibid.*); Hailbronner & Kau (2010:181).

CO₂ – and other greenhouse gas emissions¹⁴ – are a cause of the global increase in temperatures.¹⁵ All activities producing such emissions could thus be possible targets of injunctions.¹⁶ Since everybody produces CO₂ in a certain way it is evident that there must be thresholds beyond which such emissions become inadmissible. It remains to be discussed in more detail below under which further conditions injunctions against such emissions which may cause damage in future are admissible. However, in principle, legal action can be brought against all activities which increase greenhouse gas effects – e.g. driving vehicles, producing goods, consuming energy.

With respect also to the activities of states, omissions of legislators can result in an increase of greenhouse gas effects: if a state omits to prohibit climate-detrimental activities of its citizens, it may likewise contribute to global warming. At least theoretically, injunctive relief may be available also in this case. From the viewpoint of states like Palau, this kind of judicial action might be the most effective if states could be ordered to introduce and enforce legislation against activities that lead to global warming.

As far as the nature of the legislative activity or non-activity of a state is concerned, it is hardly doubtful that it qualifies as *actus iure imperii*: to legislate or not to legislate is the very exercise of the state's sovereign power; it is state activity par excellence. As a consequence a state enjoys immunity in foreign courts with respect to its legislative activity or inactivity.¹⁷

E. International Environmental Conventions

There are a considerable number of international conventions which aim at the protection of the environment and at the avoidance of climate change. Presently, about 1,200 such bi- or multilateral conventions exist.¹⁸ Particularly relevant is the UN Framework Convention on Climate Change of 1992, which has been ratified by 195 states and by the EU. This Convention has formulated the aim of “stabilisation of greenhouse gas concentrations in the

14 For the list of greenhouse gases, see Annex A to the Kyoto Protocol.

15 See IPCC (2007a).

16 Annex A to the Kyoto Protocol lists certain sectors which are specifically involved in the production of greenhouse gases.

17 See *supra* under Section C.

18 A collection of international environmental treaties can be found on <http://www.info-ormea.org/treaties>, last accessed 17 April 2013.

atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”¹⁹ It lays down that ratifying states “should protect the climate system” and “should take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects”.²⁰ As a Framework Convention it does not contain precise obligations and thresholds concerning CO₂ – or other greenhouse gas emissions. These precise obligations and limits must be fixed by other conventions like the Kyoto Protocol of 1997, which in particular the United States has not ratified.

However, in its Article 14 the Framework Convention installed a mechanism for the settlement of disputes among the states that are parties to the Convention. These provisions apply as well to any related instrument which the Conference of the Contracting States adopts.²¹ Yet, the settlement procedure merely concerns “the interpretation or application of the Convention”²² – or the related instrument. It is doubtful whether this formulation covers cases where a state that has ratified the Framework Convention – and a related instrument like the Kyoto Protocol – can invoke the settlement procedure to force another contracting state to fulfil its obligations and stop certain emissions. The claim for injunctive relief against another state can hardly be qualified as “interpretation or application” of the Framework Convention. Moreover, the Framework Convention contains no provision which entitles a state to proceed against another for failure of observance of its obligations under the Framework Convention or a related instrument. It is the task of the Conference of the Contracting Parties and the organs of the Conference to see to the implementation and observance of those duties by the states bound by these instruments.

The question thus remains whether there is a legal basis to institute proceedings against states and private natural or legal persons who may contribute to climate change. There is first the problem of eventual jurisdiction.

19 Article 2 UNFCCC.

20 Article 3(1) and (3) UNFCCC.

21 Article 14(8) UNFCCC; see for instance also Article 19 Kyoto Protocol.

22 Article 14(1) UNFCCC.

F. Jurisdiction

Where could a state like Palau institute proceedings against activities of others which lead to a rise of the sea level?

I. No General and Automatic Jurisdiction of the ICJ

Any member state of the United Nations can approach the International Court of Justice. Since Palau is a UN member state²³, it could make use of the jurisdiction of the ICJ. However, according to its Statute the Court is competent for disputes between states only.²⁴ Thus, Palau or like states could institute proceedings against other states before the ICJ, but not against private persons or entities.

Further, the defendant state must have submitted to the jurisdiction of the ICJ in one way or another, as detailed in Articles 35–37 Statute of the ICJ. Only one third of the UN member states (67 out of 193) have ratified the ICJ Statute and have generally submitted to the jurisdiction of the Court by express declaration and some of these states have even done so under certain (permitted) reservations.²⁵ Also, the UN Framework Convention on Climate Change of 1992 provides for the possibility of voluntary submission to the ICJ's jurisdiction.²⁶

A number of states which are seen as being particularly important for the world climate, such as the USA, China, Russia and Brazil, have not ratified the ICJ Statute and it remains open whether they ever will. They thus cannot be sued before the ICJ, unless they were to submit or specifically agree to such proceedings. This seems unlikely. In reality, there is therefore little chance to sue all states that may add to global warming before the ICJ. On the contrary, if Palau or a like state were to sue all those states which have already submitted to the ICJ's jurisdiction and even if this dispute were to be decided in favour of Palau, the effect would be limited. Only if Palau

23 Palau has been a UN member state since 15 December 1994.

24 See Article 34(1) ICJ Statute.

25 See the list of ratifications and declarations, available at www.icj-cij.org/jurisdiction/n/index.php?p1=5&p2=1&p3=3, last accessed 17 April 2013; further Schröder (2010:625).

26 Article 14(2)(a) UNFCCC of 1992; the status of ratifications on the UN website however records no declarations of submission to the ICJ's jurisdiction.

could reach similar judgments in other courts against all states which still stay outside the ICJ Statute would there be a real chance of success.

This fact demonstrates the ICJ's limited position as a 'world court'. The advantage that the ICJ is a central court for the whole globe before which no state can invoke its immunity is much reduced by the principle of voluntariness and the requirement that the defendant state must have agreed to the Court's jurisdiction.

II. No Global Jurisdiction Regime

Thus far, except for jurisdiction agreements,²⁷ no global jurisdiction regime exists and the globally intended Hague Convention on Choice of Court Agreements is not yet in force. Moreover, it is most unlikely that jurisdiction agreements will play a role in situations discussed here.

III. Regional Jurisdiction Regimes

However, instruments exist on a regional level that regulate international jurisdiction. In Europe, the Brussels I Regulation of the European Union (EU) provides for such rules, and even for injunctive measures. This Regulation is the most prominent and most far-reaching example of a regional unification of jurisdiction rules. Other regional integration movements such as the Organisation pour l'Harmonisation en Afrique du Droit des Affaires (OHADA) have enacted only a few separate jurisdiction rules thus far, but have not installed a full and comprehensive jurisdiction scheme.²⁸ Therefore only the solutions of the Brussels I Regulation will be discussed here with respect to climate change injunctions.

27 Hague Convention on Choice of Court Agreements of 30 June 2005.

28 See in particular Articles 3 and 20 of the Act on *Organisation des procédures simplifiées de recouvrement et des voies d'exécution*. The Act entered into force on 10 July 1998.

1. *Jurisdiction with Respect to Natural or Legal Persons*

a) Final Decisions

The Brussels I Regulation covers only civil and commercial matters. However, activities of private persons which potentially add to global warming and which will be prohibited by an injunction would fall within the scope of the Regulation.

The general jurisdictional basis of the Regulation in such cases is the defendant's domicile.²⁹ If the domicile is located in an EU member state, the claimant can sue there. This rule follows the worldwide accepted maxim *actor sequitur forum rei*: the claimant can and generally must sue the defendant at the defendant's domicile.

The domicile of natural persons is to be determined according to the law of the country of the alleged domicile.³⁰ Companies and legal persons, on the contrary, have their domicile either at their statutory seat, at their central administration, or at their principal place of business.³¹

The Brussels I Regulation provides for a number of exceptions regarding the jurisdiction at the defendant's seat. The exceptions that could be relevant here depend on the qualification of the respective activity as contractual or tortious.³² It is rather evident that any activity that could add to a rise of the sea level is tortious as seen from the perspective of the potential claimant Palau. According to Article 5 (3) Brussels I Regulation, a claimant may sue the defendant at the place "where the harmful event occurred or may occur."³³ However, this exception applies only where the defendant's domicile is an EU member state and the forum is in another EU member state.³⁴ It does not concern the jurisdiction of courts outside the EU whose competence the EU is not empowered to regulate.

29 Article 2(1) Brussels I Regulation.

30 Article 59(1) and (2) Brussels I Regulation.

31 Article 60(1)(a) – (c) Brussels I Regulation.

32 See Article 5(1) and (3) Brussels I Regulation.

33 On 14 December 2010 the Commission tabled a proposal for an amended Brussels I Regulation, COM (2010) 748 final. However, Article 5(3) remains essentially unaffected.

34 The amendment proposal (see preceding footnote) concerning Article 5 suggests the abolition of the domicile requirement.

In consequence, states like Palau could sue natural or legal persons domiciled in the EU at their seat in the EU. The Regulation covers this case.³⁵ For a jurisdiction elsewhere the rules of the Brussels I Regulation are of no avail.

b) Provisional Measures

The Brussels I Regulation contains a specific article on provisional legal measures. Article 31 allows a party to approach any EU court for such “provisional, including protective, measures” as foreseen in the law of that court’s state, even if the Regulation assigns jurisdiction as to the substance of the matter to the courts of another EU member state. This provision is a further jurisdiction rule and extends jurisdiction for provisional measures: where national law so allows, the claimant can institute proceedings also there – in addition to the courts which are competent under the Regulation³⁶ and where a lawsuit may already be pending.³⁷ The claimant can choose to apply for provisional procedural measures in the court which has jurisdiction under the Regulation for the substance of the matter or in the court which is competent according to the law of that court’s country. It must be noted that the claimant may make use of even those exorbitant national jurisdiction provisions which the Regulation explicitly bans³⁸ like the jurisdiction under Articles 14 and 15 French Code civil or under § 23 German Code of Civil Procedure.³⁹

Again, the rule is only applicable if the relevant courts are located in the EU. Moreover, the European Court of Justice (ECJ) requests “the existence

35 See European Court of Justice (2000) ECR I-5925 (C-412/98, *Group Josi Reinsurance v Universal General Insurance*) for a claim of a Canadian against an EU-seated insurance company.

36 See European Court of Justice (1998) ECR I-7091 (C-391/95, *Van Uden Maritime BV v Kommanditgesellschaft in Firma Deco-Line*); further Pertegás Sender (2012); Kropholler & von Hein (2011); Bogdan (2012:129); Leible (2006).

37 European Court of Justice (1998) ECR I-7091 (C-391/95, *Van Uden Maritime BV v Kommanditgesellschaft in Firma Deco-Line*) paras 29 and 34; Kropholler & von Hein (2011:Article 31 para. 14).

38 See European Court of Justice (1998) ECR I-7091 (C-391/95, *Van Uden Maritime BV v Kommanditgesellschaft in Firma Deco-Line*) para. 42; Vlas (2012:Article 3 para. 2); Kropholler & von Hein (2011:Article 31 para. 17).

39 See Article 3(2) in connection with Annex I Brussels I Regulation. The Annex I lists all national jurisdiction rules forbidden under the Regulation.

of a real connecting link” between the dispute and the forum.⁴⁰ Only if national law meets this condition are courts competent under Article 31 Brussels I Regulation to grant provisional relief in accordance with their national law (the national requirements for provisional measures vary considerably among the EU member states).⁴¹ The real connecting-link requirement further limits the choice of claimants between the court of the substance of the matter and other courts for provisional relief.

The term *provisional measures* is not defined in the Regulation or its accompanying materials. It comprises those measures which according to the ECJ “are intended to preserve a factual or legal situation so as to safeguard rights the recognition of which is sought elsewhere from the court having jurisdiction as to the substance of the matter.”⁴² The measure must have a provisional character and must not, in fact, finally decide the dispute nor create irreversible consequences.⁴³

In our hypothesis, Palau could make use of Article 31 Brussels I Regulation in all EU member states depending on the relevant possibilities of the respective national law and on the existence of a real connecting link between the dispute and the forum.⁴⁴

2. Jurisdiction with Respect to States

The Brussels I Regulation does not supersede international customary law. If a state enjoys immunity in foreign courts, the Regulation respects this.⁴⁵ Thus, under the Regulation, injunctions against legislative inactivity of states cannot be claimed. Such claims fall outside the scope of the Regulation.⁴⁶

40 European Court of Justice (1998) ECR I-7091 (C-391/95, *Van Uden Maritime BV v Kommanditgesellschaft in Firma Deco-Line*).

41 See Bogdan (2012:129).

42 See European Court of Justice (1992) ECR I-2149 (C-261/90, *Reichert and Kockler v Dresdner Bank AG*).

43 European Court of Justice (1998) ECR I-7091 (C-391/95, *Van Uden Maritime BV v Kommanditgesellschaft in Firma Deco-Line*); European Court of Justice (1999) ECR I-2277 (C-99/96, *H H Mietz v Intership Yachting Sneek BV*); further Pertegás Sender (2012:Article 31 para. 22).

44 For instance, under German law provisional relief relevant here is the *einstweilige Verfügung* (§ 935 Civil Procedure Code).

45 See European Court of Justice (2007) ECR I-1519 (C-292/05, *Lechouritou v Germany*); see thereto Geimer (2008:226); Stürner (2008:204).

46 European Court of Justice (2007) ECR I-1519 (C-292/05, *Lechouritou v Germany*).

On the contrary, insofar as states are involved in commercial activities in the same way as private natural or legal persons, the Regulation's normal jurisdiction rules apply. For instance, the production and sale of energy by state-owned entities has to be, and has been, regarded as civil and commercial activity.⁴⁷ To such cases the above-mentioned rules applicable to private defendants apply.

3. Joint Defendants

The Brussels I Regulation (Article 6(1)) allows a claimant to sue several defendants in the court in the country where only one of them is domiciled. However, the respective provision requires that the claims are "so closely connected that it is expedient to hear and determine them together to avoid the risk of irreconcilable judgments resulting from separate proceedings."⁴⁸ It further applies only where the relevant domicile is located in an EU member state.⁴⁹ The provision creates the opportunity to concentrate claims against various defendants in one court if the claims are sufficiently closely related so that separate decisions would risk divergent judgments.

It was disputed whether or not defendants who are domiciled in non-EU states can also be joined in proceedings where only one or more co-defendants are domiciled in the EU. A number of authors support the view that this should be possible;⁵⁰ others oppose it.⁵¹ In the past, the European Court of Justice refused in *Réunion européenne*⁵² to apply Article 6(1) in a case where a claimant intended to join a defendant domiciled in one EU state in proceedings in another EU state against a party that was not domiciled in the EU. The Court reasoned that otherwise the EU-domiciled defendant would

47 See for instance Amtsgericht Bonn, *Neue Juristische Wochenschrift* 1988, 362; Landgericht Bonn, *Neue Juristische Wochenschrift* 1989, 1225 (regarding the energy production by the Soviet nuclear reactor in Tshernobyl as civil and commercial activity).

48 Art 6(1) Brussels I Regulation.

49 See Muir Watt (2012:para. 20).

50 See for instance Kropholler & von Hein (2011:Article 6 para. 7); Leible (2006:Article 6 para. 7); Schack (2010:para. 360).

51 See Oberlandesgericht Hamburg, *Deutsche Rechtsprechung auf dem Gebiete des Internationalen Privatrechts* 1992 Nr 193; Gaudemet-Tallon (2002:para. 223).

52 European Court of Justice (1998) ECR I-6511 (C-51/97, *Réunion Européenne SA v Spliethoff's Bevrachtingskantoor BV and Master of the Vessel 'Alblasgracht 002'*).

lose the protection under the Regulation (then under the respective Convention) for self-defence at own domicile. Also the wording of Article 6(1) that addresses persons “domiciled in a Member State” favours a restrictive interpretation of the provision. Very recently, the European Court of Justice explicitly excluded the application of Article 6(1) Brussels I Regulation if one of the defendants is domiciled outside the EU.⁵³ And although the amendment proposal for the Brussels I Regulation suggested the deletion of the words “domiciled in a Member State” in Article 6(1), which would have opened the door to a wider interpretation of the provision, the new version of the Regulation did not change the former wording. However, under policy considerations it would be preferable to place EU- and non-EU-domiciliaries on an equal footing.

The close-connection that Article 6(1) Brussels I Regulation further requires is present where, as the text indicates, a separate treatment of and decision on claims creates the danger of irreconcilable judgments. In a case where companies of the same group in a concerted action had violated the claimant’s patent in different EU member states, the ECJ nonetheless denied the close link between the claims because different laws applied to the claims.⁵⁴ The decision has been rightly criticised as “overly dogmatic”.⁵⁵ More recent decisions of the ECJ interpret the close connection element much less dogmatically. The Court no longer formally requires as an indispensable precondition that the legal basis of the different actions or the applicable law must be the same.⁵⁶ These are aspects which the national court only has to take into account when deciding whether or not a sufficiently close connection exists.

Thus, a difference in legal basis between the actions brought against various defendants, does not, in itself, preclude the application of Article 6(1) of Regulation No 44/2001, provided however that it was foreseeable by the defendants

53 ECJ 11 April 2013 (Case C-645/11, *Land Berlin v Sapir and others.*).

54 European Court of Justice (2006) ECR I-6535 (C-539/03, *Roche Nederland BV v Frederick Primus and Milton Goldenberg*).

55 Muir Watt (2012:para. 25a).

56 See European Court of Justice (2007) ECR I- 8319 (C-98/06, *Freeport plc v Olle Arnoldsson*) para. 40f.; European Court of Justice (C-145/10, *Painer v Standard VerlagsGmbH and Others*) paras 80ff., available at curia.europa.eu/juris/document/document.jsf?text=&docid=115785&pageInd, last accessed 23 October 2012.

that they might be sued in the Member State where at least one of them is domiciled.⁵⁷

It may be inferred from this decision that Article 6(1) Brussels I Regulation allows a concentration of actions in one court where several tortfeasors who are domiciled in different EU member states have caused damage by a concerted act. In that case, each tortfeasor must foresee the possibility of being sued in the domicile state of another co-defendant. And in that case it should be irrelevant whether or not all tortfeasors are domiciled in the EU.

Whether the same rule should apply in the case of independently acting tortfeasors is however doubtful. Taking the ECJ's requirement of foreseeability seriously militates against the application of Article 6(1) Brussels I Regulation. Independent tortfeasors cannot foresee that and where other tortfeasors acted and might be sued. The Court gives a clear hint in this direction when it states: "For that purpose [*sc. to avoid the risk of irreconcilable judgments*], the fact that defendants against whom a copyright holder alleges substantially identical infringements of his copyright *did or did not act independently* may be relevant."⁵⁸

Even more doubtful is the case where some or only one of independently acting tortfeasors are domiciled within the EU, and some outside. For the outsiders it is even less foreseeable that they might be sued in the EU than for EU-domiciliaries. The EU would develop Article 6(1) Brussels I Regulation into a kind of US-American 'long arm statute', if in such a case all tortfeasors could be sued in the EU because only one of them is domiciled there, although all others have no connection whatsoever with that jurisdiction. This would mean an overstretching of the jurisdictional competence of the EU.

In the case of a hypothetical action of Palau, it is rather clear that the potential defendants – all those who are alleged to have added to global warming and rise of the sea level, which means almost everybody or at least very many all over the globe – have not acted in concert, but independently. It is unlikely that the ECJ would accept an interpretation of Article 6(1) Brussels I Regulation granting a court of an EU member state jurisdiction

57 European Court of Justice (C-145/10, *Painer v Standard VerlagsGmbH and Others*) para. 81, available at curia.europa.eu/juris/document/document.jsf?text=&docid=115785&pageInd, last accessed 23 October 2012.

58 European Court of Justice (C-145/10, *Painer v Standard VerlagsGmbH and Others*) para. 83, emphasis added, available at curia.europa.eu/juris/document/document.jsf?text=&docid=115785&pageInd, last accessed 23 October 2012.

on actions against all these defendants and thus accord EU courts in fact worldwide jurisdiction over climate change injunctions. Despite the desirability of a central court for such global questions, in the author's view procedural justice requires to refuse such a wide-ranging jurisdiction of an arbitrarily chosen national court of first instance. This court, wherever situated, is not better equipped than any other court and is certainly in no better position to decide the case than the courts at the defendant's domicile.

IV. Jurisdiction under National Law

It is a globally accepted maxim that, in principle, the claimant can sue the defendant at the latter's seat.⁵⁹ However, besides that rule, the jurisdictional requirements vary considerably under which national laws grant injunctive relief. The best evidence of these differences is Annex I of the Brussels I Regulation. The Annex lists the so-called exorbitant rules on jurisdiction, all of which are generally excluded under the Regulation,⁶⁰ but can be invoked under national law. Further, the national rules may provide for further jurisdiction grounds with respect to provisional injunctive relief. National law often allows joining claims of several defendants if there is a close connection between the claims and a procedural need to decide on all claims in one proceeding.⁶¹

For a hypothetical suit of Palau against all potential contributors to climate change, the courts of Palau will probably have jurisdiction because the damage would occur in that country if the sea level would continue to rise as predicted. Whether a respective injunction of a Palauan Court would be recognised in the country where the potential contributor is seated is a separate question and is discussed below.

Whether there is any other national law that would allow the concentration of all climate change injunctions in one of its courts appears at best unlikely. It is even doubtful if an eventual class action in the United States could cover this case. However, the question needs further research and cannot be answered finally here.

59 See Illmer (2012:1021); Schack (2010:para. 192).

60 Except under art 31 Brussels I Regulation; see above under Section F.III.1.b.

61 See for instance § 93(1) Austrian Jurisdiktionsnorm.

V. Mid-summary

For an injunction against all potential contributors to future sea-level rise, Palauan courts would most likely accept jurisdiction because the assumed future damage would occur there. There is one exception: foreign states acting in their sovereign power would be immune even in Palauan courts. On the other hand, it is rather unlikely that all these eventual claims could be brought in one single court elsewhere. In principle, outside Palau each potential contributor would have to be sued in the jurisdiction which is competent for that contributor. Should Palau wish to sue foreign states for their omission to legislate against climate change, this could only be done in each respective state according to the applicable procedures and requirements there. Presently, a concentration of all eventual claims against climate change in one single court is impossible.

G. Applicable Law

I. Qualification

In order to determine the applicable law, the activities which can be possible targets of injunctive relief must first be classified either as contractual or as non-contractual since the conflicts rules differ. There is little doubt that the activities that are relevant here qualify as non-contractual, so that the conflicts rules on extra-contractual obligations apply. Any duty to stop activities that may contribute to climate change can only be based on tort law.

II. No Global Conflicts Rules

On the global level, no conventions or other instruments exist that generally regulate the applicable law for international torts. Liability conventions do exist for specific risks, for instance nuclear damage⁶² or oil pollution.⁶³

62 Paris Convention on Third Party Liability in the Field of Nuclear Energy of 1960 and the Vienna Convention on Civil Liability for Nuclear Damage of 1963, both with various later protocols and additional conventions.

63 Brussels Convention on Civil Liability for Oil Pollution Damage of 1969 and its supplementary instruments.

These conventions provide that the author of such damage must compensate for any loss, and even pay for precautionary measures, but these conventions are not concerned with the liability for activities which may contribute to climate change.

III. EU Conflicts Rules

1. General Rule

On a regional level, the Rome II Regulation of 2007⁶⁴ contains conflicts rules which apply in all EU member states, except Denmark. The Regulation distinguishes between general and environmental torts. The general rule is that, in the absence of a choice of law by the parties, “the law of the country in which the damage occurs” is applicable (Article 4(1) Rome II Regulation).⁶⁵ This means the law of the place where the injury of the victim’s rights happens (*lex loci damni*) applies.⁶⁶ Neither the place where the tortfeasor acted nor where consequential losses occurred matters.⁶⁷ An escape clause allows for the application of a “manifestly more closely connected” law.⁶⁸ According to this rule, the law of Palau would apply in our hypothesis.

2. Environmental Damage

For environmental damage, Article 7 Rome II Regulation offers a special conflicts rule: In lieu of the law at the place where the damage occurred, the claimant may choose “the law of the country in which the event giving rise to the damage occurred”. Thus, the victim can opt for the law of the place where the tort was committed and the tortfeasor acted. This means that the

64 Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations (Rome II).

65 Article 4(2) Rome II Regulation prefers the law of the habitual residence of the parties in the same state. In cases of the nature discussed here, this rule evidently does not come into play.

66 See Recital 17 Rome II Regulation: “the country where the injury was sustained or the property was damaged respectively”; further Thorn (2012:Article 4 para. 6) Bach (2011:para. 14); Junker (2010:Article 4 para. 18).

67 See references in the preceding footnote.

68 Article 4(3) Rome II Regulation.

victim must decide in advance – prior to a judgment – whether that law or the *lex loci damni* is more favourable for his own interests.

According to Recital 24 Rome II Regulation, environmental damage means an “adverse change in a natural resource, such as water, land or air, impairment of a function performed by that resource for the benefit of another natural resource or the public, or impairment of the variability among living organisms.” Thus environmental damage must have caused damage to the person or property of the claimant.⁶⁹

The rise of the sea level through global warming and the resultant loss of inundated land is a case of environmental damage in the sense of Article 7 Rome II Regulation. The loss would enable a state like Palau to opt for the law of the country where the acts of climate degradation were committed.

IV. National Conflicts Rules

As seen above in our hypothetical case, no one single court is competent for all kinds of injunctive relief and no one single regime is in place for the determination of the applicable law. Thus, most of the various national courts that would have to be approached would apply their own conflicts rules. There is a wide acceptance of the rule that the law of the place is applicable where the tort was committed. However, other – more refined – rules do exist. It is outside the scope of this paper to give a broad comparative survey of the variety of these rules. However, Swiss law may serve as a non-representative example here (of a country outside the EU). Articles 132–142 of the Swiss Federal Act on Private International Law of 18 December 1987 (Bundesgesetz über das Internationale Privatrecht [IPRG]) establish a very differentiated set of conflicts rules for international torts. In regard to emissions from land (including industry plants), the victim may choose between the law of the country where the land is located and the law of the country where the effect of the emission occurs.⁷⁰ For other sources of climate damage, for instance activities such as driving and transport, the general rule applies which provides the following: (1) after the damaging event, the par-

69 Junker (2010:Article 4 para. 18); Wagner (2008:9).

70 Article 138 Swiss IPRG.

ties may agree on the law of the forum,⁷¹ but may also decide on another law;⁷² (2) in the absence of a choice by the parties, the law of the place is applicable where both parties have their habitual residence;⁷³ (3) in default of such a common habitual residence, the law of the country applies where the tort was committed;⁷⁴ (4) where, however, the damage occurs in another country than that where the tort was committed, the law of this other country applies if the tortfeasor ought to have foreseen that the damage would occur there;⁷⁵ (5) where the tort violates an existing contract or other legal relationship between the parties, the law governing this relationship is applicable.⁷⁶

The Swiss example shows that it can be burdensome to designate the applicable law and uncertainties may remain. In our hypothetical case it is, for instance, doubtful whether a potential contributor to global warming would have foreseen the effect on a state like Palau.

V. Evaluation

With respect to the applicable law, it is a frequent rule of national or regional conflicts law that the law of the country applies where the damage – the violation of the victim’s interests – occurred or threatens to occur. This rule allows treating all claims according to one single law. However, equally often the law of the country where the tort was committed is designated as the governing law. This rule leads to the application of many different laws for an identical damage (the so-called mosaic principle). In our hypothetical case it is most likely that there is no one single law, but a variety of laws which would apply.

71 Article 132 Swiss IPRG; under Swiss law the forum is generally the domicile of the defendant (Article 129(1) Swiss IPRG).

72 See Siehr (2002:361).

73 Article 133(1) Swiss IPRG.

74 Article 133(2) sent 1 Swiss IPRG.

75 Article 133(2) sent 2 Swiss IPRG.

76 Article 133(3) Swiss IPRG.

H. Substantive Requirements for Injunctions

Once the applicable law has been determined, it is this national law on injunctions that finally decides whether a state like Palau could ask for an order to restrain others from contributing to climate change. The substantive and procedural rules of this law on provisional and final injunctions must be examined.⁷⁷ Again, the example of one single law – in this case German law – must suffice here.

I. Precautionary Claim

Under §§ 823 (1) and 1004 (1) sent 2 German Civil Code (Bürgerliches Gesetzbuch, BGB), a claimant may ask for a restraining order (*vorbeugende Unterlassungsklage*) against a threatened violation of rights if the following conditions are met: (1) a protected right of the claimant must be at stake, (2) the serious threat must be established that the right will be wrongfully infringed, (3) the defendant must be the responsible person.

1. Protected Right

German law protects only certain interests such as life, bodily integrity and property.⁷⁸ In the hypothetical case of the state of Palau its land would be affected. This is a protected position which would allow a claim under §§ 823 (1), 1004 (1) sent 2 BGB.

2. Serious Threat of Wrongful Infringement

a) Serious Threat

A successful claim requires that there be a serious threat that the protected interest of the claimant will be wrongfully infringed. Thus, there must first

77 On injunctive relief in the context of greenhouse gas emissions, see Spier (2012:194–198), with further references.

78 § 823(1) German Civil Code (Bürgerliches Gesetzbuch, BGB) contains a list of protected interests.

be a serious threat of an infringement.⁷⁹ If no prior violation has taken place, there must be a clear and imminent danger that an infringement will be committed.⁸⁰ Prior violations create a rebuttable presumption of repetitions.⁸¹ It is likely that in our hypothetical case the requirement of a serious threat will be seen to be present.

b) Wrongful Infringement

Secondly, the threatened infringement must be wrongful. According to the prevailing view in Germany, wrongfulness means that the result of the tortfeasor's conduct must contradict commandments of the law (*Lehre vom Erfolgsunrecht*).⁸² Therefore, in principle, the violation of a protected right founds the – rebuttable – presumption of wrongfulness. The defendant may, however, advance reasons demonstrating that he was justified in causing the damage, for instance acting in self-defence.

In our hypothetical case, the activities of eventual contributors to climate change will often be licenced by a public authority. Such licence will regularly allow certain emissions. Even if the licensee observes the requirements and thresholds fixed by the licence, this does not necessarily exclude the wrongfulness of damage caused to others.⁸³ However, with respect to restraining orders against threatened damage, the observance of prescribed licence conditions or legal standards will play a role and regularly lead to the refusal of the claimed order.

With respect to claims against the (German) state because of omitted legislation, German law generally does not permit such claims. This has been so decided in the case of dying forests.⁸⁴ The state could not be held liable for not enacting legislation that would have avoided damage by emissions to the trees of the forest owners.

79 See Federal Court (Bundesgerichtshof, BGH) *Neue Juristische Wochenschrift* 2005, 594; Sprau (2012:para. 20).

80 Gursky (2006:para. 214).

81 BGH *Neue Juristische Wochenschrift* 1994, 1281.

82 See, for instance, BGH *Neue Juristische Wochenschrift* 1996, 3205; Sprau (2012:§ 823 para. 25); for other views, see Hager (2009:para. H15f.).

83 Kohler (2010:para. 330).

84 BGH *Neue Juristische Wochenschrift* 1988, 478, with note Eike von Hippel.

3. *By the Defendant*

The defendant must be responsible for the threatened infringement. This requires that the defendant's activity must be the cause of the actual or threatened infringement.⁸⁵ This requirement poses difficulties in cases of the kind discussed here. In a rather general sense, there is a causal link between any activity contributing to climate change and the threatened loss of land in Palau. Without all those activities, Palau would not face the risk of inundation. On a concrete level it is very problematic to state that, for instance, the emissions of a German energy plant cause the rise of the level of the Pacific Ocean (to which extent?).⁸⁶

One could argue that the German plant is a joint tortfeasor together with all other contributors to the climate change and that § 830 BGB applies, which makes all of them jointly and severally liable for the damage. The provision even applies where persons did not act in concert, but were independent actors, who by the mere fact of their activity could have caused the same damage.⁸⁷ The German courts are, however, reluctant to invoke the provision in cases where huge numbers of potential tortfeasors are involved, as for instance in the case of violent mass demonstrations. In such cases only those persons are held liable who were directly involved in, or directly supported, acts of violence.⁸⁸ It is not unlikely that German courts would follow this pattern also here and deny a sufficiently causal link. Yet, it remains to be seen how the German courts will decide cases of the kind discussed here.

In legal writing the concepts of proportional liability and market share liability have been suggested for cases where very many persons have contributed to a damage, but it is unknown to which extent. Then, so it is suggested, every contributor should bear a proportional share of the damage or a share in proportion to its market share.⁸⁹ Yet, these concepts have not been

85 See BGH *Neue Juristische Wochenschrift* 1976, 799; BGH *Neue Juristische Wochenschrift* 2004, 3102.

86 The causation problem is discussed by Spier (2012:175–179).

87 § 830(1) sent 2 BGB is interpreted in this sense; see Eberl-Borges (2012:para. 67).

88 See BGH *Neue Juristische Wochenschrift* 1984, 1226.

89 See, for instance, Bodewig (1985:548).

applied by German courts and the prevailing view among German legal writers is to reject them.⁹⁰

II. Provisional Order

Under German law, a provisional restraining order is admissible if the claimant has a legal claim – the three requirements discussed above must be present – and if there is a special need provisionally to secure the rights of the claimant.⁹¹ The proof of the claim need not be as strict as in the final, main proceeding. Because of the issues of wrongfulness and causation, the outcome in our hypothetical case would not be any different from that discussed above.

Even if a restraining order were to be granted, the formulation of its precise content (which the claimant must suggest) would pose problems. An order restraining a defendant from the continuation of climate-damaging activities would be much too vague and therefore inadmissible. The order would have to state the concrete threshold, for instance of emissions, which the defendant's plant or other activity should not transgress. That means that the claimant would have to formulate this precise threshold for each individual defendant.

III. Evaluation

In summary, under German law it is not likely that the courts would grant a final or provisional order restraining the defendant from further activities which may contribute to climate change but which are yet allowed under German law. The case may be otherwise if the defendant does not observe the prescribed conditions and thresholds. But even in that case it is more than doubtful whether the courts would regard as established the necessary causal link.

90 See, for instance, Eberl-Borges (2012:para. 115 with further references). However, the Principles of European Tort Law propose a presumption of equal shares in case of minimal causation where many have caused a damage but it is certain that none of them caused the entire damage or a determinable part of the damage and that each contributed only in a minimal way (Article 3:105 Principles of European Tort Law).

91 § 935 German Code of Civil Procedure (Zivilprozeßordnung, ZPO).

It is not unlikely that presently also other legal systems would decide likewise.⁹²

I. Recognition and Enforcement of Judgments

In the event that the courts of Palau or the courts of any other country would render a judgment or provisional order restraining natural or legal persons in other countries from contributing to climate change, the question arises whether this decision would be recognised and enforced in the country where each defendant is domiciled and committing the offending activities. No global convention on this matter exists; but there are many bilateral and – on a regional level – also multilateral instruments. The already mentioned Brussels I Regulation belongs to the latter and allows for a simple recognition and enforcement of a decision of court of an EU member state in another EU member state.⁹³

Where none of these inter- or supranational instruments applies, the national rules on the recognition and enforcement of foreign judgments must be used. These rules are often reluctant to recognise and enforce foreign decisions. Some require an international treaty with the country where the judgment was rendered;⁹⁴ others request reciprocity;⁹⁵ yet others certain minimum conditions.⁹⁶ Thus, even if an injunction against climate change were to be ordered, its enforcement in other countries might meet considerable obstacles.

J. Conclusions

The overall picture is not encouraging: at present injunctions as a legal means in the fight against climate change do not promise much success. They meet hurdles they can hardly overcome. Though only few national laws could be examined here, the hope is but small that other legal systems fare much better

92 For a comparative survey on these cases of *minimal causation*, see Koch (2007:543), stating that most jurisdictions would deny liability.

93 See Articles 32ff. Brussels I Regulation.

94 In general, Russia.

95 For instance, Germany (§ 328(1) No. 5 ZPO; except for non-financial cases).

96 For instance, Switzerland (Articles 25–28 Swiss IPRG).

and accept more generous injunctive relief against activities contributing to climate change. However, the survey shows that it is necessary and worthwhile to re-consider and re-adjust the hurdles, in particular the wrongfulness of climate-change-sensitive activities and the causation problem.

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Abstract

Until recently, climate litigation was usually restricted to claims for injunctive relief. Such litigation was mainly a tool to increase pressure on legislators to introduce stricter regulation in regard to issues relevant to climate change. Lately this started to change, and the first claims for damages to compensate for injuries allegedly caused by global warming were brought to United States (US) courts. These claims gave rise to a lively legal debate. The focus of this debate so far is on whether courts may decide the questions arising out of this litigation (political question doctrine, preemption and displacement); who has the right to bring such claims (legal standing); and which legal doctrines might support them (private and public nuisance, negligence, trespass, civil conspiracy, fraudulent misrepresentation, unjust enrichment). Other legal issues in connection with this litigation are causation (can the specific damage of the plaintiffs be traced back to the specific greenhouse gas emissions of the defendants?); and time-related issues (are the claims barred by statutes of limitations since global warming and greenhouse gas emissions have been going on for so long?).

Apart from the still relatively rare attempts to hold someone liable for global warming and its consequences as such, liability aspects of climate change also seem likely to increase in importance in a more traditional litigation context, e.g. in connection with claims against construction-related professionals for not taking global warming and rising sea levels sufficiently into consideration.

A. Liability for Climate Change?

As public awareness of man-made contributions to ongoing climate change grows, holding someone liable for the consequences of rising sea levels and the increase in frequency or severity of natural catastrophes like hurricanes

and droughts may be seen as an option to shift the loss. However, attempts to do so raise a multitude of legal problems, hardly comparable to any other kind of litigation. Since everyone contributes to climate change and at the same time everyone is influenced by it to some degree, who should have the right to sue whom because of any damage done? Whose responsibility is it to decide who should be allowed to emit how much greenhouse gas? Since greenhouse gas is emitted worldwide, which jurisdiction should deal with which consequences? Does today's legal doctrine provide adequate mechanisms to decide these issues and, if not, does this rule out liability or should this lead to changes in the legal doctrine?

The legal debate on climate liability is still in its infancy. Courts did begin to struggle with some of the procedural hurdles faced by such litigation, but have not yet had to decide on more substantial issues like causation or public nuisance. Therefore this article on climate liability can only provide a brief overview on the most obvious questions involved, without even trying to answer them.

B. Litigation So Far

The vast majority of ongoing litigation in the climate change context is aimed at some form of injunctive relief, not at damages. Plaintiffs in this kind of litigation usually try to increase the political pressure to introduce stricter regulation in regard to greenhouse gas emissions or simply want to draw media attention to climate change and the impact of human behaviour on its speed and severity.¹

However, recently a few first attempts to sue for damages in the climate change context have been made. While some of them seem to have been

1 Some examples for this kind of litigation are: US Supreme Court, *Massachusetts v EPA* (2 April 2007); US Supreme Court, *American Electric Power v Connecticut* (20 June 2011); as well as the public trust doctrine lawsuits like *Bonser-Lain v Texas Commission*, *Alec v Jackson*, *Chernaik v Kitzhaber*, *Sanders-Reed v Martinez*. For an overview on past and pending cases see the charts provided by Michael Gerrard (University of Columbia), available at www.climatecasechart.com, last accessed 3 March 2013.

primarily politically motivated as well,² others are based on specific damage allegedly caused by global warming or rising sea levels. Two such cases that have received most public attention so far are *Comer v Murphy Oil*³ and *Kivalina v ExxonMobil*.⁴

I. Comer v Murphy Oil

In *Comer v Murphy Oil*, the plaintiffs, who live close to the Gulf of Mexico, sued several oil companies. They claim that greenhouse gas emissions by the defendants contributed to global warming, thus producing the conditions that fueled Hurricane Katrina, which in turn caused damage to their property. The plaintiffs also try to hold the defendants liable for the increase in insurance premiums they have to pay for their properties and for the decreased resale value of their homes owing to the higher risk of tropical storm activity and flood damage in the future. The plaintiffs' claims are based on public and private nuisance, trespass and negligence. A first decision by the US District Court for the Southern District of Mississippi in 2007⁵ came to the conclusion that the plaintiffs had no standing to bring the lawsuit since their injuries could not be sufficiently traced back to the actions of the defendants. The court also found the claims were non-justiciable, based on the political question doctrine. This decision was partly reversed by the Fifth Circuit in 2009.⁶ For procedural reasons, several other decisions followed. In the most recent one, the District Court for the Southern District of Mississippi⁷ dismissed the claims based mainly on the political question doctrine, the plaintiffs' lack of legal standing and a displacement of the claims by the Clean

2 As for instance the claims for damages of the State of California against several US automakers, see US District Court for the Northern District of California, *California v General Motors* (17 September 2007); for more on the motives involved in such claims see Stewart (2009:41).

3 Most recently: US District Court for the Southern District of Mississippi, Southern Division, *Comer v Murphy Oil* (20 March 2012).

4 Most recently: US Court of Appeals for the Ninth Circuit, *Kivalina v ExxonMobil* (21 September 2012).

5 US District Court for the Southern District of Mississippi, *Comer v Murphy Oil* (30 August 2007).

6 US Court of Appeals for the Fifth Circuit, *Comer v. Murphy Oil* (16 October 2009).

7 US District Court for the Southern District of Mississippi, Southern Division, *Comer v Murphy Oil* (20 March 2012).

Air Act. The court also found that the plaintiffs' claims were barred by the applicable statute of limitations and that the plaintiffs could not possibly demonstrate that their injuries were proximately caused by the defendants' conduct.

II. Native Village of Kivalina v ExxonMobil

In *Kivalina v ExxonMobil*, a wide range of oil, energy and utility companies are sued by the Alaskan village Kivalina, because the greenhouse gas emissions of the defendants allegedly resulted in global warming, which threatens the land on which the City of Kivalina is situated with imminent destruction by erosion caused by storm waves. The US District Court for the Northern District of California denied the claims, based on the political question doctrine and lack of legal standing.⁸ In 2012 the Ninth Circuit dismissed Kivalina's appeal against this decision⁹ by finding that the Clean Air Act and actions by the Environmental Protection Agency (EPA) based on the Clean Air Act displaced Kivalina's claims.

C. Legal Hurdles for Claimants

I. Political Question Doctrine and Displacement

Several US courts found that climate-change-related matters are not legal questions for which courts are the adequate forum, but rather political questions, which have to be dealt with by other branches of government.¹⁰ Also, the US Supreme Court decided that claims aiming at regulatory action in the climate change context have been displaced by the Clean Air Act and the Environmental Protection Agency's activities based on it. The Court's response to the fact that the EPA had not yet exercised its regulatory authority

8 US District Court for the Northern District of California, *Kivalina v Exxon Mobil* (15 October 2009).

9 US Court of Appeals for the Ninth Circuit, *Kivalina v ExxonMobil* (21 September 2012).

10 See most recently: US District Court for the Southern District of Mississippi, Southern Division, *Comer v Murphy Oil* (20 March 2012); US Court of Appeals for the Ninth Circuit, *Kivalina v ExxonMobil* (21 September 2012).

in regard to all kinds of greenhouse gas emitters, was: “[t]he relevant question for purposes of displacement is whether the field has been occupied, not whether it has been occupied in a certain manner.”¹¹ The Ninth Circuit has only recently extended these finding to damages claims based on public nuisance: “If Congress has addressed a federal issue by statute, then there is no gap for federal common law to fill.”¹² Whether these findings will be upheld, especially if the climate-related regulation and its enforcement will not develop further, remains to be seen.

II. *Legal Standing*

The question of who is eligible to bring climate-change-related claims to court was already complicated as long as such litigation was limited to injunctive relief claims: after all, everyone worldwide feels some impact of global warming. Among the first plaintiffs whose legal standing was accepted by the US Supreme Court were US coastal states, since the size of their territory could become affected by rising sea levels owing to global warming.¹³

In regard to damages claims the situation is even more complicated since plaintiffs do not only have to prove that they are (potentially) affected by climate change, but have to convince the court that the damage they suffered might be traced back to the activities of the defendants. Not surprisingly, this regularly leads to a denial of legal standing.¹⁴

III. *Causation, Attribution and Time-related Issues*

Apart from the procedural issues, the main legal hurdle for damages claims seems to be causation. It may be possible to prove that man-made greenhouse gas emissions contribute to global warming. It may even be possible to prove

11 US Supreme Court, *Connecticut v American Electric Power* (20 June 2011).

12 US Court of Appeals for the Ninth Circuit, *Kivalina v ExxonMobil* (21 September 2012).

13 US Supreme Court, *Massachusetts v EPA* (2 April 2007).

14 US District Court for the Southern District of Mississippi, Southern Division, *Comer v Murphy Oil* (20 March 2012); US Court of Appeals for the Ninth Circuit, *Kivalina v ExxonMobil* (21 September 2012).

that global warming increases the risk of certain natural catastrophes like hurricanes or at least causes a rise in sea levels, an increase in heat waves, droughts, etc. However, at least up to the present date, it is not yet possible to prove that the greenhouse gas emissions by a certain emitter cause a specific damage to any potential specific claimant. Under general tort law doctrine, this would rule out liability. Of course, theoretically, constructions to overcome such causation hurdles could be developed. In very rare, exceptional cases, it has been done before. One way would be to extend the doctrine of market-share liability¹⁵ to climate liability cases. However, market share liability has so far only been applied when there is a very limited number of possibilities of who might have caused a damage and it is completely clear that there are no other possible causes. DES litigation¹⁶ was one of the very few examples where market-share liability was applied.¹⁷ The climate liability scenario is much more complicated and therefore much less suitable for such a solution.

Another aspect is time-related issues. Man-made activities have produced greenhouse gas emissions for a long time, far exceeding any limitation period that might be applicable. Therefore a plaintiff would have to prove that the damage he suffered was caused by greenhouse gas emissions of the defendant occurring within the limitation period, not before.¹⁸

D. Coverage Issues

Liability claims based on climate change have recently led to first coverage disputes between defendants in such litigation and their liability insurers.¹⁹ In regard to damages claims for greenhouse gas emissions, the focus so far is on the duty of the liability insurer to defend and cover defense costs. The

15 For the background of the market-share liability doctrine see e.g. Scammon & Sheffert (1992).

16 Diethylstilbestrol (DES) is a synthetic estrogen. In 1971 it was discovered that DES can cause cancer in the daughters of women who used the drug during pregnancy. This triggered hundreds of liability claims against pharmaceutical companies that had sold drugs containing this substance.

17 Supreme Court of California, *Sindell v Abbott Laboratories* (20 March 1980).

18 Other limitation period issues are discussed in: US District Court for the Southern District of Mississippi, Southern Division, *Comer v Murphy Oil* (20 March 2012).

19 See Supreme Court of Virginia, *AES v Steadfast* (16 September 2011 and 20 April 2012).

importance of this aspect is enhanced by the fact that almost all of this litigation is pending in the USA, where, unlike for instance in most European jurisdictions, no loser-pays rule exists. This means that the burden of the sometimes staggering defense costs is left with the defendant, even if the plaintiff is completely unsuccessful.

For the duty of the liability insurer to defend, the occurrence clause used in the contract between the liability insurer and its insured is crucial. Quite frequently, an occurrence is defined as an accident, something “neither expected nor intended”. If this is the case, the Supreme Court of Virginia has decided (in *AES v Steadfast*²⁰) that the liability insurer’s duty to defend is not triggered if the plaintiffs are alleging intentional greenhouse gas emissions by the defendants.

Among other coverage issues that are currently being discussed in the climate change context are the range of the pollution exclusion²¹ and the attribution of losses to certain insurance years. However, unlike the duty to defend and the coverage of defense costs, these issues would only be dealt with by courts if plaintiffs in climate-change-related litigation would proceed sufficiently far for those aspects to become relevant.

E. Outlook

Legal hurdles for liability claims based on greenhouse gas emissions as such seem too substantial to be overcome by plaintiffs in the foreseeable future. Nevertheless, liability issues somehow related to climate change are likely to gain in importance. As the consequences of climate change become more obvious, public awareness and political pressure to introduce and enforce stricter regulation in regard to climate-change-related activities will increase. This could open the door to a variety of liability claims, ranging from negligence claims against architects, engineers and other construction professionals to consumer fraud claims and claims against directors and officers based on providing insufficient information for shareholders. One aspect that might strengthen this development is the increased frequency and severity

20 AES is one of the defendants in *Kivalina v ExxonMobil*, see most recently US Court of Appeals for the Ninth Circuit (21 September 2012).

21 The US Supreme Court decided that greenhouse gas emissions were a form of pollution and therefore the EPA was authorised by the Clean Air Act to regulate these emissions in *Massachusetts v EPA* (2 April 2007).

of some natural catastrophes, like hurricanes and wildfires, due to global warming: If victims of natural catastrophes are not sufficiently protected by first-party insurance, they will look elsewhere for deep pockets to cover their losses, at least in more litigious societies like the USA or Australia. Also, first-party insurers might become more likely to try to share the burden of their losses by subrogating against potentially liable parties. Pressure from shareholders to make use of such options could also contribute to this trend.

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**PART VI:
INTERNATIONAL CLIMATE CHANGE
LAW AND CROSSCUTTING ISSUES**

Ivo Appel

Abstract

The rationalisation of the handling of inconclusiveness and knowledge deficits is one of the core problems and crucial challenges of modern law (and especially in the context of climate change) which have not nearly been solved. With this general shortcoming, risk law penetrates major parts of the legal system and thus obtains a rather exemplary significance. The discussion of a risk-based approach brought to the European legal practice from the Anglo-American context seeks to base the justification of state risk regulation on more effective reasons supported by scientific evidence, and to link the adequacy of the cause for risk regulation measures to economic aspects and cost-benefit considerations. This increasingly strong influence of the Anglo-American perspective on the legal handling of risks also in Europe gives reason to review the principles of risk law as a basis on which to take a closer look at the basic problems and limitations of legal risk regulation.

A. Risk as a Central Concept of Law

Society's view of itself as a risk society results from a change of awareness and of a new dimension of perception which has far-reaching consequences also in the realm of law. Consequently, dealing with risk from a legal perspective is among the central challenges facing public law which have emerged in the context of movements in society and the state's response to such movements.¹ The need to overcome the uncertainty and inconclusiveness arising as a consequence of the ever-increasing complexity of technical processes and the inconclusiveness particularly with respect to the mid- and long-term consequences of actions has led to the concept of risk – hitherto

1 Wahl (2006:70ff.); see also Wahl (1991:409ff.); Wahl & Appel (1995:1ff.).

mainly used in science – also developing into a central concept of law within a comparatively short period of time.² Technology-based (long-term) risks which are inherent to – and these are but a few examples – the use of nuclear energy, genetic engineering and nanotechnology, the condition of the ozone layer, the extinction of species, and global warming have become a central legal issue. Not only has the concept of risk been doctrinally interpreted and refined in this way, but dealing with the risks of the risk society has also comprehensively been declared a task of the state and translated into law with its comprehensive particularities by creating a risk (administration) law which documents the corresponding change in the doctrines of public law.

While the first phase of risk law was concerned with phrasing and specifying the foundations of state risk control and the legal particularities of risk administration law, in a second phase certain risk-law-specific difficulties become apparent. These result partly from the various ways of dealing with inconclusiveness, which are strongly culture-dependent, but also partly from structural limitations. It is largely the discussion of a risk and/or science-based approach brought to the European legal practice from the Anglo-American context³ which has led to the identification and scrutiny of the actual or supposed weaknesses of German and European risk law. This particular Anglo-American approach seeks to base the justification of state risk regulation on valid reasoning supported by scientific evidence and to link the adequacy of the cause for risk regulation measures to economic aspects and cost-benefit considerations. It is precisely this increasingly strong influence of the Anglo-American perspective on the legal handling of risks also in Europe which gives reason to review the principles of risk law as a basis on which to take a closer look at the basic problems and limitations of legal risk regulation.

B. Risk and Risk Law

The career and the comparatively rapid establishment of the concept of risk in law have not only led to a new key problem area in law and a new type of administration, but also to the emergence of risk (administration) law as an independent area of law.⁴ While they were initially of very limited sig-

2 Wahl (2006:70ff.).

3 See Section C below.

4 See inter alia Di Fabio (1994); Wahl (1991:275ff.).

nificance in environmental law only, the concept of risk and risk law have now conquered almost the entire area of environmental and technology law, food and pharmaceutical law, genetic engineering law and consequently the law relating to almost all modern technologies, ranging from mobile communications to nanotechnology. The creation of risk law and of an accompanying risk doctrine have given these areas of law – which appear very different and distant from each other at first glance – a new central concept and systematic commonalities and have at the same time led to a largely coherent area of problems as well as of law. Not only has this led to an increase in systematic, cognitive value across the individual fields, it has also facilitated the exchange of lines of argument, methodical approaches and solutions.⁵

I. Legal Risk Management

One of the widely agreed upon conclusions from the discussion surrounding risk law so far is that reliable predictions on certain consequences, on the exclusion or even only the control of risks of technological influences on health and the environment are practically impossible owing to the sheer number of possible causal chains.⁶ This straightforward conclusion leads to the realisation that the aim of risk law can only be to handle risks and inconclusiveness rationally rather than to avoid them completely.⁷ Furthermore, in view of the lack of conclusive evidence available for damage predictions, it has been clearly established that concepts of risk law cannot be limited to a strategy of avoiding unintended consequences in the sense of a defence or precaution against risks, but must also use the inconclusiveness itself as a starting point for risk control.⁸ Bearing in mind that a graduated response based upon the degree of damage and the probability of its occurrence does not make sense if the risk estimate is highly uncertain, the formula used by the German Federal Constitutional Court (*Bundesverfassungsgericht*) stating that risks which seem practically impossible to materialise based on current scientific and technological knowledge may be imposed on

5 Wahl (2006:72).

6 Scherzberg (2011:41ff.).

7 Appel (2004:337); Scherzberg (2011).

8 For this and the following see Ladeur (1993:209ff.); Scherzberg (2004:241); summarising Scherzberg (2012:41ff.).

the party concerned as a socially adequate burden is not particularly convincing in these cases either.⁹ A lack of sufficient knowledge of risks can clearly neither lead to the conclusion that no risks exist nor to the opposite.¹⁰ Risk law must thus always adopt a two-tier approach. Where there is a well-founded suspicion that a risk exists, it must focus on precautionary measures appropriate to this suspicion. At the same time, however, it must take into account that the risk potential might not be sufficiently known. This is why risk control must also always bear in mind the remaining aspect of inconclusiveness. Against this background, risk management which the state implements or imposes on companies has two principal tasks to fulfil: firstly, the task of producing knowledge about risks in order continuously to stretch the boundaries of knowledge and to ensure that risk decisions are progressively adjusted to the new knowledge base, and secondly the task of determining the respective risk preferences in order to define the extent to which a community is prepared to bear risks.¹¹

II. Core Elements of Risk Law

Systematic commonalities and core elements of risk law have gradually formed across the individual fields and subsequently condensed to form an independent area of problems and of law with specific lines of argument, methodical strategies, system approaches and its own regulatory instruments. These principles and typical characteristics of state risk management include extended precaution by way of risk prediction and limitation, structural and organisational measures to involve scientific and technological expert knowledge, as well as those subject to risk control in the task of risk identification, the granting of considerable discretion for risk assessment, the comprehensive creation and application of sub-statutory standards, the strong procedural focus and a specific methodology for handling inconclusiveness.

9 See the decision of the German Federal Constitutional Court BVerfGE 49, 89 (133f.); Scherzberg (2004:241) with further references.

10 Scherzberg (2004:214); (2011).

11 Summarising Scherzberg (2011).

1. Precaution through Risk Prediction and Risk Limitation

The characteristics of German risk law include the recognition and fundamental statutory regulation of the precaution interest, which opens up the prediction and limitation of risks beyond the risk knowledge already available through experience.¹² Under the aegis of precaution, law can be applied and prevention measures can be taken, despite the existence of inconclusiveness and although the factual basis for predictions is less stringent – requiring only that there be sufficient cause for concern. In order to further specify, justify and legitimise this cause for concern and the ensuing precautionary measures, general procedures and rules are designed to guide, substantiate and direct the potentially unlimited ways of handling the consequences of inconclusiveness.¹³ As a rule, requirements for risk regulation are not implemented by way of one isolated administrative decision, but are embedded in a network of preventative levels of investigation, evaluation and decision-making, which are to structure and systemise the handling of uncertainty on a medium level of substantiation. The decisions to be made are thus staged pursuant to a specific procedure and specific rules, which are to provide a certain level of clarity and uniformity, also with respect to the administrative handling of uncertainty. These procedures and rules are concerned with reducing the inconclusiveness to a minimum prior to the decision-making process, identifying and evaluating the consequences of inconclusiveness and ultimately with handling the remaining inconclusiveness through strategies of avoidance or minimisation. The aim is legally to rationalise (risk) decisions which must be made without a sufficient basis for predictions, and at the same time to limit the costs connected with the lack of knowledge.¹⁴

2. Refocusing Risk Assessment towards Expert Knowledge and Those Subject to Control

Risk law is characterised by the structurally and organisationally ensured involvement of scientific and technological expert knowledge in the decision preparation phase, as well as by the fact that the investigative burden is

12 Ladeur (1993:209ff.); Di Fabio (1994:450ff.); (1996a:147ff.); Köck (1999:151ff.).

13 Appel (2004:334ff.).

14 Wahl & Appel (1995:334ff.); Karthaus (2001:72ff.); Scherzberg (2002:134).

largely shifted to those subject to control, in connection with an official investigation which is principally limited to monitoring the process.¹⁵ Since the number of risk factors to be considered tends to be unlimited and is subject to change at all times owing to a dynamic knowledge base, risk assessment and risk management are generally carried out in network-like structures between government, administration, science and the companies concerned, which are intended to guarantee the recognition and consideration of all relevant aspects as best as possible. The state regulating the risk and the operators and/or manufacturers subject to the precautionary measures thus generally do not just encounter each other few and far between, but are involved in a continuous relationship aimed at achieving a dynamised process, as well as a continuous adjustment to the progress of the state of knowledge. The implementation of risk law is not left to the administration alone, but is designed to involve those social forces relevant to risk knowledge¹⁶ so that third parties and the general public are also involved in the decision-making processes at all times.

3. *Discretionary Assessment and Sub-statutory Standards*

One of the particularities of risk law is the fact that the statutory basis regulating administrative actions is undetermined to a high degree and thus strongly depends upon substantiation provided by the administration. This has led to sub-statutory standards and guidelines playing an important role in the area of risk law – comparable to parts of environmental law. In those areas where standardisation is not possible or exceedingly difficult, risk law has generally responded by granting considerable discretion in terms of assessment, evaluation, tenability and balancing of interests. Where it is difficult to assess the risk in terms of nature and substance, comprehensive discretion is granted to both the legislator for its fundamental decisions and the executive for specific risk decisions – this, in turn, limits the scope of the control exercised by the courts.¹⁷ As the courts cannot carry out the risk assessment themselves or change an existing risk assessment, risk law is typically located on the procedural level. It is thus not a coincidence, but a consequence of structural factors in risk law that legal challenges and legal

15 Summing up Köck (2003:6f.); see also Di Fabio (1996b:242f.); (1994:457).

16 Appel (2004:341); Köck (1999:166f.).

17 Wahl (1991:409ff.).

control mainly relate to the procedures used to identify and evaluate the risk.¹⁸

4. Procedural Focus of Risk Law

Owing to the intrinsic difficulty in risk law to formulate clear material standards as well as the general vulnerability of potential material standards, risk law largely focuses on procedural concepts, methods for the identification and assessment of risks as well as the determination of the components and experts involved in these assessments carried out in preparation of a risk decision.¹⁹ It is thus a characteristic element of risk law, in many cases, that it neither directly nor indirectly answers the question as to the permitted maximum level of a particular risk. As a rule, the legal statement is limited to defining who is entitled to use which methods and which expert knowledge to determine which risk is permissible in the specific case. Although first impressions might point to the contrary, risk law is not primarily concerned with determining material limits for the admissible handling of risks – which would be difficult to regulate on an abstract level anyway – but with relocating the almost unregulatable material issue to the level of procedural and competency regulations, which specify who is entitled to make a binding decision on the acceptable risk and which procedure should be used.²⁰

5. Methodology of Handling Inconclusiveness

As far as the methodology of dealing with inconclusiveness is concerned, risk law provides methods, criteria and parameters to guide and rationalise the process of risk identification and risk evaluation which have been formulated across various doctrines and are increasingly also defined specifically for individual areas. Essentially, the four-stage approach – often generally referred to as risk management – of risk identification, risk evaluation, handling of the risk (risk management in the narrower sense of the term) and risk control is almost always applied.²¹ The risk identification is part of the

18 Wahl (2006:75).

19 For this and the following see Wahl (2006:71).

20 Wahl (2006:71).

21 See Wahl & Appel (1995:106ff.); Appel (2004:336ff.); Köck (2003:6f.).

scientific cognition process which seeks to identify, determine and analyse risks, using the means of the respective science. It provides scientific/academic and methodical statements upon which political and legal decisions can be based; it does not, however, make decisions or partial decisions itself. It is decisive in identifying the existing risks to the furthest extent possible by taking into consideration all relevant factors and in connecting this analysis to the respective state of knowledge at the time. Actual decisions are not achieved until the risk evaluation stage which does not fall into the area of responsibility of scientific expert knowledge, but is ultimately – in a modern democratic country – the responsibility of the public bodies authorised and bound by law.²² Since risks do not necessarily trigger defensive measures as many risks are actually tolerated to achieve certain common aims and advantages, it is always necessary to evaluate and to determine at which point risks become intolerable and defensive measures must be provided for. In the context of risk evaluation, scientific expert knowledge only fulfils the task of providing advice or recommendations. At the third stage, which follows the risk evaluation, risk management in the narrower sense of the term plans for and determines the instruments and measures to be applied against such risks which are considered intolerable. Finally, risk control regimes monitor further developments over time by assessing the effectiveness of risk-regulating measures, taking into account any potential changes of the available knowledge and also ideally instigating any potential readjustments.

C. Precaution-based Risk Law versus Risk-based Approach

German risk law is characterised by a strong focus on the principle of precaution. One implication is that the precautionary principle, as opposed to the ‘polluter pays’ principle, is not based upon strict allocation patterns, but is largely neutral in terms of geography and time.²³ The legal challenge is to limit the infinity and openness of precaution in a rationally comprehensible way and thus also to integrate it into the statutory framework. It is the central task of the security doctrine of risk law to carry out and to justify this limitation. Essentially, it is decisive how detailed and demanding the require-

22 See Breuer (1994:160).

23 Wolf (1999:82); previously Saladin (1989:35).

ments for the rational comprehensibility and the consequential limitation of risk-controlling (precautionary) measures are phrased. In this respect, the justification dimension of the precautionary principle for public risk control measures has proved to be particularly strong in so far as the requirements for the justification of causes for concern and their scientific basis are not particularly high in German risk law. Despite the tendency – which has been noticeable internationally for a considerable period of time – to take a more scientific approach to the perception of precaution and risk and to make precautionary measures dependent on the existence of the appropriate ‘objective’ correlations and evidence,²⁴ the strongly precaution-oriented German risk law grants considerable discretion to both the legislator and the administration in assessing the existing risk. Even the German Federal Constitutional Court is not reluctant to grant the legislator the right within his assessment prerogative to assume a far-reaching ‘basic risk’ for the entire area of genetic engineering²⁵ without referring to the current state of scientific knowledge. This means that fundamental decisions in favour of precaution and cautiousness can be justified in a way which fulfils the requirements of (constitutional) law without having to provide extensive scientific justification. In cases of unclear or uncertain risk evaluations, a reasonable assumption is sufficient to justify risk-control measures, which might even include a complete avoidance of the risk.²⁶

This comparatively wide approach to precaution has however come under increased pressure recently, as the concept of the risk-based approach has introduced new impulses to the discussion regarding risk law on the European continent.²⁷ Both the term and the idea of the risk-based approach, which originate from the Anglo-American context, have been present also in the European legal practice for some time and are explicitly mentioned in papers of the Network of Heads of European Environment Protection Agencies (EPA Network).²⁸ The risk-based approach is sometimes presented as a strategy to be pursued to achieve an improved regulation of the environ-

24 See Arndt (2009:107ff.); Scherzberg (2010:306ff.).

25 See the decision of the German Federal Constitutional Court BVerfGE 128, 1 (Gen-technikgesetz).

26 Scherzberg (2010:306f.).

27 See inter alia Hutter (2005:2ff.); Rothstein et al. (2006:1056ff.); Gouldson et al. (2009:5283ff.); Hill (2003).

28 Network of Heads of European Environment Protection Agencies (2008:5,7,15); see also Environment Agency for England and Wales (2005:2).

mental sector. In a nutshell, the risk-based approach aims at designing and implementing risk-control measures in a way which is both functional and appropriate to the cause. Pursuant to this approach, the justification of state risk control should require valid reasoning based upon reviewable scientific evidence. Economic aspects and cost-benefit considerations should play a decisive role both in assessing the appropriateness of the cause and in implementing the risk-control measures. The aim is a rationalisation of risk decisions combined with a far-reaching minimisation of the effort (bureaucracy costs) and of the burdens associated with the limitations of freedom caused by risk-control measures (socio-economic costs). The central focus on rationality and scientific reviewability shows that the term ‘risk-based approach’ – which is commonly used in the Anglo-American context and has now also been introduced to European legal practice – fails to describe precisely the basic interests behind the approach. In line with the term used in American English, this is actually much better described as a ‘science-based approach’²⁹, as far as the increased science-based requirements applied to the justification are concerned. Looking at the approach as a whole, it would best be described as a ‘science- and cost-based approach’.

Although there are some differences when it comes to detail, specific individual basic elements and a basic interest deductible from these elements are almost unanimously associated with the risk-based approach. These basic elements of the risk-based approach include:³⁰

- linking of state regulation and risk-based procedures
- handling of risks which is based on rationalisation and scientific evidence
- identifying all relevant risk factors, if possible
- increased requirements regarding the correlations used for justification
- demand for an increased level of evidence to justify a concern and the corresponding burden of justification placed upon the authorities
- increased focus on consequences and impact
- risk decisions based upon cost-benefit considerations
- consideration of political, social and economic aspects in the decision-making process with a clear focus on economic aspects

29 Sunstein (2005); summarising the “science-based approach” Scherzberg (2010:306ff.).

30 See inter alia Hutter (2005); Rothstein et al. (2006); Gouldson et al. (2009); summarising Appel & Mielke (forthcoming).

- increased demand for causality between the use of instruments and positive environmental effects
- linking of the resources used and the scope and extent of the identified risks both in the context of the use of instruments and of risk control, and
- increased transparency, comprehensibility and cooperation.

On the basis of the four-stage approach of risk identification, risk evaluation, handling of the risk and risk control, which was developed for risk management purposes, the individual elements of the risk-based approach concern and influence all four stages of risk management. It appears that to a significant extent, the concept can be understood as a response to the specific problems of risk-related regulation in the environmental sector. This applies specifically to the identification of – where possible – all relevant risk factors, the specification of causes for concern, the increased level of evidence required to justify such concerns, as well as to the establishment of the proportionality of state risk control in situations characterised by inconclusiveness. Although the risk-based approach faces significant difficulties itself and can sometimes be exposed to strong objections,³¹ it still provides a strong reason to review the German and European security doctrines critically.

D. Basic Problems and Limitations of Risk Law

If put to constructive use, the interest inherent in the risk-based approach to achieve a thorough rationalisation of the security doctrines, which should be as transparent as possible, bears a significant critical potential. It thus appears worthwhile to look at the basic problems and limitations of the legal handling of risk in order to be able to judge whether and to which extent the lines of argumentation associated with the risk-based approach can contribute to the further development of risk law and of the risk doctrines.

31 See Appel & Mielke (forthcoming).

1. Limitations of Risk Identification

1. Scale and Complexity of Legal and Impact Assessment

One of the basic problems of risk law is the general openness of the impact perspective when identifying potential risks. The spectrum of consequences to be identified and evaluated is generally unlimited. If risk law were linked to a correspondingly complex and demanding open impact perspective, it would be in constant struggle with (over)complexity and an ensuing inability to act in many aspects. It has however become a commonplace in risk and impact assessment that, owing to practical as well as cognitive reasons, it can generally not be the aim to identify completely all consequences, but only to limit the relevant consequences.³² Where typical and recurring cases are concerned, a standardisation and formalisation will generally lead to a limitation of the perspective and to a consequential reduction in complexity. If a standardisation is not possible, the impact orientation must be limited by defining an appropriate scope of investigation in the individual case. The examples of the environmental impact assessment with its scoping procedure and the limitation of the scope of investigation in the context of genetic engineering works in genetic engineering facilities show that a limitation of the risk and impact perspective is possible also in individual cases. In order to be suitable for practical use, risk law must define such a scope of investigation and thus limit the impact perspective. Even a risk-based approach could not avoid carrying out such a limitation process, even if state risk regulation measures should generally be based upon scientific evidence which should be as comprehensive, effective and convincing as possible.

2. Difficulties and Uncertainties of Prediction

A major problem in risk and impact assessment is that the prediction of the potential impact is subject to significant uncertainty.³³ The assessment of the impact and the evaluation of the benefits and risks of environmentally relevant activities, and particularly also of innovative technologies which are relevant in terms of the environment and health, are typically associated

32 See inter alia Grunwald (2000:217ff.); Ladeur (1994:111ff.); Hermes (2004:360).

33 Frederichs & Blume (1990:31ff.); Bechmann & Jörissen (1992:153).

with significant difficulties regarding prediction.³⁴ In addition, the impacts of certain decisions on the environment and its condition often only become apparent after a considerable period of time. There are generally no prediction methods available which would be suitable to comprehensively grasp and handle the complexity and long-term effects of what might be novel developments. Furthermore, the existing theoretical deficits and lack of knowledge regarding cause-and-effect relationships can make a clear assessment and evaluation difficult. It is characteristic of the decision-making³⁵ processes used in, for instance, impact assessments that specific activities, projects and novel technologies may promise economic or social advantages, while at the same time being unable to exclude risks and damage. Moreover, the long-term positive or negative impact of certain activities and projects or of the introduction and use of a novel technology are hard to predict in most cases. Pollutants are not always stable, environmental impacts are often uncertain and the factual situation in question in each individual case is a variable element. Changes in risk assessment and risk evaluation – the scientific and technological basis of which is hard to distinguish in practice from normative value judgments regarding the tolerable residual risk – show how difficult it is to handle risks in the area of the environment. Substances previously regarded as non-hazardous suddenly prove to be harmful. The resulting danger to the environment is often dealt with by replacing an identified risk with a risk which is (as yet) unknown.³⁶ The risk-based approach also forms part of this development when it attempts to remedy a cause-effect relationship identified as harmful by inducing the polluter to shift the consequences of his conduct to a higher level of uncertainty and complexity, which will then no longer be detectable as a legally relevant potential risk with the present means available to risk assessment and evaluation.³⁷ Against this background, it becomes apparent that even the rational comprehensibility and scientific (lack of) provability are only relative factors.

Risk law can of course – as the respective efforts of the risk-based approach show – make an attempt to include the (always) remaining uncertainty of prediction as a factor to be considered (as a probability coeffi-

34 Appel (2009:158ff.).

35 See Bohne (1999:4).

36 Wahl & Appel (1995:7).

37 See Murswiek (1992:38).

cient³⁸) when evaluating the risk. Provided that a fault tolerance is appropriately considered, a quantification of the risk would thus be possible also in situations of uncertainty. It is however doubtful whether and to which extent uncertainty, particularly if it refers to important goods in the realm of public interest, can really be appropriately integrated into the risk evaluation in the public sector. This applies even more as the effort involved in achieving meaningful evaluation standards can be enormous and only justifiable, if at all, for major projects, while in all other cases the evaluation would have to be carried out on the basis of categorisations and standardisations. In addition, recent research and developments show that there are indeed various types of uncertainty, of inconclusiveness and of the specific as well as un-specific lack of knowledge,³⁹ which require different evaluations and are hard to integrate as meaningful factors in the risk assessment process.

3. Dependency on Scientific Advice and Interdisciplinarity

Ever since its emergence as an independent area of law, risk law has been subject to a strong scientification, which manifests itself above all in the regular and increased involvement of expert knowledge.⁴⁰ In order to be able to handle uncertainties and inconclusiveness appropriately, the proportion of expert knowledge which goes beyond general knowledge and can only be analysed scientifically, as well as investigations and predictions based upon such knowledge, must be kept broad. Risk law thus has – as has environmental and technology law – developed into an area where the issue of involving experts is particularly exigent. There are many sub-areas in which the practical problems are so complex and the ways of responding so uncertain that the consultation of scientific and technological experts has become everyday legal practice. This involvement of experts means that risk law is interdisciplinary in its approach.⁴¹ This interdisciplinarity can lead to serious problems in terms of competencies and responsibility in the relationship between the decision-makers and the technical experts who shape the decision if it is unclear under which conditions risk law can and may incorporate knowledge from other disciplines to enable the state to act effi-

38 Fehling (2004:444).

39 See Hoffmann-Riem (2009:113ff.).

40 See Wahl (2006:66).

41 Wahl (2006:66ff.).

ciently, while also ensuring that these decisions shaped by significant expert knowledge remain justifiable and legitimate.⁴²

The combination of scientific advice and political and administrative decisions which manifests itself in the strong link between risk law and scientific expertise depends on the trust in the availability of expert knowledge and on the well-balanced nature of scientific expertise. This applies in particular to concepts such as the risk-based approach which link risk decisions to justifications that are to contain a high level of scientific evidence. However, the trust in expert knowledge as a central resource of risk law is precarious, and where it is precarious it also infects law.⁴³ Even in pluralistic committees, such as the Central Committee on Biological Safety (*Zentrale Kommission für die Biologische Sicherheit im Gentechnikrecht*), it often depends on the relative and comparatively random level of knowledge of individual members whether the findings and experience of certain disciplines are integrated into the legal decision-making process. This is even truer if experts from a certain discipline rely on the knowledge bases of relevant or supposedly relevant (neighbouring) disciplines. Moreover, an increase in knowledge does not necessarily result in an increase in certainty, but can, on the contrary, lead to an incessant stream of new and unsolved questions. New knowledge can also create an awareness of how uncertain the premises upon which measuring methods, evaluations, value limit definitions, quality targets and regulatory models are based actually are.⁴⁴ Additionally, the state is not in a position simply to produce and accumulate knowledge as a resource. It must be obtained from science, technology and businesses so that the state depends on cooperative action in this respect. Insofar as risk law relates to matters which operate at the boundaries of knowledge and thus makes clear statements of scientific expertise impossible, trust in scientific expertise starts to fade and the (partial) contribution of expert knowledge to the legitimacy of risk decisions is consequently weakened. Against this background, much speaks in favour of the thesis that there are deficiencies in the risk-based approach in terms of its pursuit of rationality and scientifically founded risk decisions. The requirements of the risk-based approach can be met if and to the extent that the required knowledge is available. However, where an ever-improving specification is not possible or not likely to yield success and risky actions cannot simply be made subject to stricter

42 Appel (2011:309f.); Joerges et al. (1997).

43 See Wolf (1999:78).

44 Wolf (1999:78).

limitations, risk law must particularly also deal with the question of how to handle inconclusiveness.⁴⁵

II. Knowledge and Evaluation

The more uncertain the knowledge base and the more severe the lack of theoretical and empirical validation of the knowledge regarding the risk, the more important become the component of political evaluation and the scope of discretion of the legislator, the administration and – to the extent of their rights of control – of the courts in the context of risk decisions.⁴⁶ But even if the knowledge regarding the existing risk is relatively well-established and validated, the risk identification stage is always followed by an evaluation of whether and to which extent certain risks and remaining inconclusive aspects should or should not be accepted. Against this background, the risk-based approach can also be interpreted as an attempt to reduce the relevance of the evaluation element by having recourse to scientific findings and evidence, and presenting these as decisive for certain risk decisions. This carries the danger that the scientifically founded, rationally comprehensible findings regarding individual risk potentials demanded on the risk identification level lead to premature conclusions as to whether action is or is not required. However, the mere description and analysis of specific characteristics of a substance or of certain physical processes and interrelations as the present state does not allow the drawing of any conclusions – unless one is willing to risk a naturalistic fallacy – as to the normative target definition regarding the ecological state or situation which is to be preserved through specific risk regulation measures. The scientific description of substances, situations, interrelations or processes does not provide any standards or criteria as to which risks to human health, the environment or nature should or should not be tolerated. Without more specific information regarding the intended and desired level and type of the ecological reference system, risk regulation, even in the shape of risk minimisation, cannot be a practicable objective. We must not let our fascination with a rational method for the specification and operationalizations of risk research tempt us into deducing certain decisions therefrom. The identification of risk, irrespective of how

45 Ladeur (1991:255); (1993:209ff.); (1994:111ff.); (1995).

46 Wahl (2006:74).

rationality comprehensible it may be, remains part of the scientific cognition process. It merely provides knowledge on facts and scientific rules and thus leads to statements and not to decisions – not even to preliminary decisions, recommendations or suggestions. A subjective weighting and consideration of the identified facts and rules, and also of the inconclusiveness and knowledge gaps as well as the affected interests of the public and the individual, are not carried out until the risk evaluation stage. A decision can thus only be reached at the risk evaluation stage.⁴⁷

In addition to the difficulties related to the general openness of the impact perspective and the uncertainty of predictions, the risk and impact assessment associated with risk law must address the question as to which consequences should be relevant for a decision in the first place, how they should be weighted, and which standards should be decisive for the assessment and evaluation of the impact.⁴⁸ Impact identifications and impact evaluations can only be used in a rationally comprehensible and thus justified way to the extent to which the weight given to individual consequences as well as the evaluation aspects are clearly expressed and disclosed. It is thus not sufficient to realise and recognise the importance of impact aspects. The realisation that the impact assessment must necessarily be based upon a target and/or purpose structure is just as important. The complex task of defining standards can only be tackled with the means of law to the extent to which these structures are (clearly) evident from the bases for decisions of the applicable regulations.⁴⁹ From this point of view, it is mandatory that the impact perspective is purpose-bound for it to be legally manageable. This correlation is not always reflected in the various approaches to handling risks.

Even if the correlation between the impact perspective and a target and purpose structure is recognised in general, there is often a lack of precise and rationally reviewable criteria stipulating upon which of a multitude of possible constitutional rights or purposes of the law the evaluation of identified impacts should be based and which specific weight should be given to the individual purposes. While the fields of technology assessment and environmental impact assessment have always been concerned with avoiding adverse effects on life, health and the environment so that the pursued aims have always been comparatively clear and (more) homogenous, the ap-

47 Breuer (1994:160f.).

48 Appel (2009:159f.).

49 See Lohmeyer (1984:489); Ropohl (1990:198); Bechmann & Jörisen (1992:161f.).

proach adopted by risk law leads to a more open aim structure.⁵⁰ The aim is to recognise and release the potential and the benefits of certain technologies, while avoiding or at least reducing the negative and critical effects and side effects. The approach does not define the scope to which each of these aims should be decisive and how they are to be set in proportion to each other. Where multi-layered targets are the only starting and reference points for the impact assessment,⁵¹ an important aspect of the task to be fulfilled by the administration, the courts and legal academia is to specify the targets (set by the legislator) and to devise the respective methods so that a rationally comprehensible impact orientation becomes possible at all on the basis of such targets. It appears that in the context of the risk-based approach, the cost-benefit analysis is intended to fulfil this role, although this analysis faces standard-related problems itself.⁵²

III. The Economisation of Risk Law

In line with the generally increased importance of economic considerations in the legal field, risk law is also subject to a growing trend towards economisation. Cost-benefit analyses, which also form a central element of the risk-based approach, are among the most prominent and at the same time the most problematic instruments in this context. Cost-benefit analyses in risk law are different in nature as their perspective is significantly broadened.⁵³ This is due to the fact that the risk evaluation is intended to weigh the total expected costs against the total expected benefits in order to reach the best and/or most profitable solution. It must be kept in mind that, in the context of risk evaluation, cost-benefit analyses are typically to be applied in the area between unacceptable risks and acceptable, negligible risks. In this area, where risks should be kept as low as reasonably possible, cost-benefit analyses can help with the decision as to how various possible options should be graded – taking chances and risks into account – and how a decision should be made in favour of a certain option. It is decisive for the application of cost-benefit analyses that all relevant costs and benefits of those involved and concerned,

50 See Appel (2009:159f.).

51 Wäldle (1979:12).

52 See section C.III. above.

53 For this and the following see Appel & Mielke (forthcoming); Fehling (2004) with further references.

including the uncertainties, can be reflected in the costs and benefits and that not only direct but also indirect costs (time required for administration, delays to investments etc.) are included in the analysis.

The strength of cost-benefit analyses lies in particular in the comparability of costs and benefits in the same currency. The transparency of the decision-making process can thus be increased significantly. An increased transparency also increases the strength of the information available for further decisions.⁵⁴ The disadvantage of cost-benefit analyses lies in the comparatively one-dimensional approach in which monetary aspects are decisive, while strategic aspects do not (or cannot) find the appropriate consideration because of the approach. In addition, there is the problem – which is crucial particularly in the public sector and for which the qualitative cost-benefit analysis does not provide an adequate solution – that it is impossible to allocate a monetary value to many (abstract) public interest objectives and purposes and that it is generally impossible to evaluate these appropriately.⁵⁵ The problems of cost-benefit analyses thus lie in particular where the factors to be included are not easily quantifiable and monetisable (in a rationally comprehensible way) and the creation of standards is particularly severe. Where there is no market for a specific good, the method generally applied is to rely on surveys to identify the (hypothetical) willingness of a representative group of persons to pay for the good to be preserved and/or to find out the sum in exchange for which these persons would be willing to give up the respective good (willingness to pay/willingness to accept). This is essentially an attempt to create a hypothetical market. However, where the good to be monetised is human life, this procedure – and the monetisation attempt in general – runs into increased difficulties.

This issue is connected to the general problem of the commensurability of goods or values, which makes it more difficult to prepare exact cost-benefit analyses. Another difficulty besides the comparability of the individual factors is the selection of the factors to be included in the analysis. How broad or narrow the scope of the investigation should be is already an evaluative decision which cannot be rationally justified down to the last detail. However, there is a danger that the cost-benefit analysis will be used to create the illusion of an objective decision. The subjective element is only shifted to an earlier stage – from the decision level to the selection level.

54 Weis (2009:140f.); Hanusch (1994).

55 Hutter (2005:8ff.); Adams (1995:93ff.).

Until these problems are solved, exponents of the cost-benefit approach – despite the plausibility of the basic idea – may face the accusation of creating a mere illusion of an objectiveness of the analyses prepared.

Finally, the definition of the correct tax discount rates for future costs is a frequently recurring problem in the context of cost-benefit analyses. Owing to the manner in which the discount is usually applied, benefits which will materialise in the distant future generally only have a negligible influence on the decisions made today. The suitability of the method is thus limited with respect to the long-term consequences, which are of importance particularly in the environmental sector, and the inclusion of risks for future generations, which is a requirement set not least by European and constitutional law. It is thus true also in the context of the risk-based approach that cost-benefit analyses can provide (potentially major) assistance in terms of information, justification and decision-making. However, since in the area of public environmental and health protection, they generally fail to reflect fully all costs and benefits, they cannot replace the evaluation and decision-making stage under any circumstances, but can only assist in the preparation by providing useful arguments. Since almost any activity and situation can lead to damage under certain circumstances, which can never be excluded completely, it is decisive which evaluation is required in order to assume that there is a cause for concern and thus also a reason to take the respective countermeasures. It is necessary to evaluate how to handle the remaining inconclusiveness, whether residual (uncertain) risk should be accepted and who is to bear any potential consequences and burdens. A decision based upon a weighing of interests is thus required, which cannot be replaced (even) by the risk-based approach. This approach with its individual basic requirements can only prepare the decision by making maximum use of the available evidence. Despite all reservations when it comes to detail, cost-benefit analyses – in addition to other balancing considerations – can clearly be of use in this context. Their relative cognitive value can be used to prepare the decision, insofar as it does at least create an awareness of the weight of the identifiable advantages and disadvantages.

IV. Minor Impact of Constitutionally Stipulated Requirements

Risk law is generally characterised as having a strong link with constitutional law.⁵⁶ Among the major constitutional problems are – leaving aside the questions of sufficient substantiation and legal reservation – the questions of the scope of the protective duty of constitutional law in the relationship with the legislator,⁵⁷ as well as the proportionality of (precautionary) risk-regulation measures. However, a closer look reveals that the importance and the significance of the constitution to risk law are comparatively small. The reasons cannot be described in detail at this point;⁵⁸ they can however briefly be illustrated using the example of the proportionality principle. Although the constitutional proportionality principle is generally presented as a requirement to be fulfilled also by measures under environmental law which restrict freedoms, the principle typically becomes relevant in the context of risk law in multipolar relationships and often even in multipolar relationships in which decisions have to be made under uncertain circumstances. While it is already difficult to examine the proportionality in multipolar relationships,⁵⁹ a meaningful proportionality test under uncertain circumstances is almost impossible on the basis of standard doctrines. For if it is a basic function of the risk law doctrine of precaution to make the implementation of freedom-limiting measures possible even under inconclusive circumstances, then the proportionality test must take this uncertainty into account at all stages. However, it is very difficult to even assess the suitability of a precautionary measure taken under environmental law since the level of inconclusiveness makes a serious examination of the basic predictions upon which such measures are based almost impossible. This is even truer for the assessment of the necessity of the measure if it is impossible, owing to the causal connections being largely unclear, to carry out a clear grading of the intervention intensities of various legal instruments, which takes into account the effectiveness with which the aim is achieved.⁶⁰ In such cases, the proportionality test is effectively limited to a reference to the estimation, evaluation and assessment prerogative of the legislator.

56 Wahl (2006:74f.).

57 (ibid.).

58 Appel (2011).

59 See Calliess (2001:566ff.).

60 See decision of the German Federal Constitutional Court BVerfGE 128, 1 (Gen-technikgesetz), 183.

Against this background, the risk-based approach can be understood as an option to substantiate the proportionality principle under the conditions of risk regulation (precaution) and the associated uncertainty.⁶¹ For essentially, the risk-based approach tries to achieve a substantiation of the relationship between purpose and means – which must be established between the purpose of avoiding or reducing risks which might cause damage and the applied means, i.e. (precautionary) risk-regulating measures by the state which limit freedoms. Under the comparatively unambiguous conditions of an application of the law where the basic facts are known, the proportionality of state measures can be reviewed relatively clearly and comprehensibly based upon the test stages of established doctrines by looking at whether the means used are suitable, necessary and appropriate to achieve legitimate aims. Under the conditions of increased uncertainty and inconclusiveness typical of risk regulation, this referential connection cannot be applied without difficulty. This makes it even more important to specify the meaning of proportionate risk regulation (precaution) and in particular to define how the proportionality of the means used to achieve the objectives of risk regulation (aims of precaution) can be ensured. This specification must, above all, refer to the amount of (justification) effort required to show that (precautionary) risk-regulating measures are suitable and necessary in view of the aims pursued, and to a definition of the permitted scope and intensity of these (precautionary) risk-regulating measures so that these measures are (or remain) justifiable in terms of their necessity and appropriateness.

Both the precautionary and the proportionality principle are principles with an open structure which depend on further specifications. Unless statutory specifications exist, there are usually very few rules (if any) to determine how law should be established pursuant to the precautionary principle so that it complies with the requirements of the proportionality principle. The German interpretation of the precautionary principle, pursuant to which the justification dimension of the precautionary principle is strong and almost entirely releases both the party establishing the law and the party applying it from providing (scientific) evidence, is one option of specification. Another possible specification is the application of the risk-based approach, which imposes stricter requirements regarding the correlations used for justification and the rational comprehensibility of the risk identification process, enables an inclusion of cost-benefit considerations into the risk

61 Appel & Mielke (forthcoming).

identification process and links the use of instruments and resources for the regulation of the assumed risks to the scope and extent of the identified and assessed risks.

Control over which of the specification options will prevail is limited – this depends not least on the influences which prevail in the discussion on a European level. It thus makes sense to speak of competing concepts. Essentially, it cannot be denied that the risk-based approach – despite the associated challenges and problems – can contribute to a rationalisation and increased systematisation of the proportionality test under inconclusive conditions. On the downside, however, the requirements of the risk-based approach may lead to a partial limitation of the scope and reach of precaution. Insofar as a doctrinal grading is carried out with respect to the precautionary principle, this influence affects all levels of the doctrine of precaution. Owing to the more stringent requirements applied to the correlations used for justification and the rational comprehensibility of the decision-making process, the identification of the relevant risk factors and the overall increase in impact orientation, the risk-based approach makes it necessary to limit clearly the causes for precautionary measures. Despite all difficulties and uncertainties of predictions when it comes to detail, the approach aims at consistently designing the risk identification and evaluation process so that it is possible, using the evidence available, to gain maximum understanding of the specific risk potential, the situation causing the concern and the specific risks to be regulated.

However, these requirements regarding the rationally comprehensible justification of the reasons for precautionary measures also entail a tendency to raise the level, for when such a reason can be regarded as sufficient to permit the use of precautionary measures since. Ultimately, state risk regulation measures which limit freedoms and use resources will only be justifiable using rationally comprehensible and scientifically founded reasons. In addition, cost-benefit considerations can already lead to prioritisations and the corresponding grading at the stage of identifying the reasons for precautionary measures. If certain risk potentials are considered comparatively low(er), then the weight of the associated reasons for precautionary measures also tends to be lower, which means that on the subsequent stages of the precaution doctrine, and particularly in the context of the proportionality test, they can only be considered with this relatively low weight.

However, the similarity to the discussion of constitutional protective duties in the area of risk, which is also characterised by uncertainties of the predictions, makes it clear that the procedural requirements as well as the

burden of providing justifications, both in the area of public protective duties and of precaution, must be more stringent to achieve transparency as to why actions are or are not taken. This speaks in favour of the assumption that at least the increased requirements which the risk-based approach imposes regarding the correlations suitable for justification purposes cannot simply be rejected.

V. Connection between State Risk Decisions and the Communication of Risks to the Public

Both the perception and the evaluation of risks strongly depend upon subjective, social and cultural views and preconceptions.⁶² The selectivity of risk perception, the difficulties in providing rationally justified risk comparisons, the actual or perceived familiarity with certain technologies and their risks, differing assumptions regarding the attributability and controllability of certain risks, as well as the temporal proximity and level of distribution of risks can be more or less decisive factors. The way society perceives and handles risks can be entirely different from how risk researchers handle risks. The assessment of society is generally based upon social and cultural patterns, rather than upon scientific relationships between the probability of the occurrence of damage and its expected severity. The perception, evaluation and handling of risks can thus vary significantly between cultures and only allows the conclusion that overcoming inconclusiveness is a phenomenon which is strongly influenced by cultural factors.⁶³

Against this background, a significant aspect of the task to be fulfilled by risk law and risk administration is to make a contribution to the communication of risks and to enable politically initiated public discussions about risks in order thus to act as an intermediary between the political and the public perception of risks.⁶⁴ In a democracy, the level of abstraction of the solutions and reactions to a problem devised under risk law may deviate from the understanding and acceptance of individuals. However, the discrepancy between society's perception of a problem and the political (and legislative) willingness to perceive risks in a certain way and to overcome them in a certain manner must not be allowed to increase without limitation in a

62 Wahl & Appel (1995:107ff.); Scherzberg (2004:231); (2011); (2006:125f.).

63 Scherzberg (2004:231); (2011); (2006:125).

64 See Scherzberg (2006:125f.); (2011); Wahl & Appel (1995:211ff.).

democracy, i.e. a form of government led by consensus.⁶⁵ It will only be possible to achieve social acceptance and to avoid causing fundamental anxiety among the public – whether these concern the use of nuclear energy, green genetic engineering or nanotechnology or the industrial production of food – if the political evaluation of the risks of environmentally and health-relevant (technological) developments and of their potential impact is linked to society's perception of risk and values. While it is difficult enough to achieve this connection on a national level, the required communication of risk in international contexts – referring to the risks of genetic engineering, nanotechnology, nuclear energy, etc. – proves to be one of the major future challenges. (Risk) law can only play a limited role in this context. It would be an illusion and an overestimation of the possibilities of control offered by law to assume that a discourse on risk is possible by legal means alone. Law could, however, play the more modest, but not insignificant, role of creating and maintaining room for such discourse to take place. And to the extent to which law has a certain scope of influence – via the administration, courts and legal academia and not least also via (sub-statutory) processes of setting rules and standards – it can contribute to the discourse. Keeping these correlations in mind, the risk-based approach can also be interpreted as an example of a basic risk discourse on a European and – in relation to the United States – also on an international level.

E. Paths of Development for Risk Law

The discussion regarding the further development of risk law illustrates that the rationalisation of the handling of inconclusiveness and knowledge deficits is one of the core problems and crucial challenges of modern law and has not nearly been solved. With this general problem, risk law penetrates major parts of the legal system and thus obtains a rather exemplary significance. It is impossible at this stage to assess conclusively whether, and if so, to which extent the risk-based approach will be successful on the European and international level. However, the likelihood is high that it will meet a certain amount of approval and that at least some aspects will be used as a way to further substantiate the proportionality principle in the risk regulation environment (prevention). German risk law should therefore famil-

65 Wahl & Appel (1995:211ff.).

iarise itself with the risk-based approach and should clearly state the apparent deficiencies of the approach in the discussion on the European level. Furthermore, an attempt should be made constructively to combine the German interpretation of the precautionary principle with the critical potential of the risk-based approach. In this context, the advantages of the German and European doctrine of precaution, which allows for a high level of protection at comparatively low effort (bureaucracy costs), especially in cases of remaining uncertainty, should be promoted rather aggressively. The the general value of precaution and of the associated risk-regulating measures cannot be made dependant on certainty when the discussion regards high potential damage, while it is impossible to predict sufficiently and safely certain consequences and/or impacts. In this respect, the demand to make regulatory intervention dependant on conclusive evidence regarding the existence of risks must be categorically rejected.⁶⁶

At the same time, however, the attempt to achieve a maximum amount of rationality and comprehensible justifications for risk regulation measures should be pursued and the potential for rationalisation – which clearly exists – should be used in favour of the existing doctrine of precaution. Beyond the existing specifications of the precautionary principle, the interests of the risk-based approach can be met by requiring that reasons for precaution must always be sufficiently substantiated and based upon a risk identification and evaluation for which risk assessment as an instrument of risk prevention can provide a basic model. In case of remaining inconclusiveness, it should, however, be pointed out against the tendency of the risk-based approach that, where inconclusiveness and knowledge deficits exist, a lack of (clear) scientific evidence must not lead straight to the assumption of the freedom of (economic) actions. In view of the ambivalence of unpredictability, an evaluative assessment which takes into account all relevant aspects, including the respective public interests, is required particularly in these situations. It should finally be made clear that cost-benefit analyses can clearly play a constructive role in the context of risk regulation, not as a replacement for the required evaluative decision but – comparable to the environmental impact assessment – as an instrument to prepare decisions in the sense of a formalised realisation of the interests which are at stake and their (relative) weight. The scope of cost-benefit analyses could be limited by including only such considerations in the analysis as are covered by the respectively

66 Appel & Mielke (forthcoming).

relevant purposes of the law. Although this would not bring the trend towards economisation connected to the risk-based approach to a complete halt, it would limit it to the purposes intended by the legislator, which generally do not include efficiency as an end in itself.

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International Climate Law and Mining Regulation – Perspectives from Developing Countries

Yemi Oke

Abstract

For many years, environmental concerns were not considered to be part of the regulatory frameworks of the mining industry. Omission of mining in major international environmental instruments also confirms the fact that environmental concerns were not seen as part of mining regulation until recently. This article argues that mining could be made environmentally and socioeconomically sustainable in the resource-dependent countries of the Global South if appropriate regulatory and institutional frameworks are put in place to mitigate climate change and other negative environmental impacts of mineral exploitation. Adapting to and internalising the principles of international climate law are advocated as part of the global initiatives and options for reducing emissions of greenhouse gases (GHGs) in mining operations in the developing countries. This article examines international climate law principles and practices which have formed the basis of positive changes in others countries and regions, and advocates the adoption of such principles and practices in addressing climate change challenges in mineral exploitation in the developing countries.

A. Introduction

Market-based approaches¹ for mitigating climate change impacts of mineral extraction might be unsuitable for the mineral-dependent countries of the Global South. A viable alternative for making mining both environmentally

1 Gradual erosion of the initial opposition of corporate actors and groups in energy, minerals and other businesses to climate change issues is a trade-off for market-based solutions to global warming. See Pring & Sigle (2005:260–263).

and socioeconomically sustainable is for the less developed, mining-dependent countries to identify specific principles and practices of international climate law suitable to their peculiar socioeconomic circumstances for integration into legal and policy frameworks for addressing climate change challenges in their mining sectors. Due to their nature and sophistication, market-based approaches offer little succour for developing countries that rely largely on the extractive industry² for survival. This informs the dominant argument of this article that social, rather than economic or market-based traded-offs are required to impact directly on mineral-dependent, Third World countries, if they must be dissuaded from pursuing mining-based economic development, like the developed countries, to minimise the increasing global threat of climate change owing to the emission of greenhouse gases.

The stakes of developing countries of the Global South,³ which were undermined at the negotiation of earlier climate change instruments,⁴ may become further complicated unless socially dynamic and more flexible alternatives offered by contemporary international climate change law and practice are deployed.⁵ The duo of Gray and Gupta examined the implementation of the Kyoto Protocol in Africa and concluded that the region stands disproportionately to suffer the greatest effects of greenhouse emissions.⁶ What the scholars forgot to add is that it is even more risky for the developing countries in Africa and elsewhere to hinge their apathy to international climate change governance or frameworks on their disadvantaged position at the negotiation of earlier climate change instruments. This is because the resource sectors like mining and others, on which most of these countries depend, are the most vulnerable to global warming and other negative effects of climate change.

2 For the purpose of this article, *extractive industry* means oil & gas, mining and related sectors.

3 The term *Global South* refers to developing countries of the Southern hemisphere.

4 See Mumma (2000:190). See also Coghlan (2002:165); see generally French (2000:35).

5 Mumma (2000:190).

6 Gray & Gupta (2003:66-67). These scholars argued that African countries were severely unrepresented in the climate change regime as their voices and concerns/interests were overwhelmed by industrialised countries that command the negotiations agenda. This is due to the fact that Africa has been unable to effectively mount a common position in relation with other like-minded G77 countries, which negates its position in relation with the rest of the G77 countries.

A number of years ago, the writer argued that mining in the developing countries is not incompatible with sustainable development.⁷ In another piece, the author concluded that adapting to climate change by incorporating principles of climate change law and other relevant environmental instruments is a sustainable option for developing countries, particularly in sub-Saharan Africa.⁸ This article specifically articulates the need for deploying the legal and institutional frameworks of international climate change law to cover mineral exploitations in the developing countries. To justify its arguments, the provisions of the Kyoto Protocol to the United Nations Framework Convention on Climate Change [hereinafter Kyoto Protocol]⁹, the Framework Convention on Climate Change [hereinafter Framework Convention]¹⁰ and other international climate change instruments are employed. Its arguments amplify the socioeconomic realities of the Global South¹¹ in the quest for the application of international climate change law and principles in their mining sectors.¹² The question of whether mineral exploitation is compatible with environmental sustainability is answered in the affirmative. This article uses the prism of international climate change law as basis for achieving reduced GHG emissions towards a socially responsible exploitation of mineral resources in the developing countries.

B. Minerals Sector and Climate Change Impacts

The adverse impacts of emission of greenhouse gases on developing African countries are phenomenal.¹³ Flaring in Nigeria's extractive industry of oil and gas contributes a measurable percentage of the world's total emission of greenhouse gases. This partly explains why the country ratified the Kyoto

7 See Oke (2008) and (2005).

8 Oke (2011).

9 Kyoto Protocol to the United Nations Framework Convention on Climate Change, 31 ILM 849 (1992).

10 See United Nations Framework Convention on Climate Change (U.N. Doc. A/AC.237/18 (Part II) (Add. 1), Misc 6 (1993), Cm 2137; 31 I.L.M. 848.

11 The term 'Global South' refers to developing countries of the Southern hemisphere.

12 See APF (2007:4).

13 See Conway (2004:2). It has been pointed out that many tropical regions and developing countries are expected to experience lower yields, due to reduced water availability, smaller fertilization effects from carbon dioxide and interactions with non-climate factors, such as reduced capacity to adapt to climate change.

Protocol.¹⁴ But Nigeria and other developing countries that have ratified the Protocol lack the technical skills and political will for effective implementation. Worse still, greenhouse gas emissions represent one of the few instances where African customary approaches to environmental management have not been tested.¹⁵

Climate change issues are modern challenges unknown in age-old traditional wisdom of environmental management. Owing to the peculiar nature of greenhouse gases, highly technical and scientific capabilities rather than indigenous, traditional knowledge or practices are required.¹⁶ The nature of mining and relative incapacity of the developing countries to deal with its climate change impacts imply that new ways would need to be devised for engaging climate change issues in mining in the developing countries. In the opinion of George Pring and Linda Sigele –¹⁷

As global efforts to fend-off climate change accelerate, the projected shift in GHG emissions from developed to developing countries presents a challenge for the mineral resources industries, especially in the area of energy resources. In recent years, the largest percentage of new development in mineral resources has occurred in the developing world, and this trend is expected to continue well into the 21st century.

The extractive industries of mining, coal, oil and gas, among others, contribute to the emission of carbon dioxide.¹⁸ Backing off from mining owing to its climate change impact is not a realistic option for mineral-dependent countries. Mining is a source of survival for many.¹⁹ For example, in South

14 See Moffat & Linden (1995); see also Global Health Watch (2008).

15 Oke (2011:60).

16 (ibid.). The impact of science and technology on the natural environment and resource exploitation and management is undeniable. One of the arguments put forward for apparent apathy to traditional knowledge in environmental and natural resource management is practical impossibility of applying traditional knowledge in the extractive industry of oil, gas, mining as well as in solving modern environmental problems like emissions of greenhouse gases, global warming, atmospheric pollution or poison from oil, gas or mining explorations. See also Richardson (1993).

17 Pring & Sigele (2005:250).

18 A shift from the use of hydrocarbons as the world's primary source of fuel would positively affect the mineral industry, while also minimising global emissions of greenhouse gases. See Pring & Sigele (2005:251).

19 Mineral producing countries in Africa like Ghana, South Africa and new entrant like Nigeria have demonstrated through their mining regimes that mining could be an engine of economic growth and development if well managed. An important aspect of the regulatory frameworks of the mineral sectors of the countries is the inclusion

Africa, which is Africa's most developed economy, and in emerging states like Ghana the need for increasing and sustaining mining investment continues to underlie their mining sectors.²⁰ Like in South Africa and Ghana, the Nigerian mining regime offers future options for diversifying the nation's economy from its present near absolute dependence on the oil sector, which makes the country vulnerable to global trends and social forces, particularly the quest for resource control by the oil-producing states and communities.²¹ Resort to mining in Nigeria is an indispensable alternative to douse increasing tension in the oil sector.²²

The potential of the mining industry and ability of the sector to contribute positively to socioeconomic fortunes of a country are not in doubt.²³ What seems in serious doubt is the ability of mineral-dependent countries, particularly developing countries of the Southern Hemisphere, to make mining sustainable in the short and/or long run. Beyond mining, climate change and global warming are matters of global concern. Abbasi describes global warming as a/the "perfect problem" owing to the fact that it involves a substantial and uncertain time lag between its cause and effect.²⁴ Its impact goes beyond national or regional barriers, as it causes severe damage to the global atmospheric system,²⁵ aside from its socioeconomic implications on developing countries.

C. Aspects of International Climate Law

The Kyoto Protocol deals essentially with environmental management challenges arising from emissions of greenhouse gases by countries.²⁶ The in-

of statutory provisions to accelerate systematic state withdrawal in order to increase foreign investment and to achieve developmental and other objectives. See Campbell (2003:2).

20 See Oke (2009:87).

21 Oke (2008:184f.).

22 (ibid.).

23 Fundamentally, the minerals and mining laws of Nigeria, South Africa and Ghana have deployed various institutional mechanisms to achieve success in mining. While sustainability is an implied phenomenon under the Nigerian mining regime, it is both the rule and norm in South Africa. However, in Ghana, it is an unwritten persuasive normative code having both the force and effect of a law. See Oke (2008:211).

24 Abbasi (2006), cited in Watchman (2008:21).

25 Cameron (2008:26).

26 See Article 3 of the Kyoto Protocol.

strument is further to the Framework Convention which articulates principles for protecting the climate systems.²⁷ The provisions of the Kyoto Protocol specifically aim at curtailing environmental challenges of climate change. The protocol provides binding emission reduction targets for countries.²⁸ The effects of emission of greenhouse gases on developing countries appear threatening.²⁹ This justifies the ratification of the Kyoto Protocol by some developing countries in Africa in order to seize the benefits of the frameworks in the instrument.

The Kyoto Protocol seeks to curtail the level of emission of greenhouse gases associated with the extractive sector of mining, and energy production and consumption.³⁰ Its precursor, the United Nations Framework Convention on Climate Change (UNFCCC), on the other hand, merely provides an advisory regulatory framework for curtailing greenhouse emission. The Kyoto protocol was negotiated in furtherance of the objectives of the UNFCCC to stabilise the atmospheric concentration of GHGs. It provides three flexible global mechanisms, namely Emission Trading (ET), Joint Implementation (JI) and the Clean Development Mechanism (CDM).

The flexible alternatives and institutional mechanisms provided under the ET, JI and CDM provide avenues for making mining and mineral exploitation in developing countries more socioeconomically and environmentally sustainable. The only task is for countries to identify and deploy a framework best suited most suitable to the peculiar nature of their mining sector and socio-political configuration of their country. In simple terms, a CDM or JI project involves a physical activity that reduces greenhouse gas emissions, ranging from capping a landfill, greenhouse efficiency at an industrial facility, planting trees and a variety of other projects tending towards reduction

27 Article 3 Principle 1 of the United Nations Framework Convention on Climate Change states:

“In their actions to achieve the objective of the Convention and to implement its provisions, the Parties shall be guided, *inter alia*, by the following:

1. The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof...”

28 See Kyoto Protocol Articles 2–4 and Annex I.

29 See Conway (2004).

30 See Kyoto Protocol Article 3.

of greenhouse gas emissions.³¹ Structuring of CDM or JI projects are evolving trends, and changing dynamically, particularly in the developed countries where the financing terms are being driven by a combination of powerful forces from multinational institutions and the financial world.³² The CDM mechanism has the potential to reduce climate change effects of mining operations in the developing economies of the Global South.

ET, on the other hand, allows the developed countries to trade their surplus emission rights with one another to meet their emission reduction commitments. JI encourages Annex-1 countries to generate and amass emission reductions units through cross-border investments in projects that reduce emissions. Compared to ET, the CDM also enables Annex-1 countries to earn Certified Emission Reductions (CERs) by embarking on projects which contribute to sustainable development in a developing country.

The CDM provides opportunities for increased international investment in renewable energy and bio-efficiency to enable countries to contribute to reducing global levels of greenhouse gas emissions. The concept of CDM first arose in an international context in 1992 at the Rio Earth Summit, at which developed countries contended that GHG mitigation would be more politically and economically feasible in developing countries where labour and materials are cheaper, and fewer vested interests in the fossil fuel technology sector exist.³³ Regional collaborations towards emissions reduction targets are also on the increase. A case in point is the Western Climate Initiative (WCI), a regional partnership between various states of the United States and provinces of Canada for the common objective of achieving a 15% reduction of the 2005 level of six main greenhouse gases by 2020, beginning in 2012.³⁴

The above-mentioned objectives of climate law notwithstanding, scholars have reacted to the gaps in the Kyoto Protocol, pointing out that developing countries, particularly African countries, which signed the instrument despite being disadvantaged at the negotiation stages of the instrument, might be imperilled when the instrument becomes fully operational.³⁵ For instance, Gray and Gupta examined the implementation of the Kyoto Protocol in Africa and concluded that the region stands disproportionately to suffer the

31 Carr & Rosembuj (2008:39).

32 (*ibid.*).

33 Coghlan (2002:169). See also Mumma (2000:190).

34 See Sorensen (2008:7).

35 See Mumma (2000:190); Coghlan (2002:165); and French (2000:35).

greatest effects of greenhouse emissions. This is because the region is expected to experience lower yields due to reduced water availability, smaller fertilisation effects from carbon dioxide and interactions with non-climate factors such as reduced capacity to adapt to climate change, among others.³⁶

Emission of greenhouse gases impacts more on the developing countries owing to reliance on mineral and natural resource extraction, which activities are prone to emission of GHGs.³⁷ Strong commitments are therefore required to reduce carbon emissions, particularly in the mining sectors of the mineral-dependent countries of the Global South. This is essential to the success of global climate change governance. Although expectations were high, success was neither achieved by parties to the UNFCCC at the conference in Copenhagen, Denmark³⁸ nor at the Rio+20 Conference in Rio de Janeiro, Brazil, as further illustrated below.³⁹ Based on this observation, it is important that developing countries speak with a strong, unified voice in subsequent negotiations about climate change and other international environmental instruments. And their voices must be heard – in contrast to the insignificant role played by countries, particularly of the African region, at the negotiation and implementation stages of the Kyoto accord.⁴⁰

36 Gray & Gupta (2003:67).

37 See Conway (2004).

38 See the fifteenth session of the Conference of the Parties to the UNFCCC and the fifth session of the Conference of the Parties held at Denmark in December 2009. The Copenhagen Accord contained several key elements on which there was strong convergence of the views of governments. But there was, however, no agreement on how to do these in practical terms. Developed countries promised to fund actions to reduce greenhouse gas emissions and to adapt to the inevitable effects of climate change in developing countries. Developed parties promised US\$30 billion for the period 2010-2012, and to mobilise long-term finance of a further US\$100 billion a year by 2020 from a variety of sources. All these remain pipeline dreams. For the outcomes of the Copenhagen Conference see http://unfccc.int/meetings/copenhagen_n_dec_2009/meeting/6295.php, last accessed 14 July 2012.

39 The United Nations Conference on Sustainable Development (UNCSD), Rio+20, held between 20 and 22 June 2012, at Rio de Janeiro, Brazil, to mark the 20th anniversary of the 1992 United Nations Conference on Environment and Development (UNCED), in Rio de Janeiro, and the tenth anniversary of the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg. See the United Nations Conference on Sustainable Development, Rio+20 <http://www.uncsd2012.org/rio20/rio20conference.html>, last accessed 14 July 2012.

40 See Mumma (2000:190).

The Kyoto protocol might be defective to the extent pointed out above; but it cannot be denied that it assigns to all parties common but differentiated responsibilities, taking into consideration the respective contributions of countries to global environmental challenges, particularly emission of greenhouse gases and climate change.⁴¹ It is becoming increasingly apparent that creating adaptation incentives is the best way of getting the developing countries to adapt effectively to climate change in mining and other activities that generate high levels of GHG emissions. Paramount at every stage of the negotiations is the geographical divide between the developed and developing world.⁴² Long-term viability of global climate change governance, initiatives, policies and frameworks is contingent on active participation of the developing countries in embracing flexible mechanisms on climate change.⁴³

The imperative of persuading and encouraging developing countries to embrace and implement flexible mechanisms on climate change is more apparent in the highly emitting mining sectors of these countries. The effect of climate change knows no bounds. Mitigating global climate impacts of mining in the developing countries requires the application of global measures through a set of preventive and adaptive actions at all levels of governance in these countries.⁴⁴ The application of these measures will enhance domestic standard-setting agendas by creating regulations and policies that charge specific agencies and institutions with responsibility for implementation.⁴⁵ According to a writer, the world is indeed faced with no alternatives in climate change; we either adapt or are imperilled.⁴⁶ This further justifies the need for the mining industry, which had erroneously been assumed to be incompatible with environmental sustainability, to strive for meeting the challenges of climate change.⁴⁷

41 See Article 3(1) Kyoto Protocol.

42 See Coghlan (2002:166).

43 (*ibid.*:180).

44 See Fagbohun & Nlerum (2011:267–269).

45 (*ibid.*:267).

46 See Watchman (2008:9).

47 According to Llewellyn “[t]he pace of a firm’s adaptation to climate change is likely to prove to be another of the forces that will influence whether, over the next several years, any given firm survives and prospers; or withers and, quite possibly, dies.” See Llewellyn (2007:4).

D. Global Climate Governance and Rio+20

Beyond the menace of mining-induced climate change, global concern for controlling GHG emissions might remain a façade, as the world continues favour economic interests over climate change and related environmental concerns. The recently concluded Rio+20 Summit is anything but a success. The global players appear to be slackening rather than accelerating in their commitments to climate change governance. In the words of an observer –⁴⁸

As the global economic crisis has consumed more and more time and attention, focus on the global warming crisis has waned. So it wasn't surprising when President Barack Obama chose not to attend the Rio+20 ... , and it also was unsurprising when there was little progress reported there. ... And with the world economy on everyone's mind, global warming has taken a back seat ... the summit was a bit of a disappointment, but only marginally so, because no one was really expecting anything to come out of it. That's why you don't see David Cameron (the U.K. Prime Minister) or Angela Merkel of Germany in Rio +20 either.

The lackluster outcome of the Rio+20 Earth Summit had been predicted by those who contend, in relation to climate change, that these types of mass international conferences have become an incredible distraction that actually undermine rather than support efforts to reduce greenhouse gas emissions.⁴⁹ Edis and others are of the view that such global conferences reinforce a false belief that reducing carbon emissions must be closely coordinated internationally.⁵⁰ This notion would appear justified in the sense that the recently concluded Rio+20 did not offer succour to the developing countries in terms of global consensus and readiness to mitigate the effects of mining on climate change. Similarly, in 2009, the Copenhagen Summit failed to produce a binding climate change agreement, as large target goals on carbon dioxide emission reductions were dropped, and the summit ended in failure. This reinforces the argument that local policy and action are more likely to succeed than globally binding agreements.⁵¹ This is why this article advocates home-grown strategies for mainstreaming international climate change principles and practices towards sustainable mining in developing countries,

48 See The Takeaway (2012).

49 See Edis (2012).

50 (ibid.).

51 Awiti (2012).

and maintains that a new global consensus is unlikely, at least for now. With the hard reality of a not-too-successful Rio+20 Conference, there is a need to look elsewhere in ensuring that developing countries are able successfully to harmonise the need for socially sustainable mineral exploitation, while also making the world a better place by mitigating global climate change effects of mining and related activities. The Nigerian president, too, challenged the global leaders on the implementation of climate change principles among other social issues.⁵²

E. Making Mining Compatible with Climate Change

Policy and legislation are essential for dealing with unavoidable impacts of climate change in mining and other extractive sectors.⁵³ For developing countries, however, a cautionary and persuasive approach is desirable. For instance, Europe, China, India and the United States have deployed technological advances to stem the rising tide of greenhouse gas emission, which opportunities are not available to developing countries.⁵⁴ Thus, developing countries can, with justification, point to the fact that the developed countries have had their advantage of unregulated GHG emissions for centuries, and to now expect these countries to limit, pause or halt their economic development based on adverse effects of mining and other extractive sectors on climate change, being a problem created by the developed countries, according to Watchman, smacks of irony at best, and hypocrisy at worst.⁵⁵

It might be counterproductive to use the above position as basis for continued trends of environmentally perilous exploitation and development of

52 According to the Nigerian president, Goodluck Jonathan: “In effect, Rio+20 can only be successful if the thorny issue of the means of implementation is adequately addressed. We must bridge the yawning gaps underlining the fulfilment of international commitments on sustainable development, especially in areas of finance, external debt, trade and investment, capacity building and technology development. Today, we have a unique opportunity to reshape the future and redefine the relationship between human advancement and environmental sustainability, by ensuring that we join, in a collective effort, to reduce the conflict between human development and environmental conservation.” See the speech of the Nigerian president at the Rio+20 Conference as reported by Adetayo (2012:4).

53 Watchman (2008:18).

54 (*ibid.*).

55 (*ibid.*).

mineral resources in the developing countries. Rather, social justice advocacies should be intensified around the contention that the cost of mitigation of climate change impacts in the developed countries be borne by the developed countries. The polluter pays principle is handy here, as it provides justification for externalising the cost of mitigation by developing countries to their developed counterparts. The polluter pays principle is a normative doctrine of environmental law.⁵⁶ Its central objective stems from the fundamental but fair proposition that those who generate pollution should bear the cost of cleaning it up.⁵⁷ This normative principle is one of the considerations for the emission trading ventures, which aimed at encouraging investment in projects to reduce greenhouse gases in developing nations.⁵⁸ The polluter pays principle first appeared in a legal text in a document prepared by the Organisation for Economic Cooperation and Development (OECD),⁵⁹ but receives widest expression as an international environmental law principle in the Rio Declarations.⁶⁰

The polluter pays principle notwithstanding, addressing climate change at the international level through the use of law has not proved to be a viable option.⁶¹ The first major challenge to a binding international legal framework of climate change is the impossibility of reaching a consensus on comprehensive climate law. The second hurdle relates to lack of effective implementation and enforcement authority, as well as heavy reliance on flexible mechanisms. The effectiveness of implementing international framework on climate is also hindered by the principle of territorial sovereignty and differences in the distribution of technology, as well as natural and financial resources within regions and nations, which account for varied, in-

56 See Principle 16 Rio Declaration, the UN Conference on Environment and Development 1992 (Rio) A/CONF.151/26 Vol. I), 8:31 I.L.M 874 (1992).

57 See Nash (2000:466).

58 (ibid.). See also Fialka (2000:A18).

59 OECD, Environment and Economics: Guiding Principles Concerning International Economic Aspects of Environmental Policies, May 26, 1972, annex para. 1 Doc. No C (72) 128, 1972 WL 24710 (hereinafter OECD Recommendation).

60 Principle 16, Rio Declaration, provides: "National authorities should endeavor to promote the internationalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with dues regard to the public interest and without distorting international trade and investment."

61 Fagbohun & Nleru (2011:277).

consistent levels of mitigation and adaption to climate change by countries.⁶²

The question as to whether or not mining or mineral exploitation could bring about sustainable economic development or diversification remains uncertain.⁶³ Academics hold divergent views as to the economic effects of mineral exploitation in the developing countries.⁶⁴ The pro-mining sustainability groups argue that mining and mineral processing have the potential to become important sources of income, and can serve as driving forces for broader economic development. They concede that while mining itself might not be sustainable in that it can be exhausted over time, it provides income that can be re-invested in more sustainable national development projects.⁶⁵ The anti-mining groups contend that the economic potentials of mining are unlikely to be realised owing to the fact that nations that depend on mining industry are among the poorest and worst performing economies in the world.⁶⁶ These groups advocate that such nations should avoid export-oriented extractive industries altogether.

Reconciling mining with the imperative of environmental sustainability and climate change would require ideological (re)orientation for the developing countries. According to Prince and Nelson, the basic discipline of the minerals industry has for many years been separated along four basic lines of geology, mining, mineral processing and metallurgy, but now a major new field has emerged: environment.⁶⁷ Omission of mining in major international environmental accords, such as Stockholm,⁶⁸ Rio⁶⁹, Agenda 21⁷⁰ and others, until the defects were remedied in the Johannesburg Plan of Im-

62 See Rogers et al. (2007); Keohane & Victor (2010). See also Fagbohun & Nleru (2011:277–279).

63 Ali (2003:7A1-10).

64 For detailed arguments on the opposing views on mining and sustainable development see Humphreys (2000). See also Davis & Tilton (2002). See also Richards (2002); Ross (1999:301), and Stevens (2003:1).

65 Eggert (2001:3). See generally MMSD (2002).

66 Ross (1999:297f.); Stevens (2003:3). These scholars commonly pointed out the effects of resources mismanagement in developing countries as a strong factor in resource curse theory.

67 See Prince & Nelson (1996), citing Eggert (2001:1).

68 UN Conference on Environment and Development 1972 (Stockholm) UN Doc. A/Conf.48/14/Rev. 1(UN pub. E.73, II.A.14).

69 Rio Declarations, *supra* note 60.

70 See Agenda 21, A/CONF.151/26, Volumes I, II, III (1992).

plementation [hereinafter JPOI],⁷¹ further corroborates the duo's assertions on the hitherto lackadaisical attitude to the environmental effects of mineral exploitation, especially as it affects developing countries.⁷² Private sector initiatives had been deployed by way of self-regulation or industry governance, to cushion the effects of the gap. One such is the global spread of environmental management systems (EMSs) and EMS standards such as the International Organisation for Standardisation's ISO 14000,⁷³ including other industry standards like environmental auditing, labelling, and others,⁷⁴ to complement the lacuna in the international regime of environmental regulation of the mineral sector. The risks of climate change effects of mining are already here. Devising suitable mitigation and adaptation mechanisms is the most crucial task to navigating the troubled waters of reconciling climate change concerns in mining, as delaying action may be dangerous to humanity.⁷⁵

F. Redressing Regulatory Imbalance in Mining

There is need to redress imbalances in the international regime for regulating the environmental impacts of mining in the developing countries by reconciling the need for mining and mineral extraction with the imperative of environmental sustainability. There is every reason to believe that the best way of realising this is by deploying sound climate change policy and regulatory frameworks inspired largely by the international climate law principles and practices. For mining to be sustainable in the developing countries,

71 See the WSSD Plan of Implementation, available at <http://www.un.org/eas/sustdev/documents/WSSD>, last accessed 13 September 2011.

72 TWN (1997).

73 See Wood (2003) for detailed discussions on the Environmental Management Standards.

74 Among the 150 countries that have at least one ISO 9000 certified company, 76 countries have no 14000 certifications at all. See Islam (2001). See also Prince & Nelson (1996).

75 Stern (2007:357) warns: "The conclusion of the Review is essentially optimistic. There is still time to avoid the worst of impacts of climate change, if we act now and act internationally. Governments, businesses and individuals all need to work together to respond to the challenge. Strong, deliberate policy choices by governments are essential to motivate change. But the task is urgent. Delaying action, even by a decade or two, will take us into dangerous territory. We must not let this window of opportunity close."

the imbalance in the global mining regime must be revisited. The mineral-dependent countries must be assisted to attain the objective of environmentally responsible mineral exploitation by deploying institutional and policy frameworks of the international climate change law, as the option of mining is a matter of economic survival in these countries.⁷⁶ Economically motivated development is not without its consequences. As some scholars argued, economic development and sustainability are antonymous.⁷⁷ Some contend that environmental sustainability is unnecessary in mining, as environmental sustainability in mineral exploitation in the developing countries may be mortgaged for development until enough wealth has been generated to repair the damage done to the environment.⁷⁸ If arguments of scholars are anything to go by, it thus means that developing countries need not bother much about environmentally sustainable mineral exploitation.⁷⁹

Many developing countries seem to support the above-mentioned views,⁸⁰ as they are wary of environmental standards that fail to take into account their peculiar economic and development needs.⁸¹ To these countries, the argument for ‘development now, environment later’ seems attractive, and permeates the attitude of countries with developmental aspirations, thus making it difficult, though not impossible, for a global consensus to tackle the menace of global mining and emission of GHGs frontally. A more worrisome trend in international environmental governance is the reluctance of countries to extend the application of their environmental laws to their corporate citizens operating in the developing countries. This approach was suggested towards sustainability in mining, especially in the developing countries, where environmental regulations of impacts of mining are extremely feeble and wobbly.⁸²

Extraterritorial control of multinational mining companies in the developing countries deserves global concern for various reasons. First, mineral exploitation, whether small, medium or large scale, inevitably leaves its

76 See Darimani (2009:1).

77 See for example Stewart (1993:2052f.); Brown Weiss (1993:2127); Lucas et al. (1992:72); Carvalho (2001:61).

78 (*ibid.*), see Brown Weiss (1993) and Stewart (1993).

79 See Daly (2004).

80 The presumption is that being coerced into meeting higher standards of the ‘North’ does not constitute a legitimate means of achieving sustainability in the developing world. See Vaughan (1994:597).

81 (*ibid.*:596).

82 See Sampson (2000:6). See also Campbell (2003).

negative impact on the environment and contributes to climate change. Second, trade liberalisation, globalisation and other global economic pressures culminated in the race-to-the-bottom syndrome⁸³ that led to foreign-dominated extractive industries in the developing countries. Consequently, natural resources, the environment as well as social and political structures in these countries have been put under intense external pressure by the demand on them to strive for the attainment of environmental standards set by the developed nations without taking into account their peculiar economic aspirations and developmental needs or situations.

The trend above provides justifications for relaxed environmental regulations for mining operations in order to attract foreign investment, while leaving compliance with appropriate environmental standards in mining in the hands of extraterritorial controls.⁸⁴ Notwithstanding the fact that environmental concerns in mining are global in nature, some developed countries are apathetic about subjecting their local companies operating in the mining sectors of the developing countries to extraterritorial mining governance or control,⁸⁵ though some scholars see the issue as a matter of global imperative.⁸⁶ Assisting mining-dependent countries to achieve the objective of enforceability of climate and other categories of environmental governance through extraterritorial regulation of activities of multinational mining corporations would go a long in redressing regulatory gaps in mining vis-à-vis GHG emissions in the developing countries. This will also go a long way in changing the mining investment climate in the developing countries towards making mining and mineral exploitation sustainable ventures.

83 Vaughan (1994:596).

84 See Johnston (1998:58). Johnston sees this as the harbinger of “environmental lawlessness”. See also Cohen (1996:154).

85 Sampson (2000:6).
Johnston (1998).

86 For example, Campbell (2003:20) argues that given the present lack of financial and technical resources resulting in inability of developing countries to monitor and enforce (environmental) norms, it should be the responsibility of the countries of origin of the companies operating internationally to ensure respect for (environmental) norms and standards.

G. *Towards Changing the Climate of Mining*

Climate change presents both challenges and opportunities for the mining and metals industry.⁸⁷ The way a government addresses these challenges determines the extent to which the country benefits from mining.⁸⁸ A clear distinction must be drawn between adaptation and mitigation frameworks. An effective climate change control mechanism in mining must reflect a synergy between mitigation (being global and long-term) and adaptation (which is local and short-term) structural changes. Both mitigation and adaptation options manage different aspects of climate-change-related risk.⁸⁹ This, therefore, creates the challenge of effective blending for the developing countries in the application of mining regulation.

As part of adaptation and mitigation strategies, developing countries will be required to include provisions in their national climate change plans to measure, report on and verify their progress in tackling GHG emissions in the mining industry. The information must be fully transparent, comparable, robust and consistent in order to ensure efficient benchmarking of the level of responses to the various approaches to climate change compliance in the mining industry.⁹⁰ Information on the level of climate change governance is vital, as some developing countries depend almost exclusively on natural resources, now and for the future. Climate change mitigation and adaptation for these countries must therefore reflect their resource-based economies. Addressing climate change in mining and other resource sectors in the developing countries would require long-term solutions, including drawing up appropriate policy guidelines, institutional capacity-building and deployment of adequate resources.⁹¹

87 See ICMM (2011:2).

88 For example, the mining sector is a significant contributor to economic growth in many developing and developed countries, including Australia, as it has considerable potential to help reduce poverty and accelerate human development, through increasing government and community revenues, generating employment, and providing physical and human infrastructure. Australia's approach to mining in development focuses on increasing the capacity of governments to address institutional and policy challenges. See the *Mining for Development* project of the Government of Australia, information available at <http://www.ausaid.gov.au/aidissues/mining/Pages/home.aspx>, last accessed 10 April 2013.

89 Harrison (2000:367). See also Fagbohun & Nleru (2011:287).

90 ICMM (2011:2).

91 Nwamarah (2012).

The desire for climate change governance in mining and other extractive sectors must originate from the developing countries. Countries must own the process by demonstrating genuine commitments. An African adage says, “Even if a horse is forced to the river, coercing it to drink from the stream may prove impossible”. It is only where there is a clear demonstration of genuine desire that the much needed assistance could be forthcoming from the developed countries in climate change mitigation in mining and other extractive sectors.

In this regard, developing countries must press for changes to the financing mechanisms for mobilising public and private investments for climate change mitigation and adaptation, such as the Clean Development Mechanism. With additional resources, adapting to and mitigating climate change in mining and other resource sectors would appear feasible and realistic. It is for this reason that the demand of African leaders of the African Development Bank (AfDB) to establish an Africa Green Fund to receive and channel part of climate finance to Africa is a step in the right direction in climate change governance in the region. Based on this proposition, the AfDB is working towards the establishment of the fund.⁹² The fund, when established, will help African governments commit resources to improving their respective national environmental governance in mining and the extractive industry generally, by investing in capacity-building for technology transfer. This will eventually stimulate development of green technologies that can help Africa exploit its rich mineral and other natural resources without undermining environmental sustainability in the region.⁹³

H. Mining, Climate Law and Environmental Rights

Effective climate change regulation is indispensable to socioeconomic rights. It has been argued that if the purpose of government is to provide welfare and security to all citizens, governments fail to fulfil this purpose when they commit to enforcing only civil and political rights, leaving socioeconomic rights in abeyance.⁹⁴ Socioeconomic rights include environmental rights, as well as rights to natural resources and rights to self-deter-

92 (ibid.).

93 (ibid.).

94 Agbakwa (2002:178).

mination, among others.⁹⁵ Environmental rights constitute both third generation substantive and procedural rights of citizens for the purpose of ensuring equitable use of resources, as well as sustainable management of resources and the environment in the interest of the past, present and future generations.⁹⁶

The need to enhance the regime of environmental justice through judicial activism in global environmental governance was recently stressed by participants at the Rio+20.⁹⁷ Several other participants at the summit also reflected on the need to bring law to remote communities; remove procedural impediments for access to justice by vulnerable groups; and ensure that environmental information from public and private entities is placed in the public domain and disclosed without procedural restraints.⁹⁸ Many participants underscored the need for enhancing capacity-building of judges in environmental law and climate change adjudication, in order to ensure enhanced environmental justice by courageous and proactive judges.⁹⁹ The nature of judicial activism required to instil better environmental consciousness has been displayed by some Nigerian jurists. In *Jonah Gbemre v Shell Petroleum Development Company of Nigeria Limited* (unreported), the Federal High Court per C.V. Nwokorie J., held thus:¹⁰⁰

These constitutionally guaranteed rights inevitably include the rights to a clean, poison-free, pollution-free healthy environment. Therefore, to flare gas in the course of oil exploration and production activities is a gross violation of their fundamental right to life (including healthy environment) and dignity of human person. Failure to carry out Environmental Impact Assessment concerning the

95 First generation rights are fundamentally civil and political in nature, and include right to life, right to dignity of human person, right to vote and be voted for among others. Second generation rights relate to equality, and began to be recognised after the World War II. These include right to be employed, right to health care among others. See (1984).

96 According to Amokaye (2007:112): “In the first category, it refers to the substantive rights of the citizen to a clean and healthy environment. In the second category, environmental rights encompass the procedural rights to secure the enjoyment of substantive rights and this involves right to participate in environmental decision making, access to environmental information and access to court to vindicate environmental abuses.”

97 See the UNEP (2012).

98 (ibid.:4).

99 (ibid.).

100 See *Jonah Gbemre v Shell Petroleum Development Company of Nigeria Limited*, Suit No. FHC/B/CS/2005.

effects of gas flaring activities is a clear violation of Section 2(2) of the Environmental Impact Assessment Act, Cap. E12 Vol. 6, Laws of the Federation of Nigeria 2004 and has contributed to a further violation of the said fundamental rights.

The position of the Nigerian court is to discourage multinational and indigenous companies in the extractive sectors of oil, gas and minerals in the country from indulging in environmental abuse and GHG emissions that harm the people.¹⁰¹ It is now legally settled that damage to natural resources and the environment can be litigated and remediated as right-based subjects in the Nigerian courts.¹⁰² Climate change litigation is expected to grow in Nigeria and other developing countries in the coming years in response to jurisprudential dispositions to environmental claims and resource rights in mining and related sectors.

Carbon emissions in mining, like other businesses, are expected to create corporate liability¹⁰³ in Nigeria and elsewhere, based on the trends in the case law. Climate litigation will instil positive environmental dispositions in mineral exploitation and further clarify some important constitutional, public and administrative law issues.¹⁰⁴ Procedural issues will likewise become streamlined in the wake of increased consciousness of environmental liability of mining activities with positive judicial attitudes in Nigeria and other developing countries.¹⁰⁵

South Africa represents advancement in the regulation of climate change effects of mining. This is not unconnected with the constitutional basis for sustainability in the mineral sector of the most industrialised country in

101 According to the Court of Appeal in *Shell Petroleum Development Company v Farah* (1995) 3 NWLR, at page 199-201, per Edozie JCA: "If therefore, as the parties agreed, the Respondents were paid fully only for the crops and economic trees damaged at the time of the incident, that certainly could not amount to a fair and adequate compensation as the damage the Respondents suffered went beyond a mere damage to crops and economic trees, for according to the experts called on both sides the Respondents' arable land was heavily polluted and rendered unproductive for many years. In view of the foregoing, I am of the firm view that the finding by the learned Trial Judge that the Respondents were not paid a fair and adequate compensation is sound and cannot be faulted."

102 See Oke (2012:22).

103 See Mills & Lecomte (2006:7). See also Watchman (2008:15).

104 Watchman (2008:15).

105 Participants of some developing countries at the Rio+20 Conference advocated for increased "judicial activism" and procedural reformations for climate change litigation. See UNEP (2012).

Africa.¹⁰⁶ The minerals law of South Africa (the Mineral and Petroleum Development Act) also unequivocally states that “exploration of mineral resources of the country must be orderly and in an ecologically sustainable manner”.¹⁰⁷ This provision accords with the landmark case of *The Director: Mineral Development, Gauteng and Sasol Mining (Pty) Ltd v Save the Vaal Environment and Others*.¹⁰⁸ In this case, Vaal, an unincorporated association sought to resist the holders of mineral rights from commencing mining operations in an environmentally sensitive area. Though the case was decided based on the old Minerals Act,¹⁰⁹ the basis of the decision of the court, per Oliver JA, was that by including environmental rights as fundamental and justiceable human rights under the Constitution, the director of Mineral Development was bound not only to give regard to environmental implications under the constitution but also mining law and other relevant environmental codes in making decisions on issues affecting the environment.¹¹⁰ Non-climate change-related case law is also important to the way climate change litigation claims will be presented, interpreted and decided by the court.¹¹¹

I. Mainstreaming Climate Change Principles in Mining

The regime of international climate law has made it possible for countries to articulate and express concerns about GHGs at all levels and sectors, though the regime left many issues unsettled.¹¹² One of the issues yet unresolved is the extent to which climate change is affecting the mining industry and how mining companies, particularly those operating in the developing

106 (ibid.).

107 See the Mineral and Petroleum Development Act of South Africa 2002 (the MPR-DA), section 2 (h).

108 Case 133/98 delivered on 12 March 1999. See Kidd (1999). See also Mabiletsa & du Plessis (2001).

109 See the old Mineral Act of South Africa, Act No. 50 of 1991.

110 See Kidd (1999:152).

111 In an English case, the Court of Appeal clarified the current law of England on public nuisance and held that damages may be awarded in public nuisance where a person’s life, safety or health has been adversely affected by unlawful act which need not necessarily involve interference with the enjoyment of land. See *Corby Group Litigation v Corby Borough Council* (2008) *EWCA Civ.* 463 (per Lord Justice Ward, Lord Justice Dyson and Lady Justice Smith), cited in Watchman (2008:15).

112 Watchman (2008:8).

countries with weak environmental governance, are responding to GHG reduction.¹¹³ More crucial is the need for developed-countries-led efforts, in collaboration with the developing countries, to strengthen institutional capacity for climate change mitigation and adaptation in mining activities. International climate governance must face the reality of mineral exploitation in the sense that it would be difficult, if not impossible, to halt the quest for resource-based economic development in the Third World countries. For these countries, survival is paramount, after which comes the environment.¹¹⁴ Typical of the developing countries, the Nigerian president announced to the world at the Rio+20 Conference, that his major objective is to create more job opportunities for Nigerians in order to reduce poverty.¹¹⁵

Most Western mining companies operating in the developing countries had primarily focused on climate change mitigation; but they are starting to take steps to increase climate change adaptation strategies.¹¹⁶ However, there is a need to collaborate with stakeholders to implement adaptation mechanisms in an efficient and effective manner. Industrialised nations have been implementing climate initiatives that tend to ostracise the developing countries owing to the level of sophistication of such frameworks, such as a mix of market-based instruments, e.g. taxes on GHG emissions, and cap-and-trade schemes, among others.¹¹⁷ This range of policy and regulatory approaches offers effective baselines for dealing with climate change issues in extractive industry, particularly in minerals and mining operations in the developed countries, but might not be as suitable for developing countries.¹¹⁸ For example, the use of taxation to ensure curtailment of GHG emissions is now widely applied in European countries like Finland, Sweden, Norway, Denmark, Slovenia, Italy, Estonia Switzerland and others, where carbon tax has been introduced.¹¹⁹ In North America, carbon taxes are applied in some regions in Canada like British Columbia, Quebec, and in California in the United States.¹²⁰ The European Union has also intro-

113 See Sampson (2000) and Campbell (2003) on extraterritorial regulation of multinational mining corporations.

114 See Adeyato (2012) on the speech of the Nigerian President at the Rio+20 Conference.

115 (ibid.).

116 Kauffmann & Tébar (2009:3).

117 (ibid.).

118 Aguado (2011:2).

119 (ibid.).

120 See Litman (2009:1f.).

duced the Emission Trading Scheme. The scheme is designed to cap the overall level of emissions, while allowing participants to buy and sell allowances on a need basis.¹²¹

In Australia, the government outlines the design of the Australian Carbon Pollution Reduction Scheme through a White Paper released in 2008, which in effect also uses the cap-and-trade mechanism to control GHG emissions in the country.¹²² Like Australia, Canada also proposed an emissions trading scheme in 2007 and 2008, using a baseline-and-credit system approach. This scheme imposes a specific target for individual facilities participating in it, and covers a range of extractive sectors of oil and gas (including oil sands), upstream oil and gas, natural gas pipelines and petroleum refining, iron and steel, and smelting and refining of metals, including aluminium and power generation.¹²³

Beyond carbon tax regime, reducing GHG emissions in mining in the developing countries will require (re) education to raise the level of awareness of basic understanding of the complex technical, legal, socioeconomic, environmental, conservation and other issues in the extractive sectors. Concerns about reduction of GHGs and socially responsible mineral exploitation must permeate every level and segment of the mineral industry in the developing countries, ranging from exploration, evaluation, development, exploitation or production, processing, marketing, use, depletion, and impacts, among others. Effective environmental management strategies must be formulated and integrated into governance and industry codes for mining and other extractive industries in the developing countries.¹²⁴ Mineral exploitation without adequate environmental provisions amounts to “environmental lawlessness”.¹²⁵

The quest for economic development often necessitates attracting investment in the solid minerals sector of the developing countries by relaxing provisions on environmental regulations. The need to attract mining investments tends to undermine concerns for climate change in Third World coun-

121 The first trading period ran for three years ending in 2007 while the second trading period began on 1 January and runs for five years until the end of 2012. See European Parliament and Council of the European Union (2009).

122 The Australian scheme is for implementation after the end of the current commitment period of the Kyoto Protocol and subject to the action of other major economies including China and India. See Government of Australia (2008).

123 See Bramley et al. (2009:6).

124 See Johnston (1998) and also Cohen (1996:154).

125 Johnson (ibid.:58.).

tries. A typical example is the Nigerian Minerals Act, which aims to attract investors in mining at the expense of the already weak biodiversity situation in the country. Curiously, rich mining companies are to be granted permission under the Act, “by the proper authority to take protected trees without payment of royalties and fees” while raising minerals.¹²⁶ This ‘manifesto’ seems not to have taken into cognisance the provisions of the UN Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa.¹²⁷ The objective of the convention is to combat desertification and mitigate the effects of drought in countries experiencing drought and/or desertification, particularly in Africa¹²⁸ by imposing appropriate obligations on parties.¹²⁹

Desertification and drought have been major problems in Nigeria. The country’s attempts at combating the problem under various polices, including those under the convention, are yet to yield expected dividends, despite the establishment of the Afforestation Council by the Federal Government of Nigeria.¹³⁰ In view of this, allowing “the taking of protected trees without payment of royalties and fees” appears most unfortunate for a country whose major agricultural problem is drought, especially in the northern parts of the county. An effective climate change adaptation strategy for the country would have been the imposition of strict limitation or reasonable conditions like planting a minimum of 10 trees for every protected tree taken.

An effective regulatory framework must reconcile the imperative of climate change with sustainable mineral exploitation in the developing countries. It must also ensure workable policies, laws, regulations and codes to minimise GHGs and instil an effective climate change regime in mining governance in developing countries. Such policies must be implemented, and laws and regulations fully enforced by these countries through well-

126 See section 33(2) of the Nigerian Minerals and Mining Act, 1999. The new 2007 version of the Act is silent on the offensive provision. See the Nigerian Minerals and Mining Act, 2007, available at <http://mmsd.gov.ng/Downloads/Nigerian%20Minerals%20and%20Mining%20Act%202007.pdf>, last accessed 23 July 2012.

127 See UN Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, 33 I.L.M 1328 (1994).

128 (*ibid.*:Article. 2(1)).

129 (*ibid.*:Article 5).

130 The Nigerian President inaugurated the Council on 18 January 2004 in the renewed bid to combat draught and desertification problems of the country. See Lohor (2004).

oriented institutions that monitor their implementation. The agencies charged with enforcement and compliance duties must be well-manned, equipped, financed and oriented to monitor environmental compliance effectively, in order to curtail climate change impacts of mining activities and operations in the developing countries.¹³¹

Reducing climate change effects of mining in the developing countries will also depend largely on the extent to which the international regime is able to address the externalised factors in the political economy of resources utilisation of the developing countries.¹³² For the shift in paradigm towards reduction of GHGs in mining to be realistic, it would also require changes in the structure of international political economy for an equitable and stable international economic order.¹³³ Perhaps, as international trends sometimes dictate domestic realities especially in the extractive sector, this will most likely result in a positive change in the existing political economy of resources governance in mineral-exporting developing countries.¹³⁴

Mutual co-existence of mining companies and the local communities should also be encouraged, like in Ghana.¹³⁵ In Ghana, where land concession granted to mining companies contains alluvial gold deposits suitable for small-scale mining, such areas are awarded to resident small-scale miners and a Purchasing Services Agreement is then entered into where mined products are sold to the company at prevailing market prices.¹³⁶ Emission reduction technologies and techniques should be deployed in small-scale mining without undermining co-habitation and mutual co-existence of mining companies and the local communities, as part of strategies for integrating international climate change law and practices in mining in the developing countries.

Effective climate change regulation in mineral-producing, developing countries would also need to ensure that mining companies establish climate change adaptation strategies by working with host communities to develop

131 Oke (2004:221).

132 See Sandbrook (1982:17).

133 See Carvalho (2001:61).

134 (*ibid.*). See also Oke (2008: 205-8).

135 See Hilson (2001:18–21); see also Hilson (2002:59) and Oke (2008:207).

136 Hilson (2001:19–20).

concrete climate adaptation plans.¹³⁷ As part of adaptation strategies, multinational mining companies could also procure environmentally friendly, portable cooking gas equipment for the local people in communities of operation, as alternative to, and to dissuade them from using firewood and resorting to other ozone-depleting activities. These measures may be supplemented by the donation of energy-efficient light bulbs, air-conditioners and other devices to dissuade the locals from continuous usage of objects that emit GHGs.

Effective climate change governance for developing countries would also entail initiating cross-industry collaboration on regional adaptation strategies. By exploring opportunities for regional and sub-regional collaboration, mining companies and stakeholders in the developing countries can share information as well as scientific and technical models, data, and strategies for mining activities to ensure industry best practices and implementation of large-scale adaptation strategies. This has been explored in the case of partnerships between various states of the United States and provinces of Canadian, and also in Brazil, through the Company for the Climate initiative, under which private companies meet monthly to discuss climate information and learn from each other's efforts to develop mitigation and adaptation strategies.¹³⁸ However, the model of adaptation or mitigation strategies to be introduced in developing countries for curtailing emission of GHGs in mining will vary significantly, given the diversity of geographies and complexities of mineral productions or operations of countries.

J. Conclusion

It is imperative for mining companies in developing countries to integrate climate-related risks and mitigation measures into business decisions to minimise operations and host-community risks in mining through community-friendly, climate adaption strategies. The various flexible frameworks

137 Mining operators can share scientific information for site planning to inform community preparation, advice on emergency planning practices, and advocate for climate-resilient economic growth with local authorities and development agencies. See Akpan (2005:311) and Cook Clark (2005:332f.).

138 An example of regional collaboration in climate change is the Western Climate Initiative, a regional partnership between the US States and Canadian provinces for the common objective of achieving a 15% reduction of the 2005 level of six main greenhouse gases by 2020, beginning from 2012. See Conway (2004:3).

and strategies for mitigating climate change effects of mining in the developing countries are part of the international climate change law; an emergent aspect of international environmental law which articulates, motivates and develops effective global climate governance, policies, principles, strategies, plans and laws for application in mining and other sectors, particularly in the developing countries.

This article has discussed a range of those adaptation and mitigation strategies that would add meaning and purpose to the application of international climate change law in mining regulation in the developing countries. It suggests that mining companies need to change their corporate strategies and practices to address climate-related risks in mining operations. It advocates collaboration between the host communities, agencies, governments and other stakeholders in climate change adaptation. It acknowledges that the world is moving fast in the direction a green economy,¹³⁹ and therefore tasks the global actors, particularly the developed countries, to encourage their corporate citizens operating in vulnerable mining sectors in the developing countries to become ‘greener’. It stresses that attaining the goal of effective global climate change governance requires a collective resolve to transit to a low-carbon economy in minerals exploration and other sectors in both developing and developed countries.

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139 For the purposes of the Green Economy Initiative, UNEP has developed a working definition of a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive. See UNEP, “What is the ‘Green Economy’?” at <http://www.unep.org/greeneconomy/AboutGEI/WhatisGEI/tabid/29784/Default.aspx>, last accessed 13 April 2013.

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Legal and Regulatory Aspects of Carbon Capture and Storage: A Developed and Developing Country Perspective

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Abstract

Carbon Capture and Storage (CCS) is a relatively new technology designed for the long-term isolation of fossil fuel carbon dioxide (CO₂) emissions which would otherwise enter the atmosphere. This is achieved by capturing CO₂ generated from industrial and other activities and storing it deep in the subsurface of the earth. The objective of CCS is to prevent anthropogenically generated CO₂ emissions from driving further human-induced climate change. Depending on geological circumstances, the storage sites can be terrestrial or off-shore. The development of CCS-related activities worldwide has highlighted the need to have in place a satisfactory legal and regulatory regime in international, regional and national laws in anticipation of CCS becoming mainstream. This article identifies and outlines some of these issues against the backdrop of the international law climate change regime, and examines legal and regulatory developments at the regional level and in some domestic law jurisdictions.

A. Introduction

I. General Background

Carbon capture and storage (CCS) is a technology designed to prevent anthropogenic carbon dioxide (CO₂) emissions generated by industrial activities from entering the atmosphere and exacerbating climate change: a typical example would be the burning of coal and gas to generate electricity. CCS seeks to achieve this objective either by stripping CO₂, a major greenhouse gas, from the smokestack of conventional power stations, or by burning the fuel in special ways to produce exhausts of pure CO₂. The greenhouse gas is then transported and buried underground in selected sites. These sites

can be, but are not necessarily, exhausted oil and gas reservoirs depending on the circumstances of the country concerned. More succinctly, CCS has been described as “the long-term isolation of fossil fuel CO₂ emissions from the atmosphere through capturing and storing the CO₂ deep in the subsurface of the Earth”.¹

The CCS process is made up of three key stages: first is the capture of carbon, which entails the confinement and separation of CO₂ from the other gases produced when fossil fuels are burnt for power generation or when CO₂ is produced in other industrial processes; second is the transport phase where, once separated, the CO₂ is compressed and transported to a suitable site for geologic storage; thirdly comes storage, where CO₂ is injected into deep underground rock formations at the storage site, often at depths of a kilometre or more.²

Many economies around the world have initiated carbon capture and storage programmes, and the identification of storage sites for CO₂. These countries include the United States, Canada, China, member states of the European Union, Australia and South Africa.³ Geological characteristics determine the suitability of storage sites: such sites may be terrestrial or off-shore. In South Africa’s case, the bulk of potential storage sites is off-shore, but plans are underway to construct a terrestrial CCS plant for demonstration purposes.⁴

Marston and Moore make the point that, while interest in CCS is relatively new, the activity of underground injection and effective storage of large quantities of CO₂ is not.⁵ They state that in the United States the oil and gas industry has been transporting CO₂ by pipeline for injection, not for climate change mitigation-related reasons, but rather for the more expedient motive to recover oil from used gas wells. This technique, known as enhanced oil recovery (EOR), or enhanced gas recovery (EGR), has been used for well-nigh 40 years, at least in the USA, according to these authors.⁶ As a result, the authors argue that it is not necessary to develop a regulatory regime for

1 Global CCS Institute (2012:9).

2 (*ibid.*).

3 South Africa has undertaken a geological study to identify suitable storage sites, see Cloete (2010).

4 For a comprehensive report on CCS in South Africa, see Glazewski et al. (2012).

5 Marston & Moore (2008).

6 (*ibid.*:423). A composite term for Enhanced Oil Recovery (EOR) and Enhanced Gas Recovery (EGR) is Enhanced Hydrocarbon Oil Recovery (EHR).

CCS *de novo*; but rather to adapt the existing EOR regulatory regime for CCS purposes.⁷ This is the case at least in those jurisdictions where EOR has been taking place for a long period of time.

Be that as it may, CCS is a relatively new technology, particularly in those countries where oil and gas exploration and exploitation have not been taking place. In the process of developing this new technology a number of diverse legal and regulatory issues have emerged in both international and domestic law regimes. For example, the question whether off-shore CCS constitutes “dumping” as regulated under the international law of the sea; while others concern domestic law, for example whether the “storage” of CO₂ is not, in law, the “disposal” of waste under relevant national waste disposal law. There are also questions around ownership of the pore space into which the CO₂ is injected. An all-encompassing issue is the question of liability for damage should there be leakage of the CO₂ and resultant harm to the environment or human health. All of these, and other legal issues, are touched on below.

Furthermore, CCS-related activities raise some novel mining-related and environmental law issues – that is, issues which have not been encountered before. This is mainly because mining entails the extraction of a natural (usually solid) resource from the ground, while CCS entails injecting or inserting a possibly harmful substance into the ground. The nature of the substance injected is also novel in that it does not fall neatly into one of the conventional categories of “solid”, “liquid” or “gas”, but is “supercritical” in form, according to scientists; thus raising new questions around whether it is “waste”, as discussed in the next section.⁸ Thus, while mining law is linked to CCS-related activities, it is not directly applicable to it.

This article thus outlines and examines some of the main, emerging legal and regulatory issues from the perspective of South Africa as a developing country, as it is classified in the United Nations Framework Convention on Climate Change (UNFCCC) regime. South Africa is also a member of the BRICS group of nations (Brazil, Russia, India, China and South Africa) and a leading player on the African continent in the thrust to mitigate and adapt to global climate change.

7 Marston & Moore (2008:425).

8 As discussed below it is unlikely that this would be regarded as a “hazardous waste” as defined in the South African National Environmental Management: Waste Act 59 of 2008 discussed below.

Finally, by way of introduction, the International Energy Agency (IEA) estimates that, to achieve the greenhouse gas emission reduction target of limiting a global average temperature rise to no more than 2°C, energy-related emissions must reduce very substantially. Large-scale investments in several technologies are required in order to meet this target, with carbon capture and storage (CCS) contributing 7 Gt of the required 42 Gt emission reduction in a least-cost scenario. If CCS were to be excluded as a technology option in the electricity sector, the IEA states that investment costs over the period to 2050 would increase by 40%. CCS is a vital component of a portfolio of low-carbon technologies, as it is able to reduce CO₂ emissions substantially from both the energy sector and other industries.⁹

II. International Law Background

1. Introduction

Article 4(2) of the UNFCCC titled *Commitments* provides, among other things, that:

The developed country Parties and other Parties included in Annex I commit themselves specifically as provided for in the following:

- (a) Each of these Parties shall adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs

As such, CCS falls squarely under the mitigation category to which only developed countries are by and large obliged to commit themselves. This is in line with the principle of common but differentiated responsibilities underlying the UNFCCC whereby “countries included in Annex 1” (developed country parties) and “countries not included in Annex 1” (developing country parties) have varied obligations, acknowledging that developed countries should bear a greater burden in the transition to lower carbon economies than developing countries.¹⁰

⁹ Global Carbon Capture and Storage Institute (2012).

¹⁰ This distinction lies at the heart of the seemingly intractable negotiations which have been going on for years and is, in this writer’s view, the reason why no effective climate change legal regime has been agreed on.

This distinction is maintained in the Kyoto Protocol, which elaborates on the UNFCCC by placing more specific obligations on developed countries and Countries with Economies In Transition (CEITs).¹¹ Parties to Annex 1 (developed countries) of the UNFCCC are obliged to reduce their overall emissions of six greenhouse gases “by at least 5% below 1990 levels” between 2008 and 2012 (the first commitment period),¹² while non-Annex 1 parties (developing countries) do not have to make any comparable cuts unless they choose to do so. However, it is foreseeable that non-Annex 1 parties not currently subject to emissions reductions commitments will in the future be obliged to include reduction commitments. This would include South Africa. As such, CCS is one of many options in the portfolio of mitigation actions for stabilisation of atmospheric greenhouse gas concentrations.

This is not to say that developing countries have no mitigatory obligations under the UN climate change regime. Among the obligations that developing countries have to adhere to are the so-called Nationally Appropriate Mitigation Actions (NAMAs), a term first used in the Bali Action Plan as part of the Bali Road Map agreed to at the United Nations Climate Change Conference of the Parties (COP13) in Bali in December 2007. NAMAs refer to a set of policies and actions that countries undertake as part of a commitment to reduce greenhouse gas emissions, and recognises that different countries may take different nationally appropriate actions on the basis of equity and in accordance with common but differentiated responsibilities and respective capabilities. This notion also emphasises that developed countries should provide financial assistance to developing countries to reduce emissions.

Two terms relevant to CCS in the UNFCCC are “emissions”, which means “the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time”; and “sink”, which means “any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere”. A question arises as to which of these two categories CCS activities falls into. The general consensus appears to be that CCS falls into the former and that leakage from the CCS chain would amount to an “emission” under the system.¹³

11 Adopted at the third COP in Kyoto, Japan in 1997.

12 IISD (1997).

13 Bugge (2011:125).

2. *The Clean Development Mechanism and CCS*

Importantly, the Kyoto Protocol established three so-called “flexible mechanisms” which Annex 1 parties may utilise in complying with part of their greenhouse gas emissions reduction commitments, namely emissions trading; “joint implementation” (JI) and a “clean development mechanism” (CDM). The latter, defined in Article 12(2) of the Kyoto Protocol,¹⁴ is relevant here as it is the only flexible mechanism, which facilitates joint emissions reduction projects between Annex 1 (developed) countries and non-Annex 1 (developing) countries.

Under the CDM, developed country parties may implement “project activities” in developing country parties, which must result in “real, measurable and long-term benefits related to the mitigation of climate change”¹⁵; but emission reductions must be additional to those that would otherwise have occurred.¹⁶ Such emission reductions are referred to as “certified emission reductions” or “carbon credits” and they may be used by developed countries (which implement project activities in developing countries) to assist them in meeting their emission reduction targets.¹⁷ According to Article 12(5) of the Kyoto Protocol, the basic principles of CDM are: (a) voluntary participation approved by each party involved; (b) real measurable and long-term benefits related to the mitigation of climate change; (c) emission reductions that are additional to any that would occur in the absence of certified project activity. The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) has elaborated on these by developing a set of Modalities and Procedures for a Clean Development Mechanism.¹⁸ The crucial question whether CCS qualifies as a CDM project giving the opportunity for developed countries to gain certified emission reductions or carbon credits is discussed in B II below.¹⁹

14 According to Article 12(2) “...the purpose of the clean development mechanism shall be to assist Parties not included in Annex 1 in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex 1 in achieving compliance with their quantified emission limitation and reduction commitments...”.

15 Article 12(5)(b).

16 Article 12(5)(c).

17 Article 12(3)(b).

18 Decision 3/CMP.1 (FCCC/KP/CMP/2005/8/Add.1).

19 Haines et al. (2005:1552).

III. The South African Context

South Africa is in the top 15 most energy-intensive economies in the world and emits over 400 million tonnes of CO₂ every year.²⁰ The country is ranked as the 13th largest CO₂ emitter in the world,²¹ while on a *per capita* basis it is in the top six.²² As indicated, in II.1 above carbon capture and storage falls squarely into the category of NAMA and is directly applicable to South Africa, which is the largest emitter in Africa.²³

In this vein, prior to the opening of the Fifteenth Conference of the Parties to the United Nations Framework Convention on Climate Change (COP15), held in Copenhagen, Denmark, in December 2009, South Africa's President Jacob Zuma pledged that the country would voluntarily seek to reduce its greenhouse gas emissions by 34%, below a business-as-usual emissions growth trajectory by 2020, and by 42% by 2025, provided that South Africa receives financial and technological support from developed countries.²⁴ This level of emissions reductions was developed in line with South Africa's cabinet-approved Long Term Mitigation Scenarios (LTMS). This indicated that carbon capture and storage would play a significant role in meeting the reduction targets of South Africa.

20 See generally Du Toit (2009).

21 Beck et al. (2011).

22 South Africa produced 346.84 million metric tonnes of CO₂ (Mt CO₂) from fuel combustion alone during 2010. International Energy Agency (2012:56). See also Republic of South Africa (2011).

23 South Africa's total greenhouse gas emissions in 1990 was 347,346 Gg CO₂e and 379,842 Gg CO₂e for 1994, see Republic of South Africa (2000:v).

24 The actual volume of emissions reductions represented by this voluntary pledge is uncertain, although the Integrated Resource Plan for Electricity 2010-2030 (IRP 2010) assumes a greenhouse gas emissions constraint of 275 million tonnes of CO₂e in 2024. A concerted attempt to bring some level certainty to the pledge is contained in a report entitled *South Africa's Carbon Chasm* (KPMG 2011). The report uses emissions data captured for the 2010 Carbon Disclosure Report from the top one hundred companies listed on the Johannesburg Stock Exchange, taken against the best available approximation of the country's 2020 absolute greenhouse gas emissions, namely a 34% deviation below the so-called "Growth Without Constraints" scenario in South Africa's Long Term Mitigation Scenarios. The result, concludes the report, is a "chasm" between business-as-usual greenhouse emissions and the 2020 voluntary pledge, i.e., 34% deviation below a business as usual emissions growth trajectory, of some 253 million tonnes of carbon dioxide equivalent (CO₂e).

In this light it must be pointed out that the main driver for CCS in South Africa is the fact that the country has abundant reserves of both high- and low-grade coal.²⁵ Coal has driven South Africa's energy economy in the past, and is likely to do so in the immediate foreseeable future, the government having embarked relatively recently on the development of two large-scale coal power plants. During 2009, 65.9% of electricity production came from coal.²⁶ In addition South Africa has a buoyant coal-to-gas conversion industry, which meets approximately 30% of its domestic transportation fuel-oil demand needs. The economy has thus always been, and will be in the future, highly reliant on coal.

B. International Law Issues

I. The Dumping of Wastes and Other Matter at Sea

In certain countries, including South Africa,²⁷ the optimal sites for carrying out CCS-related activities is off-shore. An international law issue is the question whether CCS falls into the international legal regime regulating the dumping of waste or other matter at sea. Three conventions are relevant here: the 1982 United Nations Convention on Law of the Sea (UNCLOS), a framework treaty which includes marine pollution provisions in Part XII; the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, as well as its anticipated successor, the 1996 Protocol which is slow in being adopted; and thirdly, the 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR or Paris Convention). The latter is not dealt with here as it is a regional convention and of only indirect interest to developing countries.

Article 210 of UNCLOS provides that states shall adopt laws and regulations and other measures to reduce and control pollution of the marine environment by "dumping", defined as: "the deliberate disposal of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea."²⁸

25 South Africa is ranked in top six countries in terms of hard coal production; total output in 2009 was 247 million tonnes, see Eberhard (2011).

26 Cloete (2010); see also International Energy Agency (2011:27).

27 This is according to the *Atlas on Geological Storage*, Cloete (2010).

28 Article 1(5) of UNCLOS.

It is accordingly arguable that CO₂ storage does not fall under these UNCLOS provisions, as CO₂ for injection into the ocean floor is transported and injected through pipelines and would not therefore fall under the above-quoted definition which refers to vessels, aircraft, platforms or other man-made structures at sea. On the other hand “man-made structures at sea” could be regarded as falling under the definition. Be that as it may, the drafters of the convention in all probability did not anticipate CCS being carried out at sea, so the issue has been left to be determined by further instruments and deliberations as set out below.

The 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (the London Convention) and the 1996 Protocol are specifically dedicated to the dumping at sea issue. The 1972 London Convention defines “dumping” as “any deliberate disposal at sea of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea...”.²⁹ As such, the definition excludes the disposal of waste from the normal operation of ships and aircraft. This activity is covered by the MARPOL Convention. The pertinent question here is whether the “storage” of carbon in supercritical form off-shore constitutes “dumping” as defined in the Convention. The “sea” is defined in the convention as “...all marine waters other than the internal waters of State”.³⁰ It is not clear, however, from this definition whether “all marine waters” includes the subsoil or seabed formations into which the CO₂ is injected for purposes of CCS. At face value it would appear that CO₂ storage would fall outside the ambit of the original London Convention.

Central to the operation of the London Convention are three annexes referred to in Article 4. The first annex consists of the so-called “black list” substances, the dumping of which is prohibited altogether.³¹ The second annex,³² known as “the grey list”, prescribes less harmful substances which may be dumped, but are subject to authorisation by issue of a special prior permit by the national authority of a contracting party.³³ The third annex outlines general criteria that states have to take into account when issuing permits for dumping.³⁴ Both Annex 1 and 2 were originally silent on the

29 Article 3(1).

30 Article 1(3).

31 Article 4(1)(a).

32 Armeni (2011:146).

33 Article 4(1)(b).

34 Article 4(1)(c).

question of CO₂ storage. For this reason and others mentioned above, it is suggested that CCS falls outside the scope of the original Convention. This view concurs with Armeni, who points out that, as CO₂ is not expressly included among the substances prohibited for dumping, it appears that offshore storage is permitted under the Convention. However, she goes on to indicate that in 1996 industrial waste, or specifically “waste materials generated by manufacturing or processing operations”, was added to the list of substances prohibited by Annex 1, thus reviving the issue and suggesting that the disposal of CO₂ at sea for CCS purposes is prohibited.³⁵ The issue has to some extent been superseded by further developments.

Leading authorities have pointed out that the 1972 London Convention is a ‘living’ convention which is constantly being adapted to meet changing environmental needs and circumstances and that it is generally considered a success.³⁶ As such, the more environmentally friendly 1996 Protocol to the London Convention 1996 was adopted during November 1996, and entered into force a decade later in March 2006. It will replace the London Convention.³⁷

The Protocol to the 1996 London Convention (the 1996 Protocol) represents a major change of approach to the question of how to regulate the use of the sea as a repository for waste materials, in that it adopts the reverse listing approach. Instead of prohibiting substances as per the black and grey lists outlined above, the 1996 Protocol details substances which are permitted to be dumped only on authority of a permit. In this regard, Article 4 states that the parties “shall prohibit the dumping of any wastes or other matter with the exception of those listed in Annexure 1”. Those permitted include dredged material; sewage sludge; fish waste (or material resulting from industrial fish-processing operations); vessels and platforms or other man-made structures at sea; inert, inorganic geological material; and (significantly in the current context) “CO₂ streams from CO₂ capture processes”.³⁸

35 Armeni (2011:147) points out however that there may well be an exception when “dumping” is carried out as part of EOR related operation.

36 Birnie et al. (2009:472) point out that the dumping of industrial waste has decreased from 17 million tons in 1979 to 6 million tons in 1987.

37 See generally www.imo.org, last accessed 11 March 2013.

38 Item 8 added under amendments adopted in 2006 which entered into force in 2007.

In this writers view the injection of CO₂ for purposes of CCS does not fall under the original London Convention and thus no permit requirements are necessary, either under it or the 1996 Protocol.³⁹

II. CCS Projects and the Clean Development Mechanism (CDM) under the Kyoto Protocol

A key question touched on in section A II 2 above is whether CCS projects qualify as being “clean development mechanisms” (CDM) for the purpose of generating certified emission reductions for developed countries. As seen in that section, the CDM one of three “flexible mechanisms” established under the Kyoto Protocol and is the only flexible mechanism which can benefit developing countries, as it facilitates joint emissions reduction projects between Annex 1 (developed) countries and non-Annex 1 (developing) countries. The purpose of CDM as stated in the Kyoto Protocol is:⁴⁰

...to assist Parties not included in Annex 1 in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex 1 in achieving compliance with their quantified emission limitation and reduction commitments

The crucial question is whether CCS qualifies as a CDM project giving the opportunity for developed countries to gain certified emission reductions or carbon credits.⁴¹ The CDM Executive Board refused to approve early CCS projects which were submitted to it in the mid-2000s on the ground that the submitted methodologies did not address the methodological and accounting issues in an appropriate way.⁴² Subsequently the issue of integrating CCS with CDM then went through a lengthy and protracted negotiation process at the various CMPs of the Kyoto Protocol commencing at Bali in 2007, through to Poznan in 2008, and Copenhagen in 2009.

39 This presumes that the “sea” as defined in the London Convention does not include the subsoil as outlined above.

40 Article 12(2).

41 Haines et al. (2005:1552).

42 See for example CDM Executive Board Recommendation on CO₂ Capture and Storage as CDM Project Activities based on the Review of Case NM0167 (The White Tiger Oil Field Carbon Capture and Storage Project in Vietnam), EB Meeting Report Annex 13, September 2006.

Eventually at the Seventh Conference of the Parties serving as the Meeting of the Parties under the Kyoto Protocol (CMP7),⁴³ held in Durban during December 2011, it was decided that CCS will be included within the CDM, but the mechanics thereof would still have to be ironed out.⁴⁴ This is subject to the proviso that CCS projects result in “real, measurable and long-term benefits related to the mitigation of climate change”,⁴⁵ achieve emission reductions that are additional to those that would otherwise have occurred,⁴⁶ and assist in enabling their host countries to achieve sustainable development. If so, such projects have the potential to earn certified emission reductions or carbon credits under the CDM.

Financial consideration no doubt played a part as it is suggested that inclusion of CCS within CDM will result in large-scale funding opportunities. The 2009 IEA Technology Roadmap: Carbon Capture and Storage suggests that 65% of projects in 2050 (approximately 3,400 projects) will have to occur in developing countries, thus it is critical that CCS be successfully deployed in non-Annex I countries. Large-scale funding through various markets will be needed. Currently the CDM is the only large-scale CO₂ market-based funding mechanism operating in developing countries. The Durban decision thus provides an important first step towards an incentive mechanism that will assist in financing, regulating and supporting CCS projects in non-Annex I countries.

At COP17 in Durban the rules of including CCS in the clean development mechanism (CDM) were adopted, paving the way for developing countries to access alternative project finance and so potentially enhancing their ability to contribute to reducing global greenhouse gas emissions.⁴⁷ The other CCS-related matters that were negotiated at these climate change negotiations included the transboundary movement of CO₂ and the establishment of a

43 COP17/CMP7.

44 Decision 7/CMP.6 on Carbon Dioxide Capture and Storage in Geological Formations as Clean Development Mechanism Project Activities (FCCC/KP/CMP/2010/12/Add.2).

45 Kyoto Protocol to the United Nations Framework Convention on Climate Change (1998) 37 ILM 22, Article 12(5)(b). Decision 10/CMP.7 is entitled: *Modalities and Procedures for Carbon Dioxide Capture and Storage in Geological Formations as Clean Development Mechanism Project Activities*.

46 Kyoto Protocol to the United Nations Framework Convention on Climate Change (1998), Article 12(5)(c).

47 See <http://www.globalccsinstitute.com/institute/media-centre/media-releases/carbon-capture-and-storage-ccs-accepted-un-based-carbon>, last accessed 11 March 2013.

Global Reserve of Certified Emission Reduction Units (CERs) under the CDM. This momentum continued in Doha at COP18 held in December 2012, where, among other things, CCS advocates sought to consolidate the gains made at Durban and iron out CDM technical details, while acknowledging the need to gain more on the ground experience with CCS.⁴⁸

C. Regional European Union Law Dimension

During 2009 the European Parliament and Council enacted the Directive on the Geological Storage of Carbon Dioxide.⁴⁹ It arguably provides a model legal and regulatory framework for other countries, including developing countries, to adopt and adapt for their own needs and domestic circumstances. In the words of Article 1(1): “This Directive establishes a legal framework for the environmentally safe geological storage of carbon dioxide (CO₂) to contribute to the fight against climate change”. It goes on to provide that “the purpose of environmentally safe geological storage of CO₂ is permanent containment of CO₂ in such a way as to prevent and, where this is not possible, eliminate as far as possible negative effects and any risk to the environment and human health.”⁵⁰ The stated scope of the Directive is such that it encompasses not only terrestrial storage of CO₂, but storage in member states’ exclusive economic zones and on their continental shelves within the parameters of UNCLOS.⁵¹

The Directive comprises over 40 articles and provides a regulatory regime for the selection of storage sites and exploration permits (Chapter 2, Articles 4 and 5), storage permits (Chapter 3, Articles 6 to 11), and operation, closure and post-closure obligations (Chapter 4, Articles 12 to 20). The latter chapter includes an article titled *Financial Security*, which obliges member states “... to ensure that all obligations arising under the permit issued pursuant to this Directive, including closure and post-closure requirements ... can be met.”⁵²

48 See <http://ghgnews.com/index.cfm/in-doha-ccs-advocates-look-to-iron-out-cdm-technical-details/>, last accessed 11 March 2013.

49 Directive 2009/31/EC on the geological storage of CO₂ [2009] OJ L140/114.

50 Article 1(2).

51 Article 2. See generally Doppelhammer (2011).

52 Article 19(1).

D. *Some Key Legal Issues*

I. *Ownership of Pore Space*

In the context of CCS, “pore space” is the space into which the CO₂ is injected and exists within geological formations identified for CO₂ storage purposes, usually for the long-term. While this space might be fairly large, e.g. instances where depleted natural gas reservoirs are used for CCS, there is also the possibility that the space is microscopic, e.g. the spaces existing within porous rock, or that the space is not completely empty prior to the injection, e.g. where the injection is into the pore space provided by an underground saline aquifer.

A two-fold question arises: who owns the pore space itself and who owns the CO₂ once it is injected. These two questions need to be differentiated and are relevant to the question of liability discussed below. Various other considerations flow from this differentiation. For example, the likelihood exists that the owner of the pore space and the owner of the CO₂ will need to conclude a rental agreement for the utilisation of the pore space for CCS. Such a rental agreement will in all likelihood assign, to either of the parties, those responsibilities that usually follow ownership and/or control of land, but which can be modified by contract, in particular the vital question of liability for damage that might be caused by activities undertaken on land.

The question of ownership of pore space is a matter of national law and may differ from jurisdiction to jurisdiction; in the case of the USA, for example, land law differ from state to state. In addition, the law may also differentiate between onshore and offshore sites as a different legal regime invariably applies below, as opposed to above, the high watermark.

In South Africa, the question first has to be considered from the perspective of the Roman Dutch common law, as well as statute law, particularly concerning minerals legislation, although we are not dealing with minerals law directly. In this regard, the ancient Roman Law principle of *cuius est solum* (*whoever owns the soil, owns the air above and soil below the surface*) is relevant. This principle was reiterated in South African law in *London and SA Exploration Co v Rouliot* (1891) 8 SC 75,⁵³ and more recently was confirmed by the Supreme Court of Appeal, in *Anglo Operation Ltd v Sandhurst Estates (Pty) Ltd and Others* (2006) SCA 146 (RSA), in which it was held

53 *London and SA Exploration Co v Rouliot* (1891) 8 SC 75, at 83.

that the “the owner of the land not only owns the surface of the land but everything below and above it”.⁵⁴ Thus the owner of the surface of the land located above the pore space not only owns the surface of the land, but everything below it, including the subsurface pore space in the absence of legislative and/or contractual provisions to the contrary. It follows that once the CO₂ has been injected into the pore space it will no longer continue in the ownership of the owner of the liquid CO₂, but ownership will be subsumed to the owner of the surface under the common law principle of *accessio* or accession.

However, in the United States context, Marston and Moore point out that while pore space similarly is owned by the surface owner, the issue becomes nuanced in some important aspects if one examines the question in the context of oil and gas activities. These authors point out that the incidental CO₂ storage in EOR operations involves injecting an extraneous substance (CO₂) into the reservoir, whereas natural gas storage involves injecting only more natural gas into the reservoir.⁵⁵ The important implication of this difference, according to these authors, is that the surface owner only owns the *available* pore space that is not occupied by natural oil and that a significant portion of the pore space in an EOR project will in fact not be available at the end of an EOR project because of the presence of that residual oil which may be potentially recoverable.⁵⁶

II. Long-term Liability

An important issue regarding underground storage of CO₂ in the context of CCS is the risk of damage as a result of unwanted events after the closure of the site and resultant questions of liability. Elizabeth Wilson et al. describe two scenarios which may occur, namely surface leakage due to abandoned aquifer wells and groundwater quality impacts from metals mobilisation.⁵⁷

54 *Anglo Operation Ltd v Sandhurst Estates (Pty) Ltd and Others* (2006) SCA 146 (RSA), at 16.

55 Marston & Moore (2008:475).

56 (*ibid.*:476).

57 Wilson et al. (2007:5946).

These authors point out that establishing causal linkages of damage from carbon storage in court may prove difficult as could attribution and partition of damage between multiple actors injecting into the same reservoir.⁵⁸

The primary responsible person on whom liability will initially fall is the “operator”, defined in the EU CCS Directive, as outlined in C above, as meaning “any natural or legal, private or public person who operates or controls the storage site or to whom decisive economic power over the technical functioning of the storage site has been delegated according to national legislation”.⁵⁹ According to the model provided in the EU Directive, it is the potential operator who applies for an exploration permit for the selection of a storage and once successful, obtains a storage permit.⁶⁰ And it is the operator who has to comply with conditions imposed during the operation, closure and post-closure phases of CCS. The EU model is useful and may be applied beyond the EU countries which have adopted CCS technologies as outlined in Section E below.

The question of potential long-term liability is however particularly contentious in that environmental damage that may occur many decades after the injection of the CO₂. However particularly contentious is the question of potential long-term liability, by which time the operator may no longer exist as a legal entity. The EU CCS Directive addresses this issue in Article 18, titled *Transfer of Responsibility*, by providing that where a storage site has been closed “... all legal obligations relating to monitoring and corrective measures pursuant to the requirements laid down in this Directive ... shall be transferred to the competent authority ...”.⁶¹ However, four conditions have to be met, namely that all available evidence indicates that the stored CO₂ will be completely and permanently contained; that a minimum period, recommended as 20 years, has elapsed; that certain financial obligations in the form of financial security to take account of assessed risk of leakage and estimated cost of obligations arising under the permit have been fulfilled; and, lastly, that the site has been sealed and injection facilities have been removed.

58 (ibid.:5948).

59 Article 3(10).

60 Articles 5 and 6.

61 Article 18(1).

III. The Definition of Waste

A particular novel question which has arisen at both regional (EU) level as well as in national jurisdictions is whether the liquid (or supercritical carbon, as it is also known) which is deposited indeed amounts to either “waste” or “hazardous waste” for purposes of domestic regulatory regimes governing waste. In the regional EU context, the Waste Framework Directive⁶² lays down general rules that apply to all categories of waste, defined as any substance or object in the categories set out in Annex 1 “which the holder discards or intends or is required to discard”. Included in Annex 1 is the item “residues of industrial processes,” while Annex 2 goes on to define waste “disposal” to include any of the operations listed in that Annex and includes depositing into land, deep injection procedures, and release into the seas and oceans. Thus one can only conclude that CO₂ captured for the purposes of underground storage must be regarded as waste. As such, all the substantive obligations of the Waste Framework Directive must be complied with in the case of geological storage of CO₂. However, the EU Framework Directive on waste was amended to specifically exclude CO₂ captured and transported for the purposes of geological storage.⁶³

While this may be the situation in the EU, the position is likely to be different in other jurisdictions. The position in South Africa as regards this issue is taken up in Section E below.

E. Domestic Law Aspects

I. EU Member States

A number of countries within the EU have adopted the EU CCS Directive and domestic legislation in this regard, for example the Netherlands.⁶⁴ It has been pointed out, however, that the national approach in EU member states has not been entirely uniform in that some member states have introduced separate legal frameworks requiring a dedicated storage licence to develop a subsoil storage facility, while other member states regard a gas storage facility as part of the production licence and thus rely on the petroleum leg-

62 2006/12/EC of 5 April 2006.

63 Doppelhammer (2011:99).

64 A good model is the Netherlands, see Roggenkamp & Woerdmann (2009).

isolation.⁶⁵ The Norwegian Petroleum Act is an example of the latter, although Norway is not a member of the EU. Be that as it may, legal regimes impose licensing requirements in the Netherlands (Mining Act), France (Mining Act), Italy (Law 170/74, as amended) and Spain (Mining Act).

II. Australia

Outside the EU member states, Australia is arguably one of the more advanced countries to have developed a regulatory regime for CCS operations.⁶⁶ More specifically the Australian Commonwealth government has published a draft set of regulatory principles for CO₂ “geo-sequestration”, while the state of Western Australia has promulgated dedicated regulations under the Barrow Island Act of 2003. In addition to these domestic CCS regulatory frameworks, the Australian government has demonstrated a commitment to CCS by volunteering to host the Global CCS Institute and committing AUS\$100 million annually for five years to fund this Institute.⁶⁷ This is as a result of a mandate which it has obtained from the Group of Eight (G8) countries to facilitate and drive the global uptake of CCS.

III. Canada

The province of Alberta in Canada has most potential for CCS-related projects. A survey undertaken by the Interstate Oil and Gas Compact Commission during the mid-2000s on regulatory issues presented by CCS concluded that the existing regulatory regimes for EOR provide a sufficiently robust regulatory regime to provide short-term assurance of regulatory storage and that the relevant laws could be applied to CCS storage projects.⁶⁸ Bachu has undertaken a review of the Canadian provincial and federal legislation and regulations and confirms that the existing legal and regulatory Canadian regime is reasonably sufficient, with some modifications, to ac-

65 Roggenkamp (2009:218).

66 Zakkour & Haines (2007:98).

67 Gibbs (2011).

68 Zakkour & Haines (2007:98).

commodate the active injection phase of CO₂ capture and storage (CCS) operations.⁶⁹

IV. South Africa

1. CCS and the Waste Question

South Africa has not yet embarked on a comprehensive CCS programme, but is planning to have a demonstration project in place by 2017. As such, it is only commencing a review of its legal regulatory regime.⁷⁰ However, the novel legal question raised in Section D III above, namely whether CCS amounts to waste disposal for the purposes of domestic law, is outlined here in the South African context, as the same issue no doubt arises in other jurisdictions.

The South African National Environmental Management: Integrated Waste Act 59 of 2008 (the Waste Act) defines “waste” as:⁷¹

any substance, whether or not that substance can be reduced, re-used, recycled and recovered –

- (a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of;
- (b) which the generator has no further use of for the purposes of production;
- (c) that must be treated or disposed of; or
- (d) that is identified as a waste by the Minister...

and includes waste generated from the mining, medical or other sector, but:

- (i) A by-product is not considered waste; and
- (ii) Any portion of waste, once re-used, recycled or recovered, ceases to be waste.

From a reading of (a) to (c) above it seems clear that “supercritical carbon dioxide” falls into the definition of “waste”. The implication of this is that the proponent will have to comply with the licensing provisions of the Waste Act, which include requirements for the storage and handling of waste, especially hazardous waste. These are more onerous than the requirements for the handling of substances or products including by-products used in industrial processes.

69 Bachu (2008).

70 See generally Glazewski et al. (2012).

71 Section 1.

However, the question which then arises is whether the supercritical carbon amounts to a “by-product” because, if it does, it will be excluded from the definition of “waste”. The term by-product is defined in the Waste Act as “a substance that is produced as part of a process that is primarily intended to produce another substance or product and that has the characteristics of an equivalent virgin product or material”.⁷² Again in the South African context the further, and related, question is whether the supercritical carbon injected into the storage space amounts to “hazardous waste”. The Waste Act defines “hazardous waste” very widely, namely:⁷³

any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment

It appears that supercritical carbon is likely to fall into this broad definition. These requirements will have to be carried out by the “holder of waste”. The latter term is defined as: “... any person who imports, generates, stores, accumulates, transports, processes, treats, or exports waste or disposes of waste”.

While this may be the situation in South Africa, the position may be very different in other jurisdictions. Thus, the EU Framework Directive on waste was amended specifically to exclude CO₂ captured and transported for the purposes of geological storage.⁷⁴

2. *CCS and Carbon Tax*

Finally, the issue of the imposition of a carbon tax is arguably a relevant potential driver for CCS in any jurisdiction, including South Africa. The South African National Treasury published a discussion paper in December 2010 titled *Reducing Greenhouse Gas Emissions: The Carbon Tax Option*,⁷⁵. This discussion paper sets out the background to climate change, including its projected impacts on South Africa, as well as the contribution of South Africa to global climate change in terms of its greenhouse gas emission levels.⁷⁶ It emphasises that climate change is a result of environ-

⁷² See section 1.

⁷³ Section 1, the National Environmental Management: Waste Act 59 of 2008.

⁷⁴ Doppelhammer (2011:99).

⁷⁵ Republic of South Africa (2010).

⁷⁶ (ibid.:11-19).

mental costs not being included in market prices; and highlights the role that government can play by intervening and controlling pollution through the imposition of policy instruments, such as command and control regulations and market-based instruments.⁷⁷

The discussion paper endorses the approach taken in the *Long-Term Mitigation Scenarios* document, namely to put a lower initial price on carbon, and increase it gradually over time.⁷⁸ The result will be to “provide a strong price signal to both producers and consumers to change their behaviour over the medium to long term”.⁷⁹ The environment-related taxes and tax incentives that have thus far been introduced in South Africa are set out, and the discussion paper considers the policy documents and other literature that have been published regarding market-based instruments.⁸⁰ The paper also endorses the imposition of a carbon tax at levels starting around R75 per ton of CO₂, and increasing to around R200 per ton of CO₂.⁸¹ It is expected that a second discussion paper will be published during 2013.⁸²

F. Conclusion

The point of departure of this survey has been that CCS is a significant means of getting both Annex 1 and non-Annex 1 parties of the climate change regime to comply with their respective obligations under the UNFCCC and Kyoto Protocol. From a legal perspective what remains is to put in place an effective legal and regulatory regime at domestic level and in particular to deal with the challenge of providing for a long-term liability regime. A survey of regional and national developments reveals that a start has been made in a number of jurisdictions on a carbon capture and storage regulatory regime.

77 (ibid.:21).

78 (ibid.:17, see also 26).

79 (ibid.:29).

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Climate Change Mitigation and Adaptation: What is the Role of Intellectual Property and Traditional Knowledge?

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As human activity caused the problem
so too can human activity find the solution

*Francis Gurry, Director General,
World Intellectual Property Organization¹*

Abstract

Climate change has been described as the leading human and environmental threat of the 21st century. Premised on the traditional role of intellectual property law, namely to encourage human inventiveness through the grant of (limited) proprietary rights in the form of patents, trademarks, trade secrets and plant breeders' rights, among others, this paper focuses on the role of intellectual property law and policy, particularly patents and protection of traditional knowledge (TK), in climate change mitigation and adaptation.

Essentially, three main questions are addressed: 1. What is climate change? 2. What are the relevant technologies for mitigating, and adapting to climate change? 3. What role can intellectual property law and protection of traditional knowledge play in dealing with climate change? The authors opine that intellectual property right instruments can play an important role both locally and internationally in the on-going attempts to both cope with and grapple with climate change.

This would happen through the grant of intellectual property rights over traditional knowledge (TK). This is important because TK constitutes im-

1 Message from Francis Gurry, director general, World Intellectual Property Organization (WIPO), World Intellectual Property Day 2009, available at http://www.wipo.int/ip-outreach/en/ipday/2009/dg_message_09.html, last accessed 20 April 2013.

portant practices for addressing climate change, especially in the developing world where the vast majority of indigenous communities live. If such status is granted to TK, indigenous communities would be empowered through the financial incentives obtained in the form of royalties and other benefit-sharing schemes to better adapt to climate change. Among others things, they would be able to enhance that knowledge.

A. Introduction

Climate change refers to a build-up of human-induced atmospheric greenhouse gases (GHGs) such as carbon dioxide gas (CO₂), resulting from the use of hydrocarbons or fossil fuels (coal, petroleum, and natural gas) mainly for industry and motor transportation.² The building-up of such gases or the greenhouse effect, results in (among other climatic changes) an increase in the levels of heat in the world, or global warming.³

The Intergovernmental Panel on Climate Change (IPCC)⁴ estimates that the mean global surface temperature has increased by about 0.2 to 0.3 degrees Celsius over the last 40 years.⁵ The problem is aggravated by the increasing loss of forests, which act as ‘carbon sinks’ that absorb gases and prevent their release into the atmosphere.⁶

As a result of global climate change, many people, especially those in developing countries, suffer from prolonged droughts, frequent floods and

2 For introductory notes on climate change, see among others, UN (2007); Philander (1998); Grantham Institute for Climate Change (2007).

3 Contrary to popular opinion shaped by the media, global warming is not the only effect of climate change. Indeed the two terms are not interchangeable. See Parliament of Australia, *Climate Change and Global Warming – What is the Difference?*, available at http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/Browse_by_Topic/ClimateChange/theBasic/climate, last accessed 20 April 2013.

4 The Intergovernmental Panel on Climate Change (IPCC) is an international think tank established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to assess the “risk of human-induced climate change”. Its reports are highly influential in forming national and international responses to climate change. See <http://www.ipcc.ch/>, last accessed 20 April 2013.

5 IPCC (2007).

6 Recent findings suggest that loss of natural forests around the world contributes between 10 and 25% of global greenhouse gas emissions, a rate higher than that of the transport sector. See Fry (2008).

intensified human-wildlife conflicts over natural resources such as water.⁷ Developing countries, including small islands, will be severely affected by climate change than the rest of the world.⁸ The IPCC describes Africa as “more vulnerable” to the impacts of climate change “because of factors such as widespread poverty, recurrent droughts, inequitable land distribution and over-dependence on rain-fed agriculture”.⁹

Effects of climate change are also evident, albeit less severely, in developed countries. The Supreme Court of the United States of America, in the first climate-change-related court case brought before it in 2007, ruled that “...the rise in sea levels associated with global warming has already harmed and will continue to harm Massachusetts.”¹⁰

The two main international legal instruments related to climate change namely the United Nations Framework Convention on Climate Change, (UNFCCC)¹¹ and the Kyoto Protocol to the UNFCCC¹², strive to ensure a decrease in the release of GHG from anthropogenic activities and to protect the world’s rain forests.¹³

In order to achieve the goal stated above, technologies are required. In light of this fact, the UNFCCC sets obligations for developed countries to facilitate technology transfer to developing countries where they are most needed.¹⁴ The next part of this essay highlights legal aspects of potential technologies for climate change adaptation and mitigation. Part three proceeds to show how patent law doctrines can be used to encourage reduction of anthropogenic emission of greenhouse gases. Part four departs from ‘conventional’ intellectual property (IP) and discusses the importance of preserving traditional knowledge for sustainable development and climate

7 IUCN (2008).

8 (ibid.).

9 IPCC (2001).

10 *Massachusetts v Environmental Protection Agency* (2007), United States Supreme Court 2 April.

11 United Nations Framework Convention on Climate Change, 9 May 1992, entered into force 21 March 1994, 31 International Legal Materials (I.L.M.) 849.

12 Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, 37 I.L.M. 32.

13 The Kyoto Protocol, for example, requires “Encouragement of appropriate reforms in relevant sectors aimed at promoting policies and measures which limit or reduce emissions of greenhouse gases not controlled by the Montreal Protocol”. See Article 2vii.

14 See UNFCCC Articles 4.3 and 4.5 related to financing and technology transfer.

change mitigation among local and indigenous communities. Part five concludes this essay with a call for intellectual property professionals, including scholars and inventors, to ensure that climate change mitigation and adaptation strategies are entrenched in day-to-day agendas. ‘Business as usual’ is no longer the way to go.

B. Green Innovations: Potential Technologies for Climate Change Mitigation and Adaptation

The phrase ‘green innovation’ has become a buzzword for industries and businesses, including those obviously involved in GHG-emitting activities.¹⁵ In this paper, the phrase refers to technologies that reduce emission of greenhouse gases and/or minimise harmful effects of GHG already emitted.¹⁶ The key functions of such technologies are mitigation and adaptation.¹⁷

Potential options for reducing emission of carbon dioxide gas and enhance sinks of GHG include “reducing energy consumption, switching to less carbon-intensive fuel (e.g. coal to gas), increased use of non-carbon fuels (hydro, renewable, and nuclear), carbon capture and storage (CCS) and biological sequestration of carbon.”¹⁸

We now describe some these technologies, albeit briefly, in order to place intellectual property law and policy discussions in the right context.

I. Reducing Energy Consumption

Energy is essential in our daily lives: “We rely on energy for heating, cooling, cooking, transportation, and manufacturing and for running our factories,

15 Many TV commercials claim such businesses promote ‘eco solutions’ in products ranging from construction of oil and gas pipelines to the manufacture of sports cars.

16 A good example of the latter is carbon capture and storage CCS, explained in Section B. III below.

17 The IPCC defines ‘mitigation’ as an anthropogenic intervention to reduce the sources or enhance the sinks of GHGs, and ‘adaptation’ as an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects. See IPCC (2007).

18 Bankes & Roggenkamp (2008).

homes and hospitals.”¹⁹ Our lives would be seriously impaired and many of our social and economic activities would come to a standstill without energy. It has been argued that energy forms part and parcel of the right to development.²⁰ Since we cannot do without energy and because, at the moment, energy production is largely dependent on fossil fuels, new technologies are needed to reduce the amount of energy we consume. The airline industry, for example, has been named as one of the main sources of GHG emissions. It is estimated, for example, that a return flight from London to New York contributes up to 2,259 tons of carbon dioxide gas emissions per passenger.²¹ To reduce the number of ‘love miles’²², it is necessary to invest in information communication technologies that would enable or facilitate interaction between people without their having to meet physically. E-conferencing, for example, can replace a number of academic and business trips around the world.²³

II. Switching to Less Carbon-intensive Fuel and Use of Renewable Energy

As a result of global climate change, many governments around the world have come up with policies that promote the use of renewable energy, such as biofuels. Owing to the incredible amount of attention biofuels have attracted from policy makers²⁴ and the relationship these fuels have with the welfare of indigenous people and other holders and custodians of traditional knowledge, this subject deserves a few more lines in this essay.

19 Zillman et al. (2008:3).

20 The UN Sustainable Development Division can provide this in no clearer manner: “Energy is central to achieving sustainable development goals. Some two billion people have no access to modern energy services. The challenge lies in finding ways to reconcile this necessity and demand for energy with its impact on the natural resource base in order to ensure that sustainable development goals are realized.”

21 Several websites assist passengers to calculate the amount of carbon dioxide gas they emit during their travels. This calculation is based on www.myclimate.org, last accessed 20 April 2013.

22 This term is used by a renowned United Kingdom journalist and climate change activist George Manbiot to describe family-related ‘jetting’. See Manbiot (2006:39).

23 For a dissenting opinion, see Stein (2009), who declares: “Technology is wonderful and indispensable. But for finding out the tricks of the trade, the way business runs in bad times and good, the latest developments in business and the economy, nothing can replace the spark of intelligence that travels from person to person at meetings.”

24 Peters & Thielmann (2008). See also JRC (2007).

The word biofuels refers to the liquid, solid or gas fuel derived from biomass, either from recently living organisms or from their metabolic waste.²⁵ Common examples of biofuels are ethanol, methanol and biodiesel.²⁶ Ethanol alcohol can be obtained by fermentation of sugar crops such as sugarcane, sugar beet and sweet sorghum, or of starchy crops such as corn and cassava.²⁷ Methanol can be obtained from wood or woody crops by means of a wood gasification process followed by compression and methanol synthesis.²⁸ Biodiesel fuel, on the other hand, can be obtained from oil crops, such as soybean, rapeseed, sunflowers and palms, by “extracting the oil with suitable solvents or through mechanical pressing and then converting the oil into diesel fuel by a transesterification process”.²⁹

Research into production and markets in biofuels has grown tremendously in the past ten years, following the express interest in this type of renewable energy by industrialised countries – notably the United States and the European Union.³⁰ The United States for example, has indicated that it will support the use of biofuels as the main way of combating climate change.³¹

Although these efforts and the underlying policy commitments are indeed commendable, many people are sceptical about biofuels. Biofuels are widely linked to the rising food prices,³² environmental degradation³³ and land tenure conflicts³⁴ in developing countries, where investors from industrialised countries are eager to buy land and maximise what they perceive as

25 For further information see World Business Council for Sustainable Development at www.wbcsd.org and <http://corporateeurope.org/publications/eus-agrofuel-fully>, last accessed 21 April 2013.

26 Giampierito et al. (1997a).

27 (ibid.).

28 Ellington et al. (1993).

29 Shay (1993). See also Giampierito et al. (1997b).

30 CEO (2007).

31 The Renewable Fuels Standard (RFS) requires the use of 28.4 billion litres of biofuels in the country by 2012. World Watch Institute (2006).

32 The World Bank estimates that food prices have increased by 83% in the last three years. See World Bank (2008). According to Oxfam, 30% of such increase is attributable to biofuels. See also Oxfam (2008).

33 As a result of the biofuels boom, forest clearing has taken place on an unprecedented scale around the world. See Wakker (2005).

34 According to the United Nations Permanent Forum on Indigenous Affairs (UNPFIA), sixty million indigenous people may be displaced by biofuels. See Biofuelling Poverty: Why the EU renewable-fuel target may be disastrous for poor people available at www.oxfam.org.nz/imgs/PDF/Biofuels%20briefing%20note, last accessed 20 April 2013.

an emerging business opportunity. This, in turn, impacts rather negatively on national and international efforts to protect traditional knowledge, as will be expounded later in this essay. New technologies are needed in order to minimise these conflicts, rather than solving one problem by causing a new one.³⁵

III. Carbon Capture and Storage and Biological Sequestration

Carbon capture and storage (CCS) is a technology whereby carbon produced by different sources is captured, transported and stored or sequestered in a reservoir where it does not easily leak and cause atmospheric build-up of GHG.³⁶ There are three types of carbon sequestration: geological, oceanic and biological carbon sequestration. Biological sequestration involves taking up of CO₂ in forests and soils.³⁷ While the first two involve application of technology, the latter is considered 'natural' in the sense that forest or soil naturally takes up the CO₂.³⁸ Reducing emissions from deforestation and forest degradation (REDD) is a concept born out of this mitigation strategy. It is an innovative way of encouraging forest conservation through financial incentives regulated at the international level.³⁹ REDD is an important entry point into an inquiry on the relationship between indigenous peoples and climate change mitigation. Local and indigenous peoples are not only custodians of major forests around the world, but also eke their living directly from the natural environment.

The importance of investing in R&D for CCS technologies cannot be over-emphasised. At the moment, the answers to many questions on side effects of CCS remain unknown, making it difficult for the technology to be used, especially in developing countries. The United Republic of Tanzania in East Africa, for example, has issued a statement rejecting CCS-sponsored

35 Other renewable energy sources not discussed here include nuclear, wind, geothermal and solar.

36 For a very informative article, see Bankes & Roggenkamp (2008).

37 Purdy & Macrory (2004:2).

38 (ibid.).

39 As natural as REDD is, technology is still needed to reduce poverty and firewood dependency among local communities in developing countries.

projects until side effects are scientifically established.⁴⁰ Venture capitalists and entrepreneurs wishing to invest in R&D for CCS need to be sure of strong protection for their intellectual property rights. This is one way that intellectual property law and policy can play a role in climate change mitigation and adaptation, as will be expounded in part two of this essay.

IV. Agricultural and Pharmaceutical Innovation

Climate change has had and will continue to have a devastating impact on agriculture.⁴¹ Developing countries whose economies depend upon (rain-fed) agriculture will bear the burden rather heavily. Crop yield for maize, the staple food in Africa, for example, is expected to drop by 55% in 2020.⁴² Food insecurity will lead to economic hardship, wars and an upsurge of refugees. Worse still, climate change is also associated with the emergence of diseases hitherto unknown to mankind or ‘globalising’ diseases which were known to exist only in certain parts of the world⁴³. To enable communities in developing countries to adapt to these new challenges, cutting edge technologies are needed that will boost agriculture and treat diseases. Both plant and pharmaceutical products enjoy intellectual property rights protection of one form or another throughout the world. The question is: Can such protection be of help to climate change mitigation and adaptation? The next section attempts to answer this question.

40 See Carbon Offsets Daily, *Tanzania Says No to International Project on Carbon Capture, Storage*, available at <http://tinyurl.com/pdnkwz>, last accessed 12 August 2009.

41 See, for instance, an illustration provided by the University of Reading, *Climate Change & Agriculture*, available at http://www.ecifm.rdg.ac.uk/climate_change.htm, last accessed 13 August 2009.

42 See All Africa, *Africa: Climate Change Threatens Food Supply, G8 Warned*, 7 July 2009, available at <http://allafrica.com/stories/200907070060.html>, last accessed 15 August 2009.

43 Godoy (2009).

C. The Role of Intellectual Property Law and Policy

Intellectual property law awards inventors and artists (limited) exclusive rights to control the distribution, use and licensing of their inventions.⁴⁴ The main justifications for the award of Intellectual Property Rights (IPRs) are utilitarianism and the right to the fruit of one's labour, based on [the] Lockean theory.⁴⁵ It is generally agreed that protection of IPRs encourages innovation especially in the field of industrial property.⁴⁶ Can this 'traditional' role be extended to climate change mitigation and adaptation? To answer this question we discuss mainly patents and, albeit in passing, other forms of IPRs and technology transfer.

I. Patents

A patent is a limited monopoly granted in exchange for the disclosure of technical information.⁴⁷ This property right enables the patentee to control the way the invention is exploited.⁴⁸ The United States Patent Act provides explicitly that patents "exclude others from making, using or selling the invention."⁴⁹ This rather strong 'monopoly' has arguably encouraged creativity and the progress of science and technology for centuries.⁵⁰

44 Van Caenegem (2003:250).

45 See Hughes (1988).

46 This 'utilitarian' justification for IP remains one of the cornerstones of the current IP system.

47 Bently & Sherman (2004).

48 In order to have a patent issued to him, a patent applicant is required to disclose his invention clearly enough for a person having ordinary skill in the art PHOSITA to use it. This information is made accessible to the general public. This has also been referred to as a 'social contract'.

49 35 U.S.C. 1 154 (1988).

50 This historical role is well captured in the popular quote of Abraham Lincoln, "Next came the patent laws. These began in England in 1624, and in this country with the adoption of our Constitution. Before then any man [might] instantly use what another man had invented, so that the inventor had no special advantage from his own invention. The patent system changed this, secured to the inventor for a limited time exclusive use of his inventions, and thereby added the fuel of interest to the fire of genius in the discovery and production of new and useful things.", text quoted from http://www.todayinsci.com/L/Lincoln_Abraham/LincolnAbraham-Quotations.htm, last accessed 13 May 2013.

Patent law has attracted the lion's share of criticism for the prevailing environmental pollution and degradation. This is probably due to the fact that, in essence, there is no distinction given between a 'green' and a polluting invention.⁵¹ In an explorative and philosophical article on the role of patents in the protection of the environment, Derclaye opines that:⁵²

... patent laws as engines driving technological advance are responsible for the impact patented inventions have on the environment If technological progress had not been encouraged by patents then less (no additional) environmental damage would have occurred.

While we do not agree with the above 'verdict', we believe that if patent law is responsible for the current state of affairs (a contribution in the larger box of anthropogenic or man-induced climate change), it can also be a part of the solution for climate change mitigation and adaptation. There are four main ways in which patents can address anthropogenic emission of GHG and other environmental concerns. The first is the traditional role of encouraging inventiveness through the grant of proprietary rights.⁵³ Viewed in a positive manner, patent law has always been doing this, albeit in a small scale. It is opined that if patents are granted to inventors of technologies, as discussed above, the role of patent law in climate change adaptation and mitigation will be fulfilled.⁵⁴

The second way in which patent law may be of help is through the morality and *ordre public* provisions typical of the European Patent Convention EPC.⁵⁵ The *ordre public* provision, whose origin is said to be the French Civil Code⁵⁶, has no equivalent in the United States Patent law.⁵⁷ Nevertheless, the Trade Related Aspects of Intellectual Property (TRIPS) Agreement

51 All inventions are subject to the same rigorous patentability criteria.

52 Derclaye (2009).

53 Admittedly, this may sound simplistic, because of the negativity already associated with the role of patents in encouraging "polluting inventions". However, all factors remaining constant, meaning if society is itself motivated to invent eco-technologies, patent offices will open the doors and encourage such action.

54 However, this may not satisfy critics of the patents system, who would wish for a complete revamp of the system. Their criticisms range from patenting 'life forms' to environmental degradation.

55 See Article 53(a) of the European Patent Convention.

56 Armitage & Davis (1994), cited in Derclaye (2009), note 51.

57 (*ibid.*).

contains the following (non-mandatory) provision on morality and *ordre public*:⁵⁸

Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordre public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.

It is the authors' opinion that the phrase *to avoid serious prejudice to the environment* fits in the climate change discourse as climate change is a serious environmental concern. However, the difficulty with this provision lies not only in what *ordre public* really means, but also on how to identify inventions which are not within the *ordre public* threshold.⁵⁹

Thirdly, patent information provided to patent offices and open to the public, can be used by environmental regulatory authorities to discover technologies which are potentially harmful to the environment and therefore deny relevant rights to use.⁶⁰ It is worth emphasising that the granting of a patent does not give a person positive rights to use a particular invention. The role of intellectual property law should not be confused with that of, say, environmental law. In the words of leading IP scholars, "each area of law has a discrete and separate function which it should pursue and, correspondingly, that it is wrong for these functions to be confused or conflated."⁶¹

58 Article 27(2) of the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS).

59 Citing case T 19/90, *Onco-Mouse*, Derclaye (2009) provides that "Even if it might be difficult to judge whether an invention is immoral or contrary to *ordre public* the European Patent Office (EPO) agreed that it will nevertheless do so". This is encouraging and it is submitted that the more applications opposing grant of patents, (say by environmental NGOs) the more likely it is to get an EPO jurisprudence with regards to *ordre public* and environmental conservation.

60 This can be seen as a reactive rather than a proactive approach, but nevertheless it is a more practical approach than the desire for a revamp of patent law.

61 Sherman & Atkinson (1991), cited in Derclaye (2009).

Lastly, patent law can be tailored to provide for special treatment to green inventions. This can be through extending time of protection⁶² or relaxing patentability criteria, such as novelty.⁶³ When all is said and done, patent law can still be explored to find other windows of opportunity to address climate change issues.⁶⁴

II. Other IPRs and Technology Transfer

Not all technologies are protected by patents. Confidential information, trademarks, plant breeders' rights and other industrial property instruments complement patents in promoting inventiveness. Plant-related inventions, for example, do not attract patent protection in all countries. Plant breeders' rights are granted in the place of patents to encourage innovation and private investment in R&D for plant genetic resources for food and agriculture. The role and interdependency of various forms of IPR cannot be summed up more clearly than is done here by Francis Gurry, World Intellectual Property Organisation (WIPO)'s director general:⁶⁵

On World IP Day 2009, the World Intellectual Property Organisation highlights the contribution of a balanced intellectual property system to stimulating the creation, diffusion and application of clean technologies; to promoting green design, aimed at creating products that are eco-friendly from conception to disposal; to green branding, helping consumers make informed choices and giving companies a competitive edge.

Irrespective of an IPR used, it is essential that such a monopoly does not prevent technology transfer especially to developing countries. Technology transfer involves enabling countries with a less effective scientific base to

62 Supplementary protection certificates for medicinal and plant protection products offered in Europe are a good example. See Regulation No 1768/2 of 18 June 1992 concerning the creation of a supplementary protection certificate for medicinal products, 1992 OJ EC L 182/1 and Regulation No. 1610/96 of the European Parliament and Council of 23 July 1996 concerning the creation of a supplementary certificate for plant protection products, 1996 OJ EC 198/30.

63 It is less complicated to amend existing patent laws to this effect than, say, to wait for patent offices to play trial and error to identify inventions contrary to *ordre public* in environmental terms.

64 This article does not attempt, nor can it claim, to be exhaustive on the subject.

65 Message from Francis Gurry, director general of WIPO, note 1. In this paragraph the role of design law, trademarks and patents is clearly highlighted.

acquire modern technologies that enhance their environmental protection, while promoting sustainable development.⁶⁶ The Kyoto Protocol contains explicit provisions on technology transfer. It provides, *inter alia*, that:⁶⁷

All Parties, taking into account their common but differentiated responsibilities...shall...

(c) Cooperate in the promotion of effective modalities for the development, application and diffusion of, and take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies, know-how, practices and processes pertinent to climate change, in particular to developing countries, including the formulation of policies and programmes for the effective transfer of environmentally sound technologies that are publicly owned or in the public domain and the creation of an enabling environment for the private sector, to promote and enhance the transfer of, and access to, environmentally sound technologies

From the provision above, one can note that IPRs do limit technology transfer between the global north and developing countries. The fact that technological know-how relevant for climate change mitigation is protected by patent, for example, makes it difficult for any international agreement to interfere with private property rights of the firms holding patents for such technologies. The way out of this difficulty sometimes opted for by developing countries, and which does not help much either in facilitating technology transfer, is issuance of compulsory licenses.⁶⁸ Some of the grounds for issuance of a compulsory license are public health and national emergence. Environmental concerns rarely, if ever, meet this threshold. It would be quite difficult, for example, for an African or Asian country to issue a compulsory license for the use of technology to protect the ozone layer.⁶⁹

66 See Anderson (2003:2), who suggests that the term technology transfer "... is sometimes used to refer the transfer of up-to-date technology and products from advanced, industrial nations to poorer countries, sometimes on preferential financial terms and with a view to enabling the poorer countries to take advantage of modern techniques for producing goods and services".

67 The Kyoto Protocol to the United Nations Framework Convention on Climate Change, 3rd Session. Dec 11, 1997 37 ILM 32 (1998). See Article 10 (c).

68 Simply defined, a compulsory license is the authorisation given by a judicial or administrative authority to a third party for the use of a patented invention, without the consent of the patentee, on various grounds of general interest. See, generally, Correa (2000).

69 This is neither a national emergency, nor a public health concern. Bird flu (Avian influenza) and HIV/AIDS are the two areas that are convincingly significant enough to prompt the issuance of a compulsory license on the grounds of both emergency and public health.

This difference in priority calls for developed countries, which have contributed more to the current state of global climate change, to take the matter seriously and ensure that technology transfer agreements empower developing countries for climate change mitigation and adaptation.⁷⁰ In the same manner, traditional knowledge of local and indigenous communities must be respected, protected and promoted for sustainable development and climate change mitigation and adaptation. The next part of this essay elaborates on this conception.

D. Climate Change and Traditional Knowledge

Climate change is a matter of life and death for local and indigenous communities.⁷¹ This is not only because adaptation techniques as described above require economic and technological ability, which is lacking among poor and marginalised communities, but also because mitigation strategies currently in place by and large militate against the rights and welfare of indigenous peoples. It is widely reported, for example, that local and indigenous communities around the world are being evicted from their ancestral territories to give room for the implementation of the Kyoto Protocol's Clean Development Mechanism.⁷² In the next part of the essay we show why traditional knowledge matters for climate change mitigation and adaptation and how to go about protecting such knowledge for sustainable development and biodiversity conservation.

70 The UNFCCC applies the doctrine of 'common but differentiated responsibilities' to show that developed countries ought to do more to harness the situation.

71 A recent report issued by the Interagency Support Group on Indigenous Issues provides, *inter alia*, that "the most advanced scientific research has concluded that changes in climate will gravely harm the health of indigenous peoples['] traditional lands and waters and that many of [the] plants and animals upon which they depend for survival will be threatened by the immediate impacts of climate change." See http://www.un.org/esa/socdev/unpfii/en/climate_change.html, last accessed 12 September 2009.

72 In many countries indigenous peoples' traditional rights to land are not protected by law. As a result, governments can use their fiat to evict such communities for what they call 'public interest', which is often in fact 'investors' interest'.

I. Why Traditional Knowledge Matters

The WIPO describes traditional knowledge as tradition-based literary, artistic or scientific works, performances, inventions, scientific discoveries, designs, marks, names and symbols, including also undisclosed information, and all other tradition-based innovations and creations resulting from intellectual activity in the industrial, scientific, literary or artistic fields.⁷³ TK is the totality of knowledge of local and indigenous communities that enable them live in harmony with the environment while supporting their livelihoods. This knowledge is termed traditional not because it is old, but because it is “created, preserved, and disseminated in the cultural traditions of particular communities.”⁷⁴ Traditional knowledge is time-tested, as it has enabled local and indigenous communities interact with nature for centuries. Four reasons can be advanced as to why it is particularly vital to protect TK and related genetic resources with the advent of climate change.

1. Eco-friendly Life of Local and Indigenous Communities

Through TK and associated genetic resources, local and indigenous communities are able to live an eco-friendly life with very little impact on the environment, let alone production of GHG. It has been argued, for example, that “if everybody on earth was to enjoy the lifestyle of the average Western European, we would need three planets”.⁷⁵ Local and indigenous communities have many lessons to offer to the world with respect to environmental conservation and sustainable development. The Convention on Biological Diversity requires member parties to preserve, protect and promote traditional knowledge related to biodiversity conservation.⁷⁶ The recently introduced international mechanism for reducing emission through deforestation and forest degradation (REDD) by and large depends on indigenous people who are the custodians of forests. Protection of traditional knowledge, and

73 WIPO (1998–1999).

74 Singhal (2008).

75 WWF (2008). An interesting pictorial illustration is available at http://www.panda.org/about_our_earth/all_publications/living_planet_report/, last accessed 13 August 2009. See also Derclaye (2009:268).

76 See Article 8(j).

social and economic empowerment of local and indigenous communities is vital if forests should remain sustainable.

2. Poverty Eradication and Community Empowerment

Along with climate change and loss of biodiversity, global poverty is often cited as one of the world's challenges of the 21st century. Climate change intensifies poverty as it leads to excessive droughts, reduction in the number of livestock and spread of diseases. It is important, therefore to protect traditional knowledge which enables local and indigenous communities to earn a living. "Non protection of TK deprives the owners, who are generally poor, the share in the economic benefits accruing from the use of their knowledge ... the condition of the craftsmen deteriorates, leading to poverty and in extreme cases, suicide"⁷⁷ As the world is committed to achieving millennium development goals, which, among other things, aim to reduce poverty by half by 2015, it is vital to protect traditional knowledge.

3. Time-tested Adaptation Strategies

Local and indigenous communities have a long tradition of interaction with nature. The traditional knowledge related to ecology, food production and preservation, and weather forecasting has enabled them to survive in critical conditions. A study by the Tyndall Centre for Climate Change Research offers examples of practices enabling local and indigenous communities to cope with harsh climatic conditions –⁷⁸

- In the Marshall Islands, people have traditionally secured their freshwater supplies, on which their survival depends, by using coral blocks to build up land around the freshwater lenses and protect them from salt-water intrusion.
- The Kenyah of Borneo, who usually rely on agriculture, sometimes switch to extracting starch from wild Sago palms during El Niño droughts.
- A diversified resource base is a commonly employed strategy to minimise the risk due to harvest failure. People often grow many different crops and varieties (e.g. with different susceptibility to droughts and floods) and supplement these by hunting, fishing and gathering wild food plants.

77 Singhal (2008).

78 Salick & Byg (2007).

These inventive practices ought to be the subject of IPR. Such recognition to TK would come with significant benefits for indigenous communities, including poverty eradication, an important millennium development goal.

II. Protection of TK and Implication for Climate Change Mitigation and Adaptation

Protection of traditional knowledge has become an important agenda in international fora and a topic of interest to lawyers, conservation scientists, anthropologists and development scholars. Such an unprecedented increase in interest is undoubtedly due to the importance TK holds in contemporary social, economic and scientific fields. In spite of this significance, it is widely documented that TK is under threat owing to “lack of respect for TK and its holders, loss of traditional lifestyles, misappropriation of TK, and its usage without any benefit-sharing and the reluctance of the younger members of the community to carry traditional practices forward.”⁷⁹ Conventional intellectual property rights, particularly patents, have been used as a tool to misappropriate TK, much to the detriment of local and indigenous commu-

79 WIPO (1998–1999).

nities.⁸⁰ The *Ayahuasca*⁸¹, *Neem*⁸² and *Hoodia*⁸³ cases as summarised by Gopalan and Sivakumar⁸⁴ bring the message across loudly and clearly.

Various ways have been proposed on how to protect traditional knowledge. In this essay we submit that the most important protection strategy is to ensure rights of local and indigenous communities to their ancestral lands. It is impossible to protect traditional knowledge, while destroying the very fabric that puts communities together. Eviction of local and indigenous communities is one of the most destructive and degrading treatments performed by modern governments in developing countries. Armed police and even soldiers are used to evict local communities forcefully, to pave the way for investors hiding in the rubric of climate change mitigation, such as the Clean Development Mechanism.

Positive protection of intellectual creations of local and indigenous communities can contribute to poverty eradication and therefore empowerment to deal with climate change. Access and benefit-sharing, as provided by the Convention on Biological Diversity, is one approach in which researchers are required to obtain prior, informed consent before using traditional knowledge and associated genetic resources of local and indigenous communities. Such economic incentives are crucial with the advent of climate change adaptation. Local and indigenous communities can use such income to build bridges and walls to adapt to effects of sea-level rise and other effects of

80 It is submitted that intellectual property law should do the opposite, which is protection rather than appropriation of TK.

81 The *Ayahuasca* *Banisteriopsis caapi* is a medicinal plant that has been used by indigenous people in Latin America for centuries. In the early 1980s an American researcher alleged to have discovered its usefulness and was issued with US Patent No 5751 issued in June 1986. As a result of collective efforts by civil societies and individuals, this patent was revoked in 1999, but later upheld.

82 The *Neem* tree *Azadirachta indica* is native to India and has been used by local and indigenous Indian communities for a long time. It has medicinal, spiritual and economic value. As with the *Ayahuasca*, the knowledge of the usefulness of the tree was applied, leading to an invention and subsequent grant of a patent by the European Patent Office in 1994. This patent was however revoked in 2000 for lack of novelty.

83 For many years, an indigenous community in Southern Africa known as the San used *Hoodia* as a hunger suppressant. This traditional use was noted by a Dutch anthropologist in 1937. In 1995 the South African Council for Scientific and Industrial Research obtained a patent for *hoodia*'s appetite suppressing element. A team of researchers patented this knowledge in the United Kingdom and later licensed it to Pfizer, an American pharmaceutical company. Following a threat of legal action by the San, an agreement was reached to share with them future royalties.

84 Gopalan & Sivakumar (2007:58–588).

climate change. Financial resources are also crucial for building water sources such as boreholes and providing other social amenities, which are conspicuously absent among local and indigenous peoples.

E. Conclusion

Climate change is one of the most complex, multifaceted and serious threats the world faces. The response is fundamentally linked to pressing concerns of sustainable development and global fairness; of economy, poverty reduction and society; and of the world we want to hand down to our children.

*United Nations Secretary-General Ban Ki-Moon*⁸⁵

Climate change is a serious human and environmental threat. It has also been established that intellectual property rights particularly patents can play a vital role in encouraging innovation for technologies needed for climate change mitigation and adaptation. Possibilities of patent law to discourage technologies that contribute to emission of GHG have also been explored. Patent law, it has been established, proceeds scientific and policy consensus on anthropogenic or man-induced climate change. This may explain why it is particularly difficult to fit some patent law doctrines into the climate change mitigation and adaptation discourse. An argument often invoked to justify this mismatch is that climate change and other environmental issues can better be dealt with by other branches of the law like environmental law.

While we appreciate the principle of specialisation among legal professionals, we nevertheless hold that environmental issues in general and climate change mitigation and adaptation in particular are too important to be a concern of only a segment of scientists and other professionals. Additionally, we opine that intellectual property rights in general and patents in particular should be seen as part of the solution and not as the source of the problem. It is the authors' view that more discussions among IP professionals, inventors, entrepreneurs and business leaders are essential. These can address ways to remove or minimise obvious mismatches with environmental concerns that invite public outcry against intellectual property rights, particularly patents. Business as usual is no longer the way to go, given the situation we are in.

A discussion on traditional knowledge and associated genetic resources has taken us even further (from our IP tradition) to realise that technology

85 Quoted in WIPO Magazine Issue 2/2009 (April) at 9.

per se is not enough. Protection of TK requires, first and foremost, respect for traditional lands and ancestral territories of local and indigenous communities. This may not be a part of the IP discourse, but it underlies the fact that protection of TK goes beyond the ambits of conventional IP. It also supports the statement above by United Nations Secretary-General Ban Ki-Moon that the response to climate change needs to be done in light of “global fairness” and “economy, poverty reduction and society”.⁸⁶ In the final analysis safeguarding intellectual property and protection of traditional knowledge can contribute significantly towards achieving climate change mitigation and adaptation. Both offer a unique opportunity of using old techniques to deal with a new challenge.

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86 (ibid.).

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Climate Engineering and International Law: Final Exit or the End of Humanity?*

Gerd Winter

Abstract

Climate engineering is increasingly being considered as a climate policy to supplement mitigation and adaptation as strategies to address anthropogenic climate change. Based on a review of the methods, goals and risks of climate engineering, this article focuses on solar radiation management exploring the existing international legal framework and discussing options for future policies. It is argued that solar radiation management should be forbidden from the outset because of unescapable uncertainty regarding its effects.

A. Introduction

Whoever reads up on climate engineering discovers a world of wonder.¹ A new fantastical, yet serious, academic discourse is emerging in this area. It creates a draw that incorporates the previously unheard-of into classical risk analysis. It is highly fictional, since the basic grounds for action (climate change and the failure of mitigation) are at the moment largely a hypothetical construct. However, beneath this construct lies a reality, which pulls us into the present discussion: the general apathy of the 'keep on going' attitude in regard to resource depletion; political and economic interests, who seek the benefit of resource exploitation and the exaggerations of many academics. All of this drives the deep uneasiness that arises from this dispute and makes

* A previous version of this article was published in *RECIEL* 20 (3) 2011, 277–289.

¹ See The Royal Society (2009); House of Commons Science and Technology Committee (2010); ETC Group (2010). For an overview of the pros and cons of climate engineering, see Ott (2010). For an analysis of the international law framework see Zedalis (2010); Proelß & Güssow (2011).

the current dialogue strangely assertive.² One should be careful not to set aside the natural reaction of astonishment when analysing the issue of climate engineering, because much about the current proposals is madness, although there is a method in it.³ With this attitude, the kinds and then the law of climate engineering will be examined.

B. Kinds, Goals and Risks of Climate Engineering

Climate engineering is a recent addition to the well-established strategies of mitigation and adaptation. This induces three main reactions to climate change. The prominent new trait of climate engineering is its enormous depth of intervention into the natural course of the biosphere. Table 1 shows the three main types of climate engineering policies as seen by the author ordered according to their magnitude.

Table 1: Mitigation, adaptation and engineering as approaches to addressing climate change according to magnitude

| | Mitigation | Adaptation | Engineering |
|--------------------------------|--|--|--|
| Large interventions | | | Solar Radiation Management (SRM), Carbon Dioxide Removal (CDR), Weather Manipulation |
| Medium and small interventions | Reduction of climate-gas input through <ul style="list-style-type: none"> • emission reduction • renewable energies • energy efficiency • energy sufficiency | Supporting resilience of ecosystems, Modified Plants, Flood protection | |

It is true that humankind has already had massive impacts on nature, both by developing it to suit our own interests and by destroying it. The ETC

² On the history of the hubristic climate manipulation see Fleming (2010).

³ A madness though that completely lacks Hamlet's cynicism.

Group, an environmental non-governmental organisation (NGO) with a mandate to promote the socially responsible development of technologies, has recently compiled a list of the most important harmful “old ways to geoengineer the planet”: deforestation, the conversion of savannah and marginal land into monocultures, the emission of enormous amounts of toxic substances into the atmosphere, the drainage of wetlands, river bed deviation, river, sea and lake pollution, extinction of species, overfishing, destruction of coral reefs, and over-usage of marginal soil and its erosion and desertification as a result.⁴

The new climate engineering differs from these old forms in that the climate effects of geoengineering are not considered incidental side effects, but instead constitute intended results. In most cases, these results are not an effect of accumulated, small changes, but instead arise from a single large-scale intervention.

An extensive report compiled by The Royal Society reviews the methods of climate engineering and assesses them according to the four main criteria of efficiency, affordability, timeliness and safety (see Table 2).

*Table 2: Methods of climate engineering and an evaluation of their benefits and expenses.*⁵

| Method | Effectiveness | Affordability | Timeliness | Safety |
|-----------------------------|---------------|---------------|------------|--------|
| Afforestation | 2 | 5 | 3 | 4 |
| BECS | 2.5 | 2.5 | 3 | 4 |
| Biochar | 2 | 2 | 2 | 3 |
| Enhanced weathering | 4 | 2.1 | 2 | 4 |
| CO ₂ air capture | 4 | 1.9 | 2 | 5 |
| Ocean fertilisation | 2 | 3 | 1.5 | 1 |
| Surface albedo (urban) | 1 | 1 | 3 | 5 |
| Surface albedo (desert) | 2.5 | 1 | 4 | 1 |
| Cloud albedo | 2.5 | 3 | 3 | 2 |
| Stratospheric aerosols | 4 | 4 | 4 | 2 |
| Space reflectors | 4 | 1.5 | 1 | 3 |
| CCS at source | 3 | 3 | 4 | 5 |

4 See ETC Group (2010:18).

5 See The Royal Society (2009:48). The numbers represent an increase in the loading of the variables. For instance, 1 in the first column means the lowest and 5 the highest effectiveness of a given method.

Afforestation is a method of carbon dioxide (CO₂) storage. If used in cyclical processes as an alternative to burning fossil fuels it is a mitigation strategy; if aimed at large-scale removal of already existing loads of CO₂ in the atmosphere it should be considered as climate engineering. Carbon capture and storage (CCS) is the method of capturing CO₂ after combustion processes and storing it in deep layers of the ocean or in caves on land or the seabed. Bioenergy with CO₂ sequestration (BECS) is a sub-form of CCS at the source. Biochar involves carbonising biological material and then storing it underground. Enhanced weathering mimics natural processes for removing carbon dioxide from the atmosphere, by speeding up the reaction of CO₂ with carbonate and silicate rocks. CO₂ air capture is the absorption of CO₂ into solid and liquid matter with the help of certain chemicals, the resulting mass of which must then be stored. Ocean fertilisation stimulates the growth of marine algae and thus the biological absorption of CO₂ from the atmosphere. Land surface albedo⁶ (both urban and desert) can be enhanced by making large urban or land surface areas white to reflect incoming solar radiation. Another suggestion is to increase the albedo of maritime boundary layer clouds. This method entails spraying a fine mist of saltwater particles that could form small cloud condensation nuclei in order to enhance the reflectivity of marine clouds. Stratospheric aerosol injection involves releasing particles (e.g., sulphate aerosols) into the stratosphere to reflect sunlight before it even reaches the lower layers of the atmosphere. Another climate engineering method involves placing reflectors in outer space to reflect solar radiation before it reaches the Earth's surface.

Large scale afforestation, BECS, biochar, enhanced weathering, CO₂ air capture, ocean fertilisation and CCS are all described as Carbon Dioxide Removal (CDR), whereas increasing surface and cloud albedo, the methods of injecting stratospheric aerosols and installing space reflectors are known as Solar Radiation Management (SRM). The Royal Society's list does not account for weather manipulations. However, if used on a large scale, it might be considered as a third method of climate engineering.

This article focuses on SRM methods of climate engineering with a special emphasis on the development and use of stratospheric aerosols and the insertion of reflectors in the Earth's lower orbits, since these two methods propose a particularly dramatic intrusion into the Earth's systems.⁷ The legal

6 *Albedo* is a measuring unit of a surface's reflectivity.

7 Enhancing the cloud and surface albedo raise additional legal questions that cannot be addressed here.

analysis is based on certain noteworthy characteristics of climate engineering, which are emphasised below.

Some Characteristics of Climate Engineering

The Royal Society predicts that a very fast and highly effective cooling-down of the climate can be achieved with stratospheric aerosols and space reflectors at a relatively moderate cost. But the safety of such efforts is estimated to be relatively low, meaning that adverse side-effects on human health and the environment could be significant. Another consequence not well represented in the table is the possibility of a ‘counter-productive effect’. For instance, the injection of stratospheric aerosols could cause an increase in temperatures instead of a decrease. This response could arise if it turns out that the newly formed aerosols in the stratosphere absorb solar radiation instead of reflecting it; or, if the intervention is not pursued continuously, there could be a fast escalation of temperatures to which the biosphere would not be able to adapt.⁸

It is not just the large-scale deployment of climate engineering technologies that bears risks. Research into climate engineering methods also poses a threat. It is predicted that *in situ* experiments themselves could constitute a major intervention of significant duration, because a large-scale field trial would be necessary to determine whether the experiment has produced intended cooling separate from the usual temperature fluctuations. Experts in climate-engineering, such as Robock *et al.*, illustrate this with the example of a test on the insertion of sulphur into the lower stratosphere conducted at the tropics:⁹

In a 10-year experiment to test for a climate signal over noise, the chance of a local adverse response could not be ruled out prior to the experiment. As such, a prudently designed experiment would have to make provision for such outcomes. Although even a major disruption of agricultural output would be difficult to attribute to geoengineering, were such outcomes to occur, necessitating an end to the experiment, the sulphate aerosol density would need to be decreased slowly to avoid ecological shocks.

Climate engineering is also a typical example of an end-of-pipe-strategy, because the emission of greenhouse gases into the atmosphere along with

8 Bengtsson (2006).

9 Robock et al. (2010).

the consequence of increased global temperatures is tolerated only to proceed with extracting these emissions again through the costly and time-consuming methods of CDR or minimising their impact by means of SRM.

It is legally very important to know who will initiate climate-engineering measures. Three scenarios must be considered. Firstly, there is the single state unilateral action, with said state only minding its own interests and endangering other states (as well as itself). Secondly, a single state unilateral project could be undertaken for the (supposed) common good while bearing in mind the risks for all. Thirdly, a multilateral project following the foundation of an international organisation is possible. Naturally, the unilateral campaigns are especially concerning; on the other hand, as will be seen below, there are more international rules available that are applicable to them.

C. International Law

Two types of legal norms are relevant with regard to the international legal framework that applies to climate engineering: the norms enabling state action and those regulating state action in the global public interest. Enabling law is largely determined by the distribution of sovereign rights of states. Beyond the limits of state sovereignty, the activity may still be allowed on a non-exclusive basis, e.g., if performed in an area of commons. Regulatory law, on the other hand, may restrict or encourage or even obligate states to exercise their rights in a specific way. Treaties and customary law may at the same time perform both of these functions of international law by enabling and regulating certain activities.

I. Enabling Law

According to customary international law, activities within the stratosphere, such as the introduction of particles, belong to the sovereign realm of states.

Contrastingly, activities in outer space, such as the insertion of reflectors, are undertaken in a commons area and are subject to the principle of the freedom of exploration and use of outer space. The Outer Space Treaty¹⁰

10 Treaty on principles governing the activities of states in the exploration and use of outer space, including the moon and other celestial bodies, London, Washington, and Moscow, 27 January 1967 (Outer Space Treaty).

gives some more specifics in this respect. It declares that outer space, including the moon and other celestial bodies, are a sphere of free exploration, use and research for all states.¹¹ No state has sovereign rights over outer space.¹² This means that outer space constitutes a common area to humanity whose research and utilisation by states is free but not exclusive.

The treaty does not delimit the boundary at which the air column above the sovereign territory of states ends and where outer space begins. Customary international law has not formulated an answer to this question either. However, the general assumption is a limit of about 100–110 km.¹³

While, according to customary law, a state is allowed to enter outer space through its own air space, it must obtain consent of another state if the access implies the crossing of the air space of the other state.¹⁴

The Outer Space Treaty has also regulatory provisions, which will be elaborated upon below.

II. *Regulatory Law*

There are treaties covering all SRM measures as well as treaties specific to kinds of SRM. In addition, international customary law must be consulted.

1. *Treaties Applicable to Atmospheric Sulphur and Space Reflectors*

a) *Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD)*

The 1977 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD)¹⁵ prohibits the hostile use of environmental modification techniques. *Environmental modification techniques* are defined as –¹⁶

11 Outer Space Treaty, Article I paragraphs 2 and 3.

12 Outer Space Treaty, Article II.

13 Vereshchetin (2008–:paragraph 15).

14 Fischer (2004); Wolfrum (1987:243).

15 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, Geneva, 18 May 1977 (ENMOD Convention). The treaty has 76 parties.

16 (ibid.:Article II).

... any technique for changing – through the deliberate manipulation of natural processes – the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.

Several examples are provided –¹⁷

earthquakes, tsunamis; an upset in the ecological balance of a region; changes in weather patterns (clouds, precipitation, cyclones of various types and tornadic storms); changes in climate patterns; changes in ocean currents; changes in the state of the ozone layer; and changes in the state of the ionosphere.

Military or any other hostile use “having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party” is prohibited. Friendly use is not barred *a limine*, even if it causes widespread, long-lasting and severe effects.¹⁸ However, friendly use must still accord with the generally acknowledged principles and applicable rules of public international law.¹⁹ Furthermore, an exchange of research and development results is provided.²⁰ According to Article III(2) of ENMOD –

... [t]he States Parties to this Convention undertake to facilitate, and have the right to participate in, the fullest possible exchange of scientific and technological information on the use of environmental modification techniques for peaceful purposes.

SRM falls within the definition of environmental modification techniques as set out in the ENMOD Convention. Climate interventions planned for military or other hostile use would be prohibited, but activities carried out for friendly purposes are allowed, notwithstanding any other applicable international law such as rules protecting the environment. It is important to note that knowledge and technologies gained by conducting field tests must be shared with other contracting states. This is particularly significant with regard to knowledge about negative consequences, which also must be shared.

17 (ibid.:Annex on *Understandings regarding the convention*).

18 In contrast to this Proelß & Güssow (2011:7) seem to opine that the ENMOD Convention is not applicable to peaceful activities.

19 See ENMOD, note 14 above, Understanding Relating to Article III annexed to the convention text.

20 (ibid.:Article III(2), 1st sentence).

b) UNFCCC

An encouragement and perhaps even an obligation to intervene to prevent global warming using climate engineering may be derived from the UN Framework Convention on Climate Change (UNFCCC).²¹ Article 3(3) of the Convention states:

The Parties should take *precautionary measures* to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures To achieve this, such policies and measures should ... cover all relevant *sources, sinks and reservoirs* of greenhouse gases. [emphasis added]

The provision affirms the precautionary principle and construes it as requiring that states take positive measures regarding sources, sinks and reservoirs of greenhouse gases. Article 4(1) (b) and (d) of the UNFCCC further elaborate on this requirement:

All Parties ... shall ... (b) formulate, implement, publish and regularly update ... programmes containing measures to mitigate climate change by ... *removals by sinks of all greenhouse gases* ...; (d) ... promote and cooperate in the conservation and enhancement, as appropriate, *of sinks and reservoirs* of all greenhouse gases ... including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems; [emphasis added]

Article 3(3) of the UNFCCC does not apply to SRM methods within this enumerated list of measures, because the purpose of this provision is to control the causes of climate change. Solar radiation is clearly a component of our climate system. However, it is not the cause of *changes* to the climate.²² This narrower focus on the causes of climate change in the first sentence of Article 3(3) also applies to severe and irreversible damages mentioned in the second sentence of this provision. In conclusion, the UNFCCC neither mandates nor encourages SRM. This is also illustrated in Article 4(1)(b) and (d), which addresses only the removal of greenhouse gases, and not the reduction of solar radiation.

If we assume that the precautionary principle now has the legal status of customary international law,²³ such that it is directly applicable independent

21 UN Framework Convention on Climate Change, New York, 9 May 1992 (UNFCCC).

22 Zedalis (2010:31) fails to notice this.

23 For the discussion, see Birnie et al. (2009:159f.).

of the specific requirement in Article 3(3) sentence 2 of the UNFCCC, then the question arises: does this principle perhaps encourage or even compel parties to use SRM?²⁴ I believe not, since this conception would pervert the very idea of precaution. The precautionary principle acknowledges that human behaviour is capable of destroying the environment, and advises us to take action to stop such damage, even if there is no certainty about degree and likelihood of harm. The goal is to prevent damage from occurring, which otherwise would need to be eliminated through an end-of-pipe method. Climate engineering, however, is itself a type of an end-of-pipe method, and, in fact, one of the least reliable.

c) Convention on Biological Diversity

The 1992 Convention on Biological Diversity (CBD)²⁵ obliges contracting states to monitor and control activities that are potentially harmful to biodiversity. According to Article 7(c), each contracting party shall –

... identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques.

Article 8(l) states that a contracting party shall –

... where a significant adverse effect on biological diversity has been determined pursuant to Article 7, regulate or manage the relevant processes and categories of activities.

Both obligations are, without doubt, applicable to climate engineering. However, they are not of much help. Above all, they hardly have a preventative aim. Rather, these provisions apply to activities that definitely or supposedly have adverse environmental effects. They do not require precautionary action. In addition, the requirements for monitoring and control are undefined. Furthermore, these obligations are subject to the proviso of “as far as possible and as appropriate.”²⁶

24 Along this line it has been argued that ocean fertilisation is legitimated by the precautionary principle. Güssow et al. (2010:917).

25 Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, (CBD).

26 (ibid.:Article 8).

A specification has been achieved through resolutions of recent conferences of the contracting parties. At the tenth session of the CBD Conference of the Parties (COP10) in 2010, the parties to the CBD determined —²⁷

... that no climate-related geoengineering activities that may affect biodiversity take place, until there is an *adequate scientific basis on which to justify such activities* and appropriate *consideration of the associated risks for the environment* and biodiversity and associated *social, economic and cultural impacts*. [emphasis added]

In 2008, the parties at CBD COP9 had determined that ocean fertilisation would not be permitted until “a global, transparent and effective control and regulatory mechanism is in place for these activities.”²⁸ The effect of this declaration was to create an implicit moratorium for ocean fertilisation activities. The resolution agreed at COP10, which also applies to SRM, is less strict, although SRM has a greater potential to cause harm than ocean fertilisation. Nonetheless, the conclusion of COP10 applies the precautionary principle requiring that, before deployment, climate engineering activities must have an adequate scientific basis to justify them. Furthermore, appropriate consideration is needed in relation to environmental risks as well as social, economic and cultural impacts. Of course, as a COP Resolution these rules are not binding in the formal legal sense.

d) Convention on Environmental Impact Assessment in a Transboundary Context

The Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention)²⁹ lays down the obligation on parties to conduct environmental impact assessments (EIA) before certain types of projects are carried out. The contracting parties are also required to ensure the participation of the affected public and notify and consult potentially affected

27 Decision adopted by the Conference of the Parties to the Convention on Biological Diversity at its tenth meeting, UNEP/CBD/COP/DEC/X/33 of 29 October 2010, paragraph 8(w).

28 Decision adopted by the Conference of the Parties to the Convention on Biological Diversity at its ninth meeting, UNEP/CBD/COP/DEC/IX/16, 30 May 2008, paragraph C 4.

29 Convention on Environmental Impact Assessment in a Transboundary Context, Espoo, 25 February 1991, (Espoo Convention).

states. The EIA must include “a description, where appropriate, of reasonable alternatives (e.g., locational or technological) to the proposed activity and also the no-action alternative.”³⁰

The projects, to which the obligation for an EIA applies, are listed in Appendix I to the Convention. They are mainly industrial and infrastructure projects. Climate engineering, particularly SRM, is not included. However, projects that are not included in Appendix I could be treated as if they are listed, if they are likely, according to criteria laid out in Appendix III (such as size, location and type) to cause a significant adverse impact, and if the parties “so agree”; each contracting state could, therefore, initiate the inclusion of climate engineering in Appendix I.³¹

There is no doubt that SRM meets the criteria of Appendix III. Large-scale research projects could also meet these criteria. All that is required is the consensus of the contracting parties to extend the requirement of an EIA to climate engineering activities, upon the initiative of a contracting state.

As a convention of UN Economic Commission for Europe (UNECE), the Espoo Convention only applies to European and North American signatory countries.³²

2. *Treaties With Specific Application*

a) Atmospheric Sulphur

(1) Convention on Long-Range Transboundary Air Pollution

The contracting parties to the 1979 Convention on Long-Range Transboundary Air Pollution (LRTAP Convention)³³ –

30 (ibid.:Appendix II lit. (b)).

31 (ibid.:Article 2(5) with Appendix III).

32 (ibid.:Article 17(3)) which was adopted in 2001 allows non-UNECE member states to become parties to the Convention. The amendment enters into force once it is adopted by all the states and organisations that were parties to the Convention on 27 February 2001.

33 Convention on Long-Range Transboundary Air Pollution, Geneva, 13 November 1979. Having 51 parties all situated in the North America, Europe and the former Soviet Union, the Convention is a regional one.

... are determined to limit and, as far as possible, gradually reduce and prevent air pollution including long-range transboundary air pollution.³⁴

Air pollution is defined in the convention as —³⁵

... the introduction by man, directly or indirectly, of substances or energy into the air resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property and impair or interfere with amenities and other legitimate uses of the environment.

Since the stratosphere belongs to the *air*, the Convention applies to the injection of sulphuric particles into it. If damage is caused by a specific activity, mitigation measures must be undertaken. While the Convention has primarily the reduction of already existing pollution in mind, it also requires prevention. But it presupposes that the deleterious effects of substances or energy are provable.³⁶ This disqualifies the provision as an appropriate rule on stratospheric sulphur.

The Protocols to the LRTAP Convention on reduction of sulphur emissions are not, however, applicable to stratospheric sulphur. It is true that these Protocols oblige parties to gradually reduce emissions of sulphur but their scope is emissions from combustion of fossil fuels for energy production, industrial processes and transport.³⁷

(2) Vienna Convention for the Protection of the Ozone Layer

The 1985 Vienna Convention for the Protection of the Ozone Layer (Ozone Convention)³⁸ states that contracting parties to the Convention —³⁹

... shall take appropriate measures ... to *protect* human health and the *environment against adverse effects* resulting or likely to result from human activities which modify or are likely to modify the ozone layer.⁴⁰ [emphasis added]

34 (ibid.:Article 2).

35 (ibid.:Article 1(a)).

36 See Zedalis (2010:22).

37 See the sixth consideration of the Preamble to the Oslo Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Further Reduction of Sulphur Emissions, Oslo, 14 June 1994.

38 Vienna Convention for the Protection of the Ozone Layer, Vienna, 22 March 1985. The Convention has 196 parties and is thus of a universal character.

39 (ibid.:Article 1(a)).

40 (ibid.:Article 2(1)).

The Convention creates the obligation to prevent environmental damage caused by the degradation of the ozone layer. The contracting parties have other duties as well – they need to cooperate to promote research, harmonise measures, adopt new, specific protocols and cooperate with other international bodies. The preventive quality of the provision is stricter than that of the LRTAP Convention because prevention is also due if the negative effects are only “likely”. This does not mean, however, that the treaty adopts the precautionary principle.

The ozone layer forms part of the stratosphere. Water is also a substance that has the potential to alter the ozone layer.⁴¹ This means that stratospheric aerosol injection and the resulting condensation of water particles could damage the ozone layer.⁴² Such damage to human health or the environment must be prevented. It has been debated whether such damage can be weighed against possible benefits for the climate. However, the Vienna Convention does not contain any indication in that direction.⁴³

b) Space Reflectors

(1) The Outer Space Treaty

The Treaty contains certain obligations with regard to the research and use of outer space, the moon and other celestial bodies. According to Article I, –

... [t]he exploration and use of outer space, including the moon and other celestial bodies, shall be *carried out for the benefit and in the interests of all countries*, irrespective of their degree of economic or scientific development, and shall be the *province of all mankind*.⁴⁴ [emphasis added]

Also, Article IX states –

State Parties to the Treaty shall pursue studies of outer space, including the moon and other celestial bodies, and conduct exploration of them so as to *avoid their harmful contamination and also adverse changes in the environment of the Earth* resulting from the introduction of extra terrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or

41 (ibid.:Annex I, paragraph 4. e. ii).

42 See Zedalis (2010:22).

43 See Proelß & Güssow (2011:30).

44 See Outer Space Treaty, note 9 above, Article I.

its nationals in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the moon and other celestial bodies, it shall undertake appropriate *international consultations* before proceeding with any such activity or experiment.⁴⁵ [emphasis added]

Article I indicates that the exploration and use of outer space, including the moon and other celestial bodies, must be carried out to the benefit and in the interest of all countries. It is controversial what that means.⁴⁶ As a minimum requirement, it can be said that those activities are incompatible with the Treaty, which are not likely to produce any benefit but rather have detrimental effects.

Article IX obligates parties to avoid such exploration and use⁴⁷ which may cause harmful contamination of outer space or adverse changes in the environment of the earth. They must undertake international consultations prior to the undertaking of any potentially harmful actions.

The positioning of reflectors into outer space is a form of use of outer space.⁴⁸ This would be prohibited if its effects are counterproductive or if it causes adverse changes in the environment of the Earth.

(2) Liability for Damage Caused by Objects Introduced into Outer Space

Article VII of the Outer Space Treaty provides that states launching objects into outer space are liable for damage to another state or to its natural or juridical persons by such objects or its components on the Earth, in air space or in outer space. Thus the focus is on physical damage from space reflectors as objects, such as if they fall to Earth or hit other space objects in the atmosphere or outer space. This means that the most problematic effects – adverse impacts on ecosystems and weather conditions – are not adequately captured by the Treaty.

This conclusion also applies to the Convention on International Liability for Damage Caused by Space Objects,⁴⁹ which in more precise language

45 (ibid.:Article IX).

46 See Proelß & Güssow (2011:17) for a summary of this debate.

47 The fact that Article IX, 2nd sentence only mentions studies and exploration but not use is generally considered to be an editing mistake. See Proelß & Güssow (2011:19).

48 See Zedalis (2010:24); and Proelß & Güssow (2011:16).

49 Convention on International Liability for Damage Caused by Space Objects, London, Moscow, Washington, 29 March 1972.

provides that “a launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft flight.”⁵⁰

Somewhat more preventive is the approach taken by a treaty on space debris that is presently under international discussion. If it materialises as a binding instrument, new obligations will have to be respected with regard to decommissioned reflectors or other waste resulting from related operations. According to a recent draft treaty compiled by the International Law Association,⁵¹ such a treaty would establish an obligation of states –

... to take all appropriate measures to *prevent, reduce, and control any damage* or significant risk arising from activities under their jurisdiction or control which are likely to produce debris

as well as to be –

internationally liable for damage arising therefrom to another State, persons or objects, or international organisation party to this Instrument as a consequence of space debris produced by any such object [emphasis added]

3. Customary International Law

Customary international law must also be consulted. It can be applied where conventions leave issues unregulated. Some rules of customary international law may also be regarded as *jus cogens* thus setting aside any incompatible conventional rules.

Procedural and substantive rules of customary international law should be distinguished when analysing the legal framework that applies to climate engineering.

a) Procedural Obligations

The acting state’s obligation to provide prior notification to affected states and give them an opportunity to comment is a generally agreed procedural

50 (ibid.:Article II). In addition, Article III establishes (fault) liability for damage to space objects or persons and property on board of space objects.

51 Articles 3(2) and 8 of the draft. See Williams (2008:94f.).

requirement of customary international law. If there is available information about the risks of an activity, it must be shared.⁵²

There is also an obligation to carry out a prior EIA. Previously, this obligation was only mandatory for projects covered by the regional Espoo Convention. Since then, the International Court of Justice (ICJ) has recognised that the requirement to conduct a prior EIA constitutes a universal rule of customary international law. In the *Pulp Mills* case, the court phrased the EIA requirement as follows:⁵³

... a requirement under general international law to undertake an *environmental impact assessment* where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource. [emphasis added]

Although the ICJ's decision in *Pulp Mills* leaves much of the scope and content of an EIA to be defined by states, it outlines four basic requirements about what is necessary in such instances: (i) the EIA should be adequate to the size, type and effects of the project; (ii) it must be prepared with due diligence; (iii) it must include an assessment of alternatives; and (iv) it must be carried out prior to the realisation of the project.⁵⁴ With regard to the first criterion and in light of the exorbitant scale and risks that may be posed by SRM activities, we can assume that the ICJ would include SRM as within the scope of the customary rule on EIA.

b) Substantive Obligations

A substantive obligation to prevent environmental damage is also an important rule of customary international law. In *Pulp Mills*, the ICJ restated this rule as follows:⁵⁵

A State is thus obliged to use all the means at its disposal in order to avoid activities which take place in its territory, or in any area under its jurisdiction, causing significant damage to the environment of another State.

52 See Birnie et al. (2009:177).

53 ICJ 20 April 2010, *Pulp Mills on the River Uruguay (Argentina v Uruguay)*, Number 204.

54 (ibid.:Numbers 205, 210). The participation of the general public is not *per se* viewed by the court as customary law (Number 216).

55 (ibid.:Number 101).

While the ICJ derived from this obligation the procedural duty to inform the affected states prior to taking certain actions,⁵⁶ it did not need to specify the substantive content of the obligation as a general customary rule, because precise substantive obligations were defined in a bilateral treaty between the opposing parties in that case.

There is general agreement among scholars and a growing practice in international treaties that states are required to prevent damage also to common areas such as outer space.⁵⁷ In any case, as explained above, such a duty can be found in the Outer Space Treaty.

Liability to compensate damage is a second dimension of substantive obligations under customary international law. The rule that states which fail to meet their obligation to prevent transboundary harm must compensate the injured state has been widely accepted since the *Trail Smelter* arbitration in which Canada was liable to pay compensation to the United States for transboundary damage that occurred from plant operations.⁵⁸ However, the reticence of the ILC to codify such a rule, the lack of case law and later concerns of authors have raised doubts about whether the norm arising from *Trail Smelter* is supported by sufficient evidence of a general practice to be accepted as law.⁵⁹ In any case, the more established rules on civil liability between private individuals or entities may be seen as a viable substitute for state liability.⁶⁰

In sum, it can be assumed that due to the possibility of potentially enormous side and counter-productive effects, SRM interventions are covered by the rule of prevention. The state launching a project must prepare an EIA and abide by the requirements of due diligence.

III. State of Emergency and Countermeasures

A state engaging in climate engineering activities which then violates one or more of the international norms mentioned above, could plead a state of

56 (ibid.:Number 102).

57 Birnie et al. (2009:145).

58 *Trail Smelter Arbitration* 16 April 1938 (*United States v Canada*), RIAA III, 1938, 1965.

59 See Birnie et al. (2009:141); and Handl (2007:545).

60 See Handl (2007:545).

emergency. According to customary international law, such a situation would transform illegal actions into legal ones.

However, in order for a state to successfully plead that its actions fall within the legal exception of a state of emergency, certain criteria must be fulfilled. These include the requirements that there exists, namely –⁶¹

- an essential interest of the acting state
- a grave and imminent danger
- only one sole means of protecting the state's interests
- no expectation of serious damage to another state's essential interests; and
- a situation where the state has not itself contributed to the state of emergency.

It can be assumed under the given scenario involving a unilateral deployment of a climate engineering technology that the first two requirements would be met if a serious climate problem arises. However, the third requirement, which relates to the effectiveness of the measure, is hard to meet, given the likelihood of counterproductive effects. The fourth requirement poses the same problem, because grave damages to other states might be expected by the use of climate engineering technologies. The last requirement, however, goes to the core of the problem. Owing to their financial, scientific and technological capabilities, it would be industrialised states that deploy climate engineering projects. Yet the industrialised states are unquestionably the ones that caused the state of climate emergency in the first place.

Notwithstanding this, climate engineering could also be construed as a countermeasure against other state's illegitimate actions: State A could carry out climate engineering activities that cause damage to the territory of state B in response to state B's action to take climate engineering measures, which were assumedly unlawful for causing damage in the territory of state A in the first instance. Or state A could take climate engineering measures to the detriment of state B as a countermeasure to activities undertaken by state B causing climate change in violation of the UNFCCC obligations. In the *Gabčíkovo-Nagymaros* case, the ICJ considered whether the illegitimate

61 ICJ, judgment of 25 September 1997, *Gabčíkovo Nagymaros Hungary v Slovakia*, (1997) ICJ Reports 7, paragraphs 51, 52. The court followed the provisions of Article 33 of the Draft Articles on the International Responsibility of States by the International Law Commission (ILC), Yearbook of the International Law Commission, 2001, Vol. II, Part Two.

branching off of the Danube waters by Slovakia could be considered a legitimate countermeasure against Hungary, which unilaterally pulled out of the joint Danube canalisation project. The ICJ established four conditions to be met for the countermeasure to be legitimate:⁶²

- The countermeasure must be a reaction to a prior action taken by a state in violation of international law
- The countermeasure must be directed to the other state
- A prior warning must have been made to the other state to refrain from the illegitimate activity or to compensate for the damage; and
- Proportionality of the countermeasure in comparison to the sustained damage must be ensured.

However, of these conditions the first two can hardly be met in the present context. The first would require that the opposed action – climate gas emissions – has been performed in violation of international law which is not evident given the elusive language of the UN Framework Convention. The second is impossible to fulfil because the adverse effects of SRM cannot be so controlled that they only affect the opposing states and not any innocent third state.

IV. Summary and Conclusion

The rules of international law applicable to SRM can be summarised as follows:

SRM within a state's atmosphere falls under its sovereignty. SRM in outer space is in principle a free but non-exclusive right of states. Although it is designed to preserve a livable climate, SRM is neither mandated nor even encouraged by the UNFCCC or the precautionary principle. Rather, according to the UNFCCC and the precautionary principle, all efforts must be directed to the mitigation of anthropogenic climate change.

The basic rights of states to carry out SRM are subject to restrictions in the interest of environmental protection. These restrictions are laid out in various international treaties and also in customary international law. Some of them are very broadly and others more precisely framed. Some are only regionally, others universally binding. Some are applicable to all climate

62 *Gabcikovo Nagymaros*, paragraphs 83–87.

engineering methods, others only to specific ones. The resulting palette of obligations can be outlined as follows:

- regional obligations (Europe)
 - an EIA is required with a precise content, which includes an assessment of alternatives (Espoo Convention);
 - public participation in the EIA process is mandatory (Espoo Convention);
- specific obligations
 - activities must serve the common welfare of all states (Outer Space Treaty; concerning space reflectors);
 - adverse changes in the environment of the Earth must be avoided (Outer Space Treaty; concerning space reflectors);
 - air pollution must be prevented (LRTAP Convention; concerning stratospheric sulphur);
 - the ozone layer must be protected (Ozone Convention; concerning stratospheric sulphur);
- general obligations (universal)
 - a prior EIA is required, but the scope of the projects and the content of the EIA remain to be specified (customary rule);
 - prior notification of and consultation with affected states is mandatory (customary rule);
 - the transportation into outer space of objects through the airspace of another state requires the consent of this state (customary rule);
 - research and development results are to be shared with other contracting states (ENMOD);
 - significant and imminent damages to other states and common areas must be prevented (customary rule);
 - damage by space objects must be compensated (Outer Space Treaty).

States that have contributed to climate change are not entitled to justify damaging effects by invoking a state of emergency. States which have suffered from climate change without contributing to it and which have deployed SRM as a countermeasure, would hardly be able to prove that the preconditions of legitimate counter measures are given.

Assessing the existing international rules there appear to be flaws in several respects. Many rules are rather undemanding: the concept of an EIA as required by universal customary law does not require the testing of alternatives and lacks requirements to ask for public participation; the common welfare requirement of the Outer Space Treaty is very weakly framed and

only applies to space operations; the duty established by the ENMOD Convention to exchange research and development results is too broadly formulated to inform about precise rights and exceptions on access to information; the customary duty to prevent damage which traditionally presupposes firm knowledge about risks has been amplified to a due diligence rule whose content is however not yet clear; the customary duty to compensate for damage is likewise still opaque only physical damage from space objects being clearly covered.

Altogether, the existing rules build upon the traditional model assuming causation by single causes of single effects. This disregards the large-scale character and systemic effects of SRM. Moreover, all of the rules focus on the protection of the environment. They do not reflect that SRM by aiming at climate stabilisation may also serve the protection of the environment. Attempts to interpret the existing rules such that they allow for a weighing of environmental and climate concerns have so far not been successful because the relevant texts do not allow for that. An alternative and more general approach suggesting the weighing of environmental protection conventions against the UNFCCC⁶³ does not work in regard to SRM because the UNFCCC neither mandates nor encourages this technology.

D. Reform Considerations

Considering these flaws, two options for future policies concerning SRM are imaginable: (a) an incrementalist approach suggesting slight changes to existing laws plus additional commitments, and (b) an innovative approach creating an entire new regime on climate engineering.

I. Minor Changes to Existing Rules Plus Additional Commitments

This appears to be the most realistic option, and the one that will probably be proposed by politicians. It can be expected that adaptation of annexes and new interpretations of existing conventions will be introduced. For instance, the obligation to conduct an EIA will possibly be improved. The adoption of the ambitious Espoo obligations may be spread by accession of non-

63 See Proelß & Güssow (2011:70f.).

European states to the Convention. Its list of projects requiring EIA may be extended to SRM research and deployment. The US, although not party to the Convention, already fulfils this standard. The National Environmental Protection Act and regulations define the scope of EIA not through a list but by means of established criteria. These would undoubtedly apply to climate engineering.⁶⁴

It is not expected that essential progress will be made on sectoral conventions. It is true that the decision of COP10 of the CBD is progressive in the sense that it requires sufficient knowledge prior to the taking of SRM measures. However, the CBD decision is not binding international law. The common welfare clause set out in the Outer Space Treaty could also be reinterpreted as requiring that states must furnish proof of the effectiveness of the measure and the exclusion of counterproductive effects. But the necessity test has hardly a chance of being transferred to the other conventions dealing with climate engineering within the atmosphere, because this would substantially increase the burden of proof for research and deployment projects. Perhaps, the idea contained in the ENMOD Convention that research and development results must be shared, has a better chance of becoming a general principle in the climate engineering field.

Given the significant deficiencies in the existing regulatory framework, one might put hopes in self-regulation as a potential solution. A prominent example of this is the five recommendations regarding research on climate engineering that were agreed upon at the Asilomar International Conference on Climate Engineering Technologies in November 2010. These recommendations are:⁶⁵

1. Climate engineering research should be aimed at promoting the collective benefit of humankind and the environment
2. Governments must clarify responsibilities, and, when necessary, create new mechanisms for the governance and oversight of large-scale climate engineering research activities

64 See Executive Order No. 12114 of 04 January 1979. Environmental Effects Abroad of Major Federal Actions, Numbers 2–3, which states that “major federal actions significantly affecting the environment of the global commons outside the jurisdiction of any nation” are subject to EIA as well as “major Federal actions significantly affecting the environment of a foreign nation not participating with the United States and not otherwise involved in the action.”

65 ASOC (2010).

3. Climate engineering research should be conducted openly and cooperatively, preferably within a framework that has broad international support
4. Iterative, independent technical assessments of research progress is required to inform the public and policymakers; and
5. public participation and consultation in research planning and oversight, assessments, and development of decision-making mechanisms and processes must be provided.

Unfortunately, these rules are vaguely worded and ill defined. The reference to promote the common welfare (Recommendation 1) does not explain what kinds of research would meet the standard and what others not. While administrative oversight is accepted (Recommendation 2), the question of liability of researchers for damages is not elaborated on. A concrete requirement of open and timely publication of research and development results has not been guaranteed (Recommendation 3), so that new knowledge can be kept secret, for example, for patenting purposes. The requirement to conduct a prior EIA is also not included (Recommendation 4). One positive aspect is that the need for public participation is emphasised (Recommendation 5). Finally, there are no sanctions that would apply if these guidelines are disregarded. For instance, they could have proposed a role for research and development funding organisations in enforcing them.

II. A New Regime

Given the small control capability of the incrementalist option, it is wise to consider a more innovative approach. One significant proposal for the start of new regime has been made by an interdisciplinary group of British scholars who formulated a set of five *Oxford Principles for the Regulation of Geoengineering*.⁶⁶ Their suggestions are similar to the ones made by the Asilomar Conference and were, in fact, used for drafting the Asilomar Recommendations. However, they are different insofar as they demand binding state-based measures and use more precise language. The Oxford Principles state as follows:

66 Rayner et al. (2009). The principles were largely endorsed by the Committee, see (ibid.:29).

Principle 1: Geoengineering to be regulated as a public good

While the *involvement of the private sector* in the delivery of a geoengineering technique should not be prohibited, and may indeed be encouraged to ensure that deployment of a suitable technique can be effected in a timely and efficient manner, regulation of such techniques should be undertaken in the public interest by the appropriate bodies at the State and/or international levels.

Principle 2: Public participation in geoengineering decision-making

Wherever possible, those conducting geoengineering research should be required to notify, consult, and ideally obtain the *prior informed consent* of those affected by the research activities. The identity of affected parties will be dependent on the specific technique which is being researched – for example, a technique which captures carbon dioxide from the air and geologically sequesters it within the territory of a single State will likely require consultation and agreement only at the national or local level, while a technique which involves changing the albedo of the planet by injecting aerosols into the stratosphere will likely require *global agreement*.

Principle 3: Disclosure of geoengineering research and open publication of results

There should be *complete disclosure* of research plans and open publication of results in order to facilitate better understanding of the risks and to reassure the public as to the integrity of the process. It is essential that the *results of all research, including negative results, be made publicly available*.

Principle 4: Independent assessment of impacts

An assessment of the impacts of geoengineering research should be conducted by a *body independent of those undertaking the research*; where techniques are likely to have trans-boundary impact, such assessment should be carried out through the appropriate regional and/or international bodies. Assessments should address both the *environmental and socio-economic impacts* of research, including mitigating the risks of lock-in to particular technologies or vested interests.

Principle 5: Governance before deployment

Any decisions with respect to *deployment should only be taken with robust governance structures already in place*, using existing rules and institutions wherever possible. [emphasis added]

A step by step principle should be added to this list. This principle was introduced by the regulation of genetic engineering as a means of coping with uncertainty about effects of the release into the environment of genetically modified organisms.⁶⁷ The principle suggests that the containment of tests

67 See Directive 2001/18/EC Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms (OJ L 106, 17.4.2001, p. 1), consideration No 24:

can be reduced and the scale of tests in the environment increased step by step, but only if the knowledge gathered at earlier steps indicates that the next step can be taken.

If these recommendations are to be fully implemented, an international convention is needed with about the following contents:

- The stabilisation of the climate for global common welfare as its objective
- The classification of all climate engineering methods covered by the convention
- The prohibition of certain methods of climate engineering
- A requirement of prior authorisation by the responsible state or by an international authority to be set up based on the United Nations⁶⁸
- A step by step requirement that allows for scaling up of tests only if sufficient knowledge about performance and risks has been generated at previous steps
- Procedures addressing:
 - Information about the project to be submitted
 - Assessment of environmental and social impacts including an assessment of alternatives
 - Prior notification of climate engineering activities to all affected States
 - All documents including the EIA to be published online
 - Public ability to submit comments on the project and its impact; and
 - Prior consent requirements regarding all of the affected States
- Criteria regarding the conditions of climate engineering activities such as:
 - Proof of the effectiveness of the measure regarding climate protection and the exclusion of counter-productive effects (regarding research projects, there should be proof of validity and reliability of the project)

The introduction of GMOs into the environment should be carried out according to the 'step by step' principle. This means that the containment of GMOs is reduced and the scale of release increased gradually, step by step, but only if evaluation of the earlier steps in terms of protection of human health and the environment indicates that the next step can be taken.

68 For a strong plea in favour of the UN as the sole basis providing legitimation for the deployment of large-scale geo-engineering see House of Commons (2010:paragraph 100).

- Lack of alternatives, including mitigation and adaptation measures (regarding research projects, gaps in the current state of knowledge must be shown)
- Minimisation of health, environmental and welfare harm caused by the activities; or
- weighing of adverse side effects up against proven beneficial climate effects (or scientific advances in case of SRM research projects);
- Publication of the research and development results
- Exclusion of the patentability of research and development results
- The establishment of an institutional framework for implementation of the convention
- The creation of a monitoring mechanism and a tool for issuing sanctions for non-compliance
- The establishment of a conflict resolution mechanism under the convention
- The enshrinement of a mandate to develop specific protocols as needed; and
- The creation of procedures for amending the convention and its annexes.

Reviewing these comprehensive components for the possible design of a new convention it appears unlikely that such a binding regime prohibiting harmful climate engineering activities could be reached in the near future. As one observer realistically predicts:⁶⁹

Most nations would probably favour a ban on geoengineering because only a few countries actually have the capability to geoengineer on their own. The rest have little to gain from being permissive and would be wary about letting the geoengineers tinker with the planet. Faced with pressure for a taboo, the few nations with unilateral geoengineering capabilities would seek favourable (i.e., vague) language; if unsuccessful, those countries could simply refuse to join.

E. A Radical Option

However, even if it were possible to establish, such an instrument would not be likely to provide an effective mechanism for the oversight and control of climate engineering. The reason for this is uncertainty. Two kinds of uncertainties must be distinguished. One type of uncertainty can be reduced by

69 Victor (2008:331).

further research, and the other cannot because of the vast complexity of the issue. In the first case, further research can and should be undertaken in order to accumulate the required level of knowledge. In the latter case, such research is in vain because it will never reach a stage upon which a reliable prognosis of effects can be based. Sociologists of science have called this situation conscious ignorance⁷⁰, negative knowledge⁷¹ and non-computability⁷², which means it is possible to know that certain issues cannot be known.

Proponents of the sophisticated control regime assume that sufficient knowledge will emerge to reasonably decide about SRM measures. My suggestion is that SRM is a case of negative knowledge or (potentially) conscious ignorance. SRM entails a large-scale intervention into the earth system, which involves literally 'ex-orbitant' interactions that are far too complex to ever be sufficiently understood. Given the enormous potential for damage both through counterproductive and side effects, the logical conclusion can only be that the deployment and large scale research of SRM must be prohibited from the outset.⁷³

Is there also a legal foundation for this policy recommendation? I suggest trying customary international law because it provides the broadest basis in terms of scope and content. Upon closer examination it may already offer the best solution. The obligation of a state "to use all the means at its disposal in order to avoid activities ... causing significant damage to the environment of another State" is core to this analysis.⁷⁴

It is still open for discussion which precise rules of due diligence are implied in the formula *to use all the means at its disposal* and whether a certain activity must itself be regarded as prohibited if it cannot be conducted in a way that minimises harmful effects.⁷⁵ Regarding the requirement of due diligence, the International Law Commission (ILC) in its commentary on its draft articles on Prevention of Transboundary Harm from Hazardous Ac-

70 *Knowing that we don't know* as opposed to meta-ignorance, i.e. *not knowing that we don't know*. See Smithson (2008:210).

71 Knorr-Cetina (1999:46f.).

72 Casti (1990:406f.).

73 This consideration is overlooked by those who argue that a prohibition would be most constraining on those countries who are likely to act the most responsibly. See Victor (2008:325).

74 See *Pulp Mills on the River Uruguay Case*, n. 51 above, Number 204.

75 See further on these questions Birnie et al. (2009:147et seq.); Handl (2007:532 et seq.).

tivities explains that a state's duty of care is proportional to the degree of risk. It stated that –⁷⁶

... activities which may be considered ultra-hazardous require a much higher standard of care in designing policies and a much higher degree of vigour on the part of the State to enforce them.

Considering the potentially enormous damage (including counterproductive and side effects) caused by the use of SRM “a much higher standard of care” appears to be imperative. This standard at least demands that there is sufficient knowledge available to adequately predict the safety of SRM operations. As said, the knowledge cannot be obtained because it is negative knowledge or conscious ignorance. This can even be argued without bringing the controversial precautionary principle into play.⁷⁷ Regarding the question whether the due diligence rule is one of conduct or effect it appears to be logical that it must be one of effect, at least in a situation where prevention is still possible. It cannot be that a state which evidently does not apply the required standard of care should nevertheless be allowed to commit the careless act. In conclusion, therefore, it is submitted that SRM at grand scale is prohibited by international customary law.

The due diligence rule has still another implication relevant in this context. It can be used to reinforce the duties under the climate protection conventions to mitigate climate change by being interpreted as prohibiting a policy approach that relies on the availability of climate engineering as a last resort. In other words, it would prohibit what is called the moral hazard in climate policy, a term that refers to taking the risk that mitigation measures will fail. Trusting in the efficacy of a Plan B, moral hazard reckons with the scenario that Plan A will not be pursued tenaciously and with full resolve. While this attitude largely remains concealed, some have expressed it quite openly. For instance, in June 2008 Newt Gingrich, the former speaker of the US House of Representatives and then chairman of the political action com-

76 *ILC Commentary (11) to Article 3 of Draft Articles on Prevention of Transboundary Harm from Hazardous Activities* (ILC 2001), available at http://untreaty.un.org/ilc/texts/instruments/english/commentaries/9_7_2001.pdf, last accessed 05 May 2013.

77 Note that in German police law, way before the invention of the precautionary principle, it was common ground that if a very serious damage is possible a remote likelihood (*entfernte Möglichkeit*) is sufficient to justify preventive measures (e.g. BVerwG DÖV 1970, 714 concerning the placing of a fuel oil tank close to wells and springs).

mittee American Solutions, offered a strident argument in favour of the use of stratospheric aerosols in a letter distributed in June 2008 to many American households.⁷⁸

Geoengineering holds forth the promise of addressing global warming concerns for just a few billion dollars a year. Instead of penalizing ordinary Americans, we would have an option to address global warming by rewarding scientific innovation Bring on the American Ingenuity. Stop the green pig.

This position received academic sanction by a group of eminent economists who in the run-up to the Copenhagen conference of parties declared:⁷⁹

Climate engineering could provide a cheap, effective and rapid response to global warming. Remarkably, research considered by the Expert Panel, written by lead author Dr Eric Bickel, suggests that a total of about \$9 billion spent developing marine cloud whitening technology might be able to cancel out this entire century's global warming.

Of course, everybody is free to express such views, but when it comes to policy-making the law must be respected. And in this author's interpretation the law prohibits measures that weaken the implementation of Plan A.

In conclusion, the use of SRM techniques such as space reflectors and stratospheric aerosols is not a last exit out of the catastrophe, but – the catastrophe itself. Once this is acknowledged, the logic of going from Plan A to Plan B is turned upside down: SRM does not supply a viable Plan B. And if a Plan B is not available, we must stick to Plan A of mitigation and adaptation – full stop.

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78 See ETC Group (2010:14).

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Climate Change

International Law and Global Governance



Climate Change: International Law and Global Governance

Volume II: Policy, Diplomacy and Governance in a Changing Environment

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Volume II reflects on the United Nations Framework Convention on Climate Change (UNFCCC) and the most pressing impacts of climate change on international diplomacy and global governance. This is highlighted from various transdisciplinary and geopolitical perspectives with a special focus on the challenge of strengthening national and international climate change policy, sustainable development and increasing equity around the world, which goes beyond the capacity of national governments. Various international climate change cooperation and protection efforts are analysed, also in the context of global security, climate induced migration movements, adaptation and the loss and damage debate.

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