1. Introduction: climate law and developing countries

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1. INTRODUCTION

While all regions will eventually feel the effects of climate change, it will have a disproportionately harmful effect on developing countries – and in particular poor communities who are already living at or close to the margins of survival. Changes in the climate will amplify the existing challenges posed by tropical geography, a heavy dependence on agriculture, rapid population growth, and a limited capacity to cope with an uncertain climate. The world is already likely to fall short of the Millennium Development Goals for 2015 in many regions of the world. Climate change threatens the long-term sustainability of development progress. . . . The challenge now is to limit the damage, both by mitigation and adaptation.

(Stern, 2007, pp. 92–93)

Climate change is one of the most pressing challenges of our time. It is a global problem, but experienced very differently in the so-called developed and developing worlds. While the academic literature on climate change and law is vast, it contains a significant gap. Little attention has been devoted to current and future issues concerning climate law in developing countries. Furthermore, there is very little published work on this topic by developing country legal scholars. This book begins to fill that gap. The chapters were originally presented at an international conference on Climate Law in Developing Countries Post-2012, co-sponsored by the IUCN Academy of Environmental Law, the University of Ottawa Faculty of Law and Osgoode Hall Law School, and held in Ottawa on September 26–28, 2008.¹ The Academy was established in 2003 with the support of the IUCN (International Union for the Conservation of Nature) to further the development of environmental law and policy on a global scale.² It is a world-wide network of more than 110 universities and institutions, dedicated to advancing knowledge of environmental law as an essential means
of achieving a sustainable world. Its vision is to build sustained capacity in legal education and advance conceptual understanding and implementation of environmental law, particularly in developing countries. It pursues its vision by delivering programmes aimed at enhancing university teaching capacity in environmental law, generating global research programmes that support national and international environmental policy making, and convening major international conferences and exchanges. Its Secretariat is located at the University of Ottawa Faculty of Law.

The conference that inspired this book attracted leading experts on climate change from the North and the South, with the aim of enhancing understanding of the legal challenges that developing countries face in mitigating and adapting to climate change while meeting their social and economic needs. It also addressed how developing countries can position themselves in the negotiations to develop a new international legal regime at the expiry of the Kyoto Protocol. The book is part of the ongoing mandate of the IUCN Academy of Environmental Law to generate collaborative research on the most pressing issues in environmental law, with a view to enabling changes in national and international environmental policy agendas and also environmental law teaching. This book is the first major publication to result from the Academy’s research stream in Climate Law, established in 2007. It is intended to serve as a catalyst for further collaborative research in this area. It will be of particular use to scholars, policy makers and negotiators in developing countries involved in climate law-related reforms in their countries, by providing substantive legal and policy recommendations for governments and other participants in the climate change debate, domestically and globally.

The contributions to this book were selected to cover a variety of topics and perspectives, and to ensure broad geographical diversity. The book is structured around several themes: Climate Justice; Expanding the Scope of the Climate Change Legal Regimes; The Clean Development Mechanism and Mitigation Strategies; and Climate Policy Bridging the North and South. This opening chapter sets the scene by introducing the phenomenon of climate change, considering the problem of climate change law in the context of developing countries, situating this book in the broader legal academic literature, and summarizing the main points of the chapters. A book on this subject is vulnerable to dating quickly, given the dynamic nature of legal developments concerning climate change, including current negotiations for a new international legal instrument to replace or revise the Kyoto Protocol. The contributors to this volume focus on generic themes and ongoing concerns, such as debates regarding climate justice and North–South collaboration, in the hope that this book will provide a more enduring analysis of the subject of climate law and developing countries.
2. GLOBAL CLIMATE CHANGE AND ITS IMPACTS

Any lingering scientific uncertainty in relation to the anthropogenic causes of recent global climate change was resolved by the most recent report of the Intergovernmental Panel on Climate Change (IPCC), created in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP) (Ott, 2007, p. 9). The IPCC concludes that ‘[w]arming 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’ (IPCC, 2007d, p. 30). The Panel also concludes that anthropogenic sources of greenhouse gases (GHGs), which ‘alter the energy balance of the climate system’, are ‘drivers of climate change’ (ibid., p. 37). The IPCC identified five main ‘reasons for concern’ about climate change: ‘risks to unique and threatened systems’ (‘such as polar and high mountain communities and ecosystems’); ‘risks of extreme weather events’; ‘distribution of impacts and vulnerabilities’ (‘those in the weakest economic position are often the most vulnerable to climate change’ as are those in ‘specific groups such as the poor and elderly’); ‘aggregate impacts’ and ‘risks of large-scale singularities’ (such as ‘sea level rise contribution from thermal expansion alone’ and from melting of ice sheets) (ibid., p. 19). These precise effects will vary across geographical locations, and generally include increased temperatures, threats to species, reduced crop productivity, changes in wind and precipitation patterns, sea level rise, water temperature rise, coastal flooding and erosion, extreme weather events, health impacts such as malnutrition and the spread of infectious disease, and the concurrent impacts on economic and social well-being that these effects entail. Global warming threatens permanent disruption of ecosystems and biodiversity (Millennium Ecosystem Assessment, 2005) and, ultimately, the survival of life on earth.

The IPCC warns that rises in global temperature in excess of 2 degrees Celsius over the next century – the forecast upper limit that would avoid ‘dangerous climate change’ – should be strenuously avoided. The keynote speaker at the conference on Climate Law in Developing Countries, Professor William Rees, originator of ‘ecological footprint’ analysis, catalyzed conference participants by echoing these dire scientific warnings and pointing out that, since the last IPCC report, global warming trends – such as the retreat of Arctic sea ice – have accelerated even faster than the Panel’s worst case scenarios. Climate science is extremely important to negotiators of the post-Kyoto agreements since they must set concrete targets – in terms of the ultimate levels of atmospheric GHG concentrations to achieve, the emission reductions required to achieve these levels, and the timeframe in which they are to be achieved.
The IPCC has indicated that atmospheric GHG concentrations should be stabilized at 450 parts per million (ppm) CO₂ equivalent. In terms of timescale, it is important to recall that CO₂ emissions already in the atmosphere will continue to accumulate even if we were able to stop any further emissions immediately. And since signing the Kyoto Protocol, in which Annex I countries agreed to reduce their emissions to fixed percentages below 1990 levels, the emissions of almost all these countries have increased, often dramatically. The IPCC indicates that ‘[g]lobal GHG emissions due to human activities have grown . . ., with an increase of 70% between 1970 and 2004’. (IPCC, 2007d, p. 5). Canada, for example, undertook to reduce its emissions to 6 per cent below 1990 levels by 2012, ‘yet by 2007, Canada’s emissions rose to 27% over 1990 levels. Under a business-as-usual scenario, Canada’s emissions would reach more than double 1990 levels by the year 2050’ (Donner, 2007, p. 1).

Any post-Kyoto agreement must therefore tackle these numbers: the stabilization level, the required emission reductions, and the timeframe in which to achieve them. The Working Group considering future commitments to include in the post-Kyoto agreements is guided by the IPCC’s Fourth Assessment Report of 2007. That report advocates a reduction in developed country GHG emissions ranging from 25–40 per cent below 1990 levels by 2020, on the assumption that emissions reductions of this magnitude should limit the rise in global temperatures to 2 degrees Celsius; anything beyond that change would likely be very dangerous for the climate. Some environmental groups and commentators argue it is necessary for Annex I countries to achieve 80–90 per cent reductions below 1990 levels by 2050. Many experts, such as Canadell and others (2007), believe the IPCC’s worst-case scenario predictions are optimistic, given recent evidence such as the pace of Arctic and Antarctic ice sheet melting, declining ocean and terrestrial carbon sinks, and accelerating CO₂ emissions, which all indicate that climate ‘tipping points’ may be approaching faster than we think, making action even more urgent. A growing number of leading climate scientists warns that the IPCC’s stabilization target of 450 ppm is too high, and argues that it should be set at the more precautionary level of 350 ppm at most (e.g., Hansen, et al., 2008). As Rob Fowler points out in chapter 8 of this book, ‘[t]his extends the mitigation strategy from a “zero carbon” (Epstein, et al., 2008; Makhijani, 2007) to a “negative carbon” scenario’, since as George Monbiot has observed, to achieve a 350 ppm target, ‘we are talking at a minimum of a 100% cut in [CO₂ emissions] and it looks like it might have to go to 110% or 115%’. Of course, whether the stabilization is set at 450 ppm or 350 ppm, this goal will require strenuous efforts on the part not only of Annex I nations, but of all nations, particularly such rapidly industrializing economies as China and India.
The IPCC’s 2007 Report also contains positive messages, in that it concludes that with appropriate adaptation and mitigation strategies, the dire direction in which humanity is currently headed could be changed. The term ‘mitigation’ in this context refers to efforts to reduce GHG emissions, deforestation and other drivers of climate change. Mitigation may be achieved either by reducing emissions of GHGs from sources such as fossil fuel combustion, or by enhancing their removal by carbon sinks. Forests, soils and oceans act as carbon sinks, removing carbon from the atmosphere. ‘Adaptation’ refers to efforts aimed at ‘adapting and reducing [our] vulnerability to the impacts of weather- and climate-related events’ (IPCC, 2007d, p. 56). Adaptation is a crucial but relatively neglected priority, given that the impacts of climate change are already being felt and the planet is already ‘pre-committed’ to continued global warming for the short term at least, while GHGs already in the atmosphere exert their effects (Flannery, 2005).

Economist Nicholas Stern (2007, p. xvi) has estimated mitigation costs at around 1 per cent of GDP. He concludes that these are ‘small relative to the costs and risks of climate change that will be avoided’ and that tackling climate change can lead to economic opportunities, environmental protection, and energy security (ibid.). He concludes that ‘there is still time to avoid the worst impacts of climate change if strong collective action starts now’ (2007, p. xxvii). Appropriate legal frameworks and agreements governing action on climate change are essential elements of this collective global action.

3. CLIMATE LAW IN THE CONTEXT OF DEVELOPING COUNTRIES

Understanding ‘Developing Countries’

This book is primarily concerned with climate law relating to developing countries. It considers this topic from numerous angles, including domestic climate law within developing countries, regional responses to climate change involving developing countries, developing countries’ strategies in global climate change negotiations, the impacts of developed country laws and policies upon developing countries, and the future of the Clean Development Mechanism (CDM). While the chapters present a great diversity of perspectives on these issues, they take the dichotomy between ‘developing’ and ‘developed’ countries as their starting point. There is always a risk of oversimplification in the use of these terms. Yet even while adopting this conventional terminology, the book demonstrates amply the
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irreducible heterogeneity of what is often referred to as the Global South and the highly complicated roles played by ‘developing’ and ‘developed’ nations in contributing and responding to the problem of climate change.

The vocabulary of ‘developing countries’ and variations such as the ‘Third World’ emerged in the 1950s in the wake of the decolonization process that swept much of Africa, Asia, Latin America and Oceania (Escobar, 1995). Such terms are not merely convenient geo-political descriptions; they are imbued with more loaded, nuanced meanings. They have been used to imply the supposed undeveloped and primitive state of these ‘peripheral’ parts of the world, and to denote a state of becoming more like the supposedly more advanced nations at the ‘centre’ of the global economy. Conversely, such labels have also become unifying symbols for postcolonial states in their struggle to achieve real economic and political independence (Rajan and Mohanram, 1995). Since the 1980s, academics and activists alike have also increasingly spoken of ‘the South’ or the ‘Global South’, to denote the acute political and economic divisions between the wealthy industrialized countries, known collectively as ‘the North’ (due to their predominant location in the Northern latitudes), and the poorer countries of the South (mostly occupying the southern part of the globe). The persistent vast disparities in living standards between their peoples, and the resulting lack of equilibrium in the political and economic power between them, have led some critics such as McClintock (1995) to view the rhetoric of postcolonialism as ‘prematurely celebratory’.

As the various contributors to this book demonstrate, these categorical labels elide substantial economic, social and environmental differences among developing countries, which are relevant to international debates about which countries are most vulnerable to global warming and how to distribute the responsibilities to mitigate it. The assumptions of international climate law and other environmental law regimes built on crude distinctions between the North and South may therefore be problematic.

Indeed, the cultural, economic and geographical disparities among developing countries, and their capacity to address climate change, tend to be as great as those between the North and South. The rapidly industrializing economies of South and East Asia, such as South Korea, China and, to a lesser extent, Thailand and Malaysia have attained levels of affluence that are the envy of many of their Southern peers (Hughes, 2009; Kim, 1998). Rapid industrialization has also wrought a plethora of environmental problems (McElroy, Nielsen and Lydon, 1998; Richardson, 2005). By contrast, many African nations, particularly in the sub-Saharan region, lag substantially on social and economic indicators relating to poverty and public health (United Nations Economic Commission for Africa, 2006). Some of the largest developing countries – such as China, India, Brazil and
Indonesia – are rapidly emerging as leading GHG emitters, whether in the form of escalating deforestation or fossil fuel combustion. Others – such as small island states, states with large low-lying areas and states with rapidly advancing deserts – are bearing the brunt of the impacts of a changing climate without having made significant contributions to the problem. With yet others relying heavily on petroleum exports for their national livelihoods, a wide divergence of interests and positions among developing countries on the topic of climate change should come as no surprise.

Apart from differences among developing nations, there is also great variation in climate change-related roles, vulnerabilities, capacities, interests and positions within such countries. Minority groups in some countries continue to wage struggles to achieve a measure of self-determination and autonomy, including Tibetans, Kurds, Tamils and many others who were unable to participate in the decolonization process (Otto, 1996). Some of these struggles involve resistance to development pressures that exacerbate global warming, such as deforestation of the traditional lands of indigenous peoples in the Amazon (Watson, 2008). Others contribute to these same climate change-inducing pressures as marginalized groups seek to join the mainstream development bandwagon.

Many of the variations among and within Southern states are directly relevant to the problem of climate change. Small island states in the South Pacific and other oceans are home to communities that are among the most vulnerable to the impacts of climate change including rising sea levels and devastation of marine ecosystems. The low-lying countries of Tuvalu and Kiribati may be entirely inundated, requiring the wholesale evacuation of their populations, as Angela Williams and Eric Kwa explain in their chapters in this book. The proliferation of regional blocs, such as the Alliance of Small Island States (AOSIS), illustrates the growing cleavages in the developing world on some environmental and economic issues. AOSIS is a coalition of small-island and low-lying coastal countries that have similar development challenges and environmental concerns, especially their vulnerability to the adverse impacts of climate change. On the other hand, Arab oil-producing states have tended to collaborate in opposing stringent international standards to mitigate global warming (Carrell, 2003).

**Developing Country Issues in International Climate Law**

The evolution of international climate change law, like other fields of international environmental law, has been shaped greatly by the political struggles between the North and South and tensions within these geo-political groupings (Anand, 2004; Thomas, 1992). Although developing countries overwhelmingly ratified the United Nations Framework Convention on
Climate Change (UNFCCC)\textsuperscript{8} of 1992 and the Kyoto Protocol\textsuperscript{9} of 1997, their commitment was secured principally on the basis that the industrialized countries of the North would take primary responsibility for reducing global GHG emissions, as well as furnishing the financial and technological resources to enable the South to develop sustainably without heavy reliance on fossil fuels (Weizsäcker, et al., 1999). Informed by the principles of ‘intragenerational equity’ and ‘common but differentiated responsibility’ (Weiss, 1989), this approach in the UNFCCC and Kyoto Protocol has been justified on the basis that the industrialized countries have been the main contributors to global warming and remain the predominant GHG polluters (Rajamani, 2006). The Protocol, which came into effect in 2005, set binding limitations on the amount of CO\textsubscript{2} and related GHGs that the countries of the OECD (Organisation for Economic Co-operation and Development) and the former Soviet Union and Eastern Europe (collectively known as Annex 1 Parties under the UNFCCC) may emit, with a target that they reduce their emissions on average by 5.2 per cent below 1990 levels in the first commitment period of 2008–2012. The only substantial obligations agreed to by non-Annex 1 Parties, under Article 10, are to take certain measures to improve the quality of the reporting of their anthropogenic emissions and to ‘formulate, implement, publish and regularly update national . . . programmes containing measures to mitigate climate change and measures to facilitate adequate adaptation to climate change’.

While this might have appeared to be a good deal for developing nations, by focusing on the responsibilities of Annex 1 states the international climate law negotiations tended to neglect issues of greater interest to some Southern governments, such as supporting climate adaptation in their vulnerable communities (Najam, Huq and Sokona, 2003). Furthermore, the Kyoto Protocol’s method for assigning GHG emission targets has created a potentially detrimental precedent for developing countries, which increasingly are expected to have their own targets (Agarwal, et al., 1999). By setting the first commitment period targets as a percentage of 1990 emissions, rather than on the basis of emissions per capita, the Kyoto Protocol’s allocation formula favours countries with large recent GHG emissions over those whose recent emissions are small. As countries with relatively low per capita GHG emissions, developing countries would be relatively disadvantaged by such a precedent. For example, the average Canadian emits just under 15 tons of CO\textsubscript{2} annually while the average person in China emits slightly less than three tons (International Energy Agency, 2008). Concomitantly, the Kyoto Protocol’s focus on minimizing the burden of implementation on the Annex 1 Parties through ‘flexibility mechanisms’ such as emissions trading encourages the movement
of resources to the more lucrative investment opportunities in the global carbon market, rather than towards meeting the challenges of promoting sustainable development and adaptation to climate impacts for the most at risk peoples unable to participate in such markets.

The principal mechanism created by the Kyoto Protocol for involving developing countries in climate change mitigation is the CDM. As explained in this book’s chapters by Christina Voigt, Emmanuel Kasimbazi and Damilola S. Olawuyi, the CDM has yet to achieve its potential for facilitating collaboration between developing and developed countries in financing climate-friendly projects in the South. The majority of projects have been skewed towards a small number of countries, such as China, and many such projects would probably have been undertaken regardless of the CDM (thus failing to satisfy the ‘additionality’ requirement of the CDM).

Adaptation to global warming is another acute concern of developing countries, due to constraints in their adaptive capacity, as Jolene Lin and Eric Kwa explain in their chapters. The IPCC advised in its 2007 Fourth Assessment Report that the adverse impacts of climate change will probably fall hardest on the developing world (IPCC, 2007a). The CDM imposes a levy on projects to raise funds to assist developing countries to meet these adaptation challenges, but the Adaptation Fund only became operational in 2008. Some other funding mechanisms tied to the Kyoto regime have been established. The Protocol obliges developed nations to ‘provide new and additional financial resources to meet the agreed full costs incurred by developing country Parties’ and to ‘provide such financial resources, including for the transfer of technology, needed by the developing country Parties to meet the agreed full incremental costs of advancing the implementation’. At the sixth UNFCCC Conference of the Parties (COP) at Bonn in 2001, the Parties agreed to establish several intergovernmental funds including the Special Climate Change Fund (SCCF) for capacity building, technology transfer, certain sector-specific projects, and economic diversification in developing countries, and the Least Developed Countries Fund to assist such countries adapt to climate change. Yet, the funds remain woefully inadequate to enable developing countries to shift to a low carbon economy, while policy instruments to encourage private capital to invest responsibly for the same cause are lacking under current international law (Richardson, 2009).

From the perspective of the North, a significant lacuna in current international climate law is the lack of controls on deforestation, as Stockwell and others explain later in this book. Massive forest clearing in Brazil, Indonesia and other equatorial countries, sometimes supposedly in the name of climate-friendly biofuel production, accounts for some
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20 per cent of CO₂ emissions and destroys globally important carbon sinks (IPCC, 2007b). Presently, the CDM does not encompass projects to protect such forests and manage them sustainably, and there are few economic incentives for Southern states to protect such a global resource in the interests of posterity.

Consequently, as will be discussed later in this chapter, many policy issues central to the position of developing countries remain to be negotiated in the agreement which will eventually replace the commitments in the Kyoto Protocol after 2012.

Climate Governance Constraints and Opportunities within Developing Countries

Regardless of how international climate law formally recognizes the position of the South, many developing countries are severely constrained in their abilities to take action domestically to mitigate or adapt to climate change. Throughout much of the South, environmental law and policy have ostensibly begun to reach maturity, manifested by extensive legislative enactments, judicial activism and the establishment of specialist environmental management agencies. Yet these advances in environmental governance often remain seriously handicapped by acute shortages of financial and technical resources, reliance on poorly designed regulations, and more general problems associated with the fragility of the rule of law in those countries plagued by corruption and civil strife (Andreen, 2000; Peerenboom, 2002). Consequently, implementation of CDM projects, control of deforestation, and regulation of industrial GHG emissions are at best sporadic.

For many years, environmental problems and their ineffectual regulation in the South were attributed largely to exogenous influences associated with the international economy. During the 1980s and early 1990s, the misguided policies of the multilateral development banks including the World Bank were heavily criticized. Their penchant for large-scale, capital intensive projects that wrought significant social and environmental harm to local communities, as well as their structural adjustment programs designed to impose a neoliberal model of privatization, deregulation and market liberalization, were viewed by many as simply means to create new patterns of dependency in an economic system dominated by the West (Gathii, 1998–99, 2000; Martens, 1989; Rich, 1994). Other obstacles identified by critics include transnational corporations, Western aid programs, the international trade regime’s unequal terms of trade for Southern economies, and the foreign debt burden on the poorest countries (Amin, 1976; Hayter and Watson, 1985; Klein, 2000; Sharma, 2006). Such an economic
context could thus constrain environmental policy choices domestically, particularly regulations that inhibit exploitation of natural resources in order to meet international market demands (Chen, 2009).

Other research stresses endogenous factors in explaining weak and ineffective environmental governance in the South (Boer, Ramsay and Rothwell, 1998; Harashima, 2000; Kameri-Mbote and Cullet, 1995). Environmental law regimes in many developing countries suffer from a fragmented and incoherent regulatory structure, comprising community-based management, colonial-era statutes still on the books, and more recent legislation and policies modelled on inappropriate Western precedents (Richardson, 2000). Much environmental legislation is more akin to a form of resource management law, to provide for the ‘orderly’ exploitation of forests, fisheries, minerals and other natural resources. It also habitually takes the form of command-and-control regulation, seeking to control behaviour through sticks rather than carrots. Because of their institutional and legal weaknesses, many states have seen the solution to poor compliance as simply to centralize environmental administration (Wunsch and Olowu, 1990). Since the mid-1990s, some states including Kenya, India and Mexico have enacted more strategic environmental law regimes including the creation of specialized national environmental agencies and comprehensive environmental protection statutes (Boer, 1999). In addition, some nations including Brazil, the Philippines, South Africa and Indonesia have added environmental protection clauses to their national constitutions as an expression of their commitment (Bruch, Coker and VanArsdale, 2001). Such provisions generally have yet to raise substantially the status of environmental protection compared to competing economic and social priorities.

Consequently, the implementation of robust climate change-related laws within developing countries faces some daunting challenges. To abate GHG emissions from surging industrialization or rampant land use changes in the South requires overcoming the same institutional and governance challenges that have impeded the implementation of environmental law generally. Chapters in this book by Solange Teles da Silva and Carolina Dutra, on Brazil, and Emmanuel Kasimbazi, concerning Uganda, illustrate these difficulties in relation to building a green biofuels industry and a sustainable forestry sector respectively. Elegantly drafted laws alone will not suffice. As Wang (2002, p. 28) explains, ‘law becomes effective by social forces and pressures interested in and working for its implementation. Without a proper institutional setting, the law will remain a fig-leaf, pretending action without changing social reality’. The failure of the ‘law and development’ movement of the 1960s and 1970s shattered the belief that if laws are reformed and legal institutions strengthened, nothing
can hold back the triumph of the rule of law (Trubek and Santos, 2006). While the ‘Good Governance’ movement promoted by the international development community takes a broader view of how legal reform may succeed, including the importance of capacity-building, it still suffers from some of the mistakes of earlier approaches to take account of local customs and traditions and to pay attention to social and economic justice (Gathii, 1999).

To suggest that the story of climate law and policy in developing countries is solely one of constraints and frustration would be misleading, however. One of the goals of this book is to show that climate law in developing countries is also a story of opportunity and innovation. Increasingly, developing country governments are devoting conscious efforts to the development of climate law and policy at national and local levels. They are experimenting with a range of policy approaches and instruments, from CDM projects to GHG emission limits, clean technology subsidies, anti-desertification campaigns and initiatives to protect biodiversity in the face of climate change. Some of these measures are inspired by the pursuit of cost-savings, efficiency gains and economic opportunities, and others by an increasing sense of urgency of the need for action to mitigate or adapt to climate change. As in many developed countries, climate change law and policy in developing countries are often characterized by contradictions. China is a good example, where government policy on the one hand encourages solar and wind power, and pursues world leadership in the design and production of electric vehicles, while on the other hand mandating construction of coal-fired power plants and natural gas pipelines at a breakneck pace. Similarly, in Brazil, governmental policies to develop a national biofuels industry that has been promoted for its economic and environmental benefits have also indirectly encouraged deforestation of the Amazon in order to grow soybeans and other biofuel feedstocks.

This book’s attention to the many obstacles to and tensions within climate change law and policy in developing countries should not be taken as suggesting that developed countries are shining examples to be followed. Many of the same problems that afflict climate law in developing countries inhibit effective domestic responses to climate change in developed countries, albeit in different ways and to different degrees. Policy incoherence, insufficient resources, lack of political will, regulatory capture by vested interests, bureaucratic inertia, ideological opposition to action on climate change, incompetence and even outright corruption are all found in developed countries. Developed and developing countries experience these obstacles differently, however, given their deep disparities in wealth, technological capacities, position in the global economic system, and influence in international affairs.
This brings us to the realm of international climate change negotiations. The primary focus of these negotiations, as the following section explains, tends to be on the overall institutional architecture for intergovernmental cooperation rather than the challenges of domestic policy design and implementation.

4. FUTURE DIRECTIONS IN INTERNATIONAL CLIMATE LAW FOR DEVELOPING COUNTRIES

Achieving Climate Justice Beyond Kyoto

What roles and responsibilities may developing countries assume in future international climate change agreements? Continuation of the current regime is surely unlikely. The Kyoto Protocol has been widely criticized for its unambitious emission reduction targets, insufficient incentives to encourage developing nations to move to a low carbon economy, overly complicated policy tools, lack of measures to support adaptation to climate change, and ineffectual enforcement mechanisms (Barrett, 2003; Nordhaus, 2006; Pardy, 2004; Stewart and Wiener, 2003). Comparable weaknesses, however, inhere in many other international environmental law regimes owing to the complex political compromises that are invariably necessary to secure agreement (Boyle, Redgwell and Birnie, 2009). Nonetheless, in the opinion of one of the IPCC’s Working Groups, the Kyoto Protocol’s ‘[n]otable achievements’ include ‘stimulation of an array of national policies, the creation of an international carbon market and the establishment of new institutional mechanisms that provide the foundation for future mitigation efforts’ (IPCC, 2007c, p. 21). Moreover, the Kyoto Protocol was arguably only ever intended to be a modest step in an ongoing, long-term effort to mitigate climate change and adapt to its impacts. Thus, the successor to the Kyoto Protocol is expected to provide a more credible response to an environmental threat that is understood much more clearly and perceived much more gravely today than when Kyoto was negotiated.

The negotiations underway to draft a new commitment period under the Kyoto Protocol, or an entirely new protocol under the UNFCCC, hinge greatly on the possible roles, responsibilities and entitlements of developing countries. A consensus has yet to emerge on such issues. At one extreme, some argue that the North should continue (or, in a more cynical view, finally start) to ‘take the lead in adaptation and mitigation efforts on the grounds of historical responsibility, distributive justice, economic capacity and technical capability’ (Boston, 2008, p. 52). From this stance,
Southern countries should continue to enjoy concessions without any specific obligations to reduce their GHG emissions while receiving technology transfers and financial assistance to enable them to develop sustainably. On the other hand, some maintain that in order to reduce GHG emissions by up to 85 per cent by 2050, as the IPCC (2007c) recommends in order to avoid catastrophic climate change, all nations including developing countries must shoulder responsibilities to act. The South is now possibly the source of just over half of the world’s GHG emissions (Boston, 2008, p. 52). In particular, developing countries with high emissions from rapid industrialization (e.g., China and India) or deforestation (e.g., Brazil and Indonesia) could agree to undertake absolute emission reductions as most Annex 1 Parties presently do. Just as Kyoto differentiates the GHG emission targets of Annex I Parties, so too there is growing clamour that the time has come to take a more nuanced view of developing countries and assign individual emission targets to some countries.

While the expectations of how developing countries should act under a future climate law agreement are evolving, the underlying normative principles of international environmental law for reconciling the positions of the North and South have hardly altered. The ideals of ‘intragenerational equity’ and ‘common but differentiated responsibility’ remain starting points in international climate law negotiations (with the major exception of the United States (US), whose outspoken opposition to the idea that developed countries should act first, without the major-emitting developing countries, has softened only a little under the Obama administration). Yet, their interpretation in the context of climate change policy is shifting.

The criteria for differentiating national obligations in order to achieve ‘climate justice’, as many commentators increasingly describe this policy goal (Hayward, 2007; Page, 2006), are debateable. Some commentators advocate equality of result, whereby each country is allowed the same level of emissions, such as on a per capita basis (Berk and Elzen, 2001). The attraction of such a standard for the South is that per capita emissions in developing countries are generally much lower than in the developed world. Yet, because equalizing per capita emissions ignores who is responsible for historical GHG emissions (primarily the North), it may still be an unjust standard. It does not imply any obligation on developed countries to compensate or assist the South. Alternatively, climate justice could be implemented on the basis of equality of effort, whereby each nation is expected to adopt the same policies and measures (Paterson, 2001). This approach is even more objectionable given that for developing countries the additional effort required may be grossly disproportionate to their responsibility for past emissions and capacity to reduce future emissions.
Other commentators have thus suggested a more granular approach to climate justice that apportions obligations on the basis of historical responsibility for GHG emissions, the opportunity to curtail emissions today, and the ability to pay for climate change mitigation (Claussen and McNeilly, 1998).

Such are the monumental normative challenges that climate change law poses to a world community deeply divided, not just between the North and South, but also among countries and regions within these groups, and internally within countries. The foregoing discussion is a drastically simplified picture of the complex policy and ethical debates about climate justice. Chapters in this book by Sumudu Atapattu, Angela Williams and Eric Kwa in particular canvass various aspects of the climate justice debate in greater detail. While it will continue to unfold as a backdrop to the international negotiations for a future agreement on climate change, the nature of such negotiations is that they are conducted mostly with a more pragmatic outlook, focusing on specific tangible issues, such as the future of the CDM, reducing deforestation, and technology transfer, as the next section explains.

The Bali Roadmap and Beyond

In December 2007, the Indonesian island of Bali hosted the thirteenth COP to the UNFCCC and the concomitant third Meeting of the Parties to the Kyoto Protocol. The purpose of the meetings was primarily to chart a ‘roadmap’ to negotiate a new agreement to take effect after 2012. The resulting Bali Action Plan and related decisions (UNFCCC Conference of the Parties, 2008) were characterized variously from a ‘real breakthrough’ (United Nations News Centre, 2007) to ‘even worse than the Kyoto Protocol’ (Monbiot, 2007). Bali was a critical juncture for the international community, as it was held in the context of the IPCC’s then freshly released Fourth Assessment Report, containing dire warnings about climate change. The conference also faced continuing hostility from the US to serious action on climate change, as well as the opposition of the rapidly industrializing countries (e.g., South Korea, China and India) to having any non-Annex 1 countries assume legally-binding emission targets (Aldy and Stavins, 2008).

While seeking to avoid taking a precise position on the respective responsibilities of developed and developing nations, the Bali conference at least agreed to recognize the gravity of the challenge in collectively addressing global warming. It adopted the following terms of reference to guide the Ad Hoc Working Group (AWG), which was established in 2005 to work on ‘Further Commitments for Annex I Parties under the Kyoto Protocol’:
[r]ecognizing that deep cuts in global emissions will be required to achieve the ultimate objective of the Convention and emphasizing the urgency to address climate change as indicated in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (UNFCCC Conference of the Parties, 2008, p. 3).

The Bali conference also agreed, as part of the terms of reference of the AWG, to the following goals:

[m]easurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives, by all developed country Parties, while ensuring the comparability of efforts among them, taking into account differences in their national circumstances; . . .

Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner (UNFCCC Conference of the Parties, 2008, p. 3).

By speaking in terms of ‘developing’ and ‘developed’ countries, rather than ‘Annex I’ or ‘non-Annex 1’ Parties, the Bali roadmap subtly tilted the debate for future negotiations. It may signal that certain non-Annex I countries should accept mitigation obligations (phrased as ‘actions’), although fairly differentiated to reflect the relative prosperity, resources, technical capacity and historical emissions of individual states (Earth Negotiations Bulletin, 2007, p. 19). Such a move would, of course, depend ultimately on developed countries’ commitment to make proportionately deep emission cuts. Encouragingly, the European Union (EU) made a unilateral commitment in early 2007 to slash its GHG emissions by 20 per cent by 2020 (compared to a 1990 baseline) and possibly to curtail emissions by as much as 30 per cent if other industrialized countries follow suit (Traynor and Gow, 2007) (although it is also important to note that to be effective at minimizing catastrophic climate change, much deeper global cuts would have to be realized by mid-century). The fact that the new Obama Administration has pledged to take vigorous measures to reduce US emissions makes international cooperation in this area more likely.

Another, more immediately useful, outcome of the Bali meeting was the agreement reached on the implementation of the Adaptation Fund established under the Kyoto Protocol. Sustained by a 2 per cent levy on the CO₂ credits generated through CDM projects, the Fund serves to assist developing countries to adapt to the impacts of climate change. The Fund had well over US$300 million in accumulated reserves as of early 2009. The Bali conference recognized adaptation as a much more
Introduction

serious policy concern than previous COPs, and the Bali Action Plan calls for ‘enhanced action on adaptation’ including more ‘vulnerability assessments’, ‘capacity-building and response strategies’, and ‘integration of adaptation actions into sectoral and national planning’ for the benefit of ‘developing countries that are particularly vulnerable to the adverse effects of climate change’ (UNFCCC Conference of the Parties, 2008, p. 4). New and additional financial resources to support such activities have yet to be fully realized, and if history is any guide we should not get our hopes too high. As Christina Voigt, Damilola S. Olawuyi and some other contributors to this book contend, the CDM is a flawed instrument the administrative complexity of which hampers its ability to attract investment and thereby to generate the levy income necessary to support the Adaptation Fund. The CDM itself did not receive much attention at Bali, apart from the discussions about the need to simplify its cumbersome operational procedures, and its potential role in reducing deforestation in developing countries.

The Bali conference discussed how to reduce deforestation by providing incentives in a future agreement for countries to protect significant carbon sinks, as Claire Stockwell and her co-authors explain further in their chapter in this book. At the Montreal COP in 2005, the governments of Costa Rica and Papua New Guinea advocated reforms to the Kyoto regime to address this challenge, such as by making forest conservation activities eligible under the CDM. Later, Brazil proposed that an international fund be established to provide compensatory payments to countries that prevent deforestation (Karousakis and Corfee-Morlot, 2007, p. 39). The Bali COP agreed to launch a work programme called ‘Reducing Emissions from Deforestation and Degradation (REDD)’, which aims to develop new policy mechanisms including resolving the methodologies to enable REDD projects to be CDM eligible. Reforestation projects are already eligible, but not measures to conserve existing forests. Also at the Bali conference, the World Bank announced a new US$250 million Forest Carbon Partnership Facility, which the Bank’s Board had approved in September 2007. These initiatives have however incurred criticism from some indigenous peoples who are concerned about the potential for increased foreign intrusion into the management of their traditional lands (Forest Peoples Programme, 2008). Many forested parts of the Amazon and other regions remain occupied by indigenous tribes who do not necessarily welcome conservation projects that may lead to the loss of their control over resource management decisions.

Also on the agenda of Bali and other recent international negotiations has been the question of how to enhance environmental technology transfers to the South to facilitate their shift to a low carbon economy. The Bali
meeting focused on possible institutional arrangements, performance indicators, and financing arrangements for a new technology transfer facility. On financing for technology transfer, developing countries sought a new funding mechanism under the auspices of the UNFCCC. The previously established Expert Group on Technology Transfer (EGTT) was given at Bali an additional five-year mandate, with the further task of designing performance indicators to measure progress on clean technology transfer to the South.

Beyond Bali and other UNFCCC-related meetings, a vast array of policy ideas have been advanced and debated in the academic and scientific community, as well as among nongovernmental organizations (NGOs), the business sector and intergovernmental groups. Many of these initiatives deal directly with developing country concerns. One example is the work of the G8+5 legislators group (UK, Germany, US, Japan, France, Canada, Russia, Italy, as well as Brazil, China, India, Mexico and South Africa), whose 2008 report *Combating Climate Change: An International Cooperation Framework Beyond 2012* contains innovative proposals on issues of adaptation measures and technology transfer funding, and options for mitigation targets for some developing countries (Jay, 2008). Another example is the Global Leadership for Climate Action (GLCA), consisting of government, business and civil society representatives from over 20 nations. The GLCA published a *Framework for a Post-2012 Agreement on Climate Change* in 2007, which focuses on the poorest countries and the disproportionate impact of climate change on such vulnerable nations. The proposed framework includes measures to overcome barriers to dissemination of clean energy technologies to the South, such as intellectual property rights and competition rules, sectoral agreement mitigation targets covering rapidly industrializing countries, policies to protect carbon sinks, and a universal carbon tax. These are merely a few of the many ideas being canvassed to enable the North and South to protect collaboratively the global climate while ensuring social and economic justice to the world’s most disadvantaged.

Yet, since these and other initiatives were proposed, the conditions for taking action on climate change have shifted dramatically. The economic recession that swept the world in late 2008 and early 2009, which is forecast to be the most severe since the Great Depression, will likely disrupt progress in various ways. It has stirred governments, in developed and developing countries alike, to concentrate on restoring economic growth. Concomitantly, climate change and other environmental concerns have become a much lower priority for most policy-makers (New Zealand Herald, 2008). While economic stimulus programmes in both developed and developing countries contain some support for renewable energy and
low-carbon technologies, they also feature massive investments in coal, oil and natural gas infrastructure and GHG-intensive manufacturing industries. The American and Canadian governments have spent billions of dollars bailing out the American auto makers that have fought almost every effort to regulate fuel efficiency and continue to bet their futures on large gas-guzzling vehicles. With hardly any exceptions, the world’s governments have not taken the current financial and economic crisis as an opportunity to reorient their economies fundamentally toward a post-carbon future. Secondly, the economic malaise will surely reduce the resources that governments and businesses can mobilize to commit to climate change actions, such as investments in CDM projects, funding technology transfer and supporting adaptation measures. Unless such commitments are viewed as compatible with the imperatives of economic revival, they are likely to be marginalized.

On the other hand, the current crisis may cause the rate of increase of global GHG emissions to slow. In times of economic contraction, the ecological footprint of the economy usually diminishes. Already, for instance, recent reductions in deforestation rates in the Amazon are being linked to the economic downturn (Brooks, 2009). Yet, the poverty and hardship that accompany periods of economic distress may also intensify other myopic practices that undermine the long-term commitments needed to safeguard the planet’s climate.

5. SCHOLARSHIP ON CLIMATE LAW AND DEVELOPING COUNTRIES

This book provides the first sustained scholarly analysis of climate law and policy issues related to developing countries. Most climate law research to date has concentrated on OECD nations and international cooperation. While some of this research has considered developing countries, for example in relation to deforestation, biofuels or the Kyoto Protocol’s CDM, the focus is usually on their implications for global or Northern climate law. Relatively little research has addressed climate law challenges specific to the South. Yet the UN climate change conference in Bali in December 2007 focused particularly on the possible role of developing countries in a future climate treaty including the controversial question of whether they should accept limits on their GHG emissions. This book is therefore timely in that it includes several chapters by developing country scholars who speak from a position of direct experience about the interests and needs of their nations. For example, measures to address climate change in the developing world must place even higher emphasis
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on poverty alleviation and promotion of social justice than is the case in North American or EU climate law.

This book also builds on the growing body of scholarship on environmental law in developing countries. Rajendra Ramlogan’s (2004) book, *The Developing World and the Environment*, focuses on the role of international law in relation to climate change in the developing world. The IUCN Environmental Law Program’s (2001) *Environmental Law in Developing Countries* is a collection of work written by the Program’s visiting fellows from various regions of the world. Roberts’ and Parks’ (2006) work, *A Climate Change of Injustice: Global Inequality, North-South Politics, and Climate Policy*, and Joyeeta Gupta’s (1997) *The Climate Change Convention and Developing Countries: From Conflict to Consensus?*, approach the issue from the perspective of international politics and negotiation. Lavanya Rajamani’s (2006) essential work *Differential Treatment in International Environmental Law* addresses a specific sub-issue in this important debate. Two Canadian professors of political science, Jordi Diez and O.P. Dwivendi, in 2008 edited a collection of papers on *Global Environmental Challenges: Perspectives from the South* which includes many case studies on the environmental effects of globalization at various places in the Global South, but from the perspective of politics and economics, not law. Finally, another recent work, edited by Ernesto Zedillo (2008), Director of the Yale Center for the Study of Globalization, is *Global Warming: Looking Beyond Kyoto*. It also combines scholars from the North and South and addresses climate change, but from economic, social and political perspectives, omitting the legal angle. The Working Group on Climate Change and Development (2004) also published a brief report *Up in Smoke? Threats from, and Responses to, the Impact of Global Warming on Human Development*, outlining the connection between climate change and development, and providing specific case studies of the various particular effects of climate change on development in specific parts of the world, but again the focus was not legal. Finally, a book on *Climate Change and Africa* edited by Pak Sum Low (2005), contains many analyses of the various elements of climate change in Africa, including mitigation, adaptation and capacity–building, from a variety of disciplines, yet its primary focus again is not on legal aspects of the problem.

There have also been several special editions of academic legal journals devoted to climate change, and a few specifically to climate law in developing countries. Leading examples include the 2008 twentieth anniversary issue of the *Georgetown International Environmental Law Review*, the focus of which was ‘Beyond Kyoto: The Developing World and Climate Change’.16 The journal *Sustainable Development Law and Policy* also issued a special volume devoted to Climate Law in 2008. This
issue included discussion of a post-Kyoto agreement, a paper by Christina Voigt on the CDM (a topic addressed in her contribution to this volume), carbon markets, climate litigation, and other related topics. Most contributors were however from the developed world. A 2007 issue of the UCLA Journal of Environmental Law and Policy was dedicated to ‘Coping with Global Warming’, providing an array of useful analyses of climate justice, Indigenous peoples and other topics also considered in this book.

In terms of other legal literature, there is a growing body of analysis of climate change law, often from the perspective of particular jurisdictions, especially in the North. These include Tim Bonyhady and Peter Christoff (2007), Climate Law in Australia; Wybe Douma, Leonardo Massai and Massimiliano Montini (2007), The Kyoto Protocol and Beyond: Legal and Policy Challenges of Climate Change; Michael Gerrard (2007), Global Climate Change and US Law; Marjan Peeters and Kurt Deketelaere (2006), EU Climate Change Policy; and Catherine Redgwell and others (2008), Beyond the Carbon Economy.

The present book therefore fills a gap in the literature on the role of law and the unique situation of developing countries as we move toward the post-2012 world.

6. PLAN OF THE BOOK

The remaining 15 chapters in this volume are divided into four thematic sections: (i) Climate Justice; (ii) Expanding the Scope of the Climate Change Legal Regimes; (iii) The Clean Development Mechanism and Mitigation Strategies; and (iv) Climate Policy Bridging the North and South.

Climate Justice

The international legal principle of ‘common but differentiated responsibility’ is at the core of the UNFCCC and the Kyoto Protocol. How this principle applies to state responsibility in the context of climate change is the question that Sumudu Atapattu examines in ‘Climate Change, Differentiated Responsibilities and State Responsibility: Devising Novel Legal Strategies for Damage Caused by Climate Change’. She rejects a simplistic classification between developed and developing countries, as some developing countries are major contributors to GHG emissions while some communities in developed countries are as vulnerable to climate change as some of the least developing countries that contribute negligible GHGs. Atapattu thus advocates a nuanced differentiation
of responsibilities among developing nations in the negotiations of a post-Kyoto regime. The second part of her chapter demonstrates, in part through a study of the Inuit Petition before the Inter-American Commission on Human Rights, that some communities in developed countries are also vulnerable to climate change. She then proceeds to explore possible new avenues for legal principles of liability and compensation that take into account the complexity of issues attached to climate change claims. Atapattu also stresses the need for adaptation strategies linked to poverty reduction, concluding that liability regimes cannot alone redress the harm caused by climate change.

While Atapattu’s chapter highlights differences among developing countries as GHG emitters, Deepa Badrinarayana focuses on the disparities within a developing country. India is fast becoming one of the world’s largest emitters of GHGs. While it has taken a number of domestic measures to mitigate these emissions, India has nevertheless resisted the call from some other countries to accept international binding obligations to reduce these emissions within a set time frame on the basis of India’s need for economic development, historical equity and its low per capita share of emissions. In ‘India’s Constitutional Challenge: A Less Visible Climate Change Catastrophe’, Badrinarayana argues that this stance in the post-Kyoto negotiations could be at the expense of the poorest within India who will suffer most from the consequences of climate change. Given that past litigation based on constitutionally recognized human rights has been successful in environmental cases in India, Badrinarayana examines whether a similar strategy could lead to more meaningful actions by the Indian government, both at the domestic and international level, to respond to the challenges brought by climate change.

Another issue of climate justice tackled in this part of the book is that of climate refugees. The displacement and migration of an increasing number of persons because of climate change has led many to ask whether we should expand the current legal protection for refugees and internally displaced persons to offer some protection to climate change refugees. In ‘Promoting Justice within the International Legal System: Prospects for Climate Refugees’, Angela Williams takes a novel approach, exploring how discourses regarding justice can provide a foundation on which developing countries can build to address the dire consequences of global warming. In turn, she examines remedial justice claims and the promises and difficulties of domestic and international litigation, and distributional justice claims based on the concept of intra-generational equity. Williams concludes that both of these theories of justice are necessary to empower groups, communities and states particularly vulnerable to the effects of climate change.
Indigenous peoples all over the world are also vulnerable to climate change, and some are already climate refugees. In their chapters, both Williams and Atapattu discuss climate change litigation involving indigenous communities. **Eric Kwa** also explores the impact of climate change on these communities in ‘Climate Change and Indigenous Peoples in the South Pacific: The Need for Regional and Local Strategies’. Many of the island states located in this region are among the most likely to be seriously harmed by the adverse effects of global warming. As Kwa explains, this threat is particularly serious for small low-lying island states and small atolls in Papua New Guinea and Vanuatu. He stresses that the response to this unprecedented threat should be tailored to this region’s needs, and in particular to integrate local traditional knowledge, law and practices from indigenous communities at risk. As Kwa observes, these customs and practices play a seminal role in the promotion of biological conservation and sustainable use. They have legal status in many national laws in South Pacific countries and, in some cases, already help communities to adapt to climate change. In his view, national laws could provide a framework by which customary laws, knowledge and practices might contribute more to climate change mitigation and adaptation. In this regard, recent regional and national initiatives are promising but much remains to be done, including devising regulatory frameworks for CDM projects that are sensitive to indigenous communities’ concerns.

**Expanding the Scope of the Climate Change Legal Regimes**

As our understanding of climate change’s causes and consequences evolves, new proposals to respond to this challenge are put forward. In this section of the book, scholars explore various means to expand the scope of climate change legal regimes internationally, regionally and domestically.

Early developments in international climate law focused heavily on mitigating GHG emissions. However, as the adverse effects of climate change became more concrete and frequent, concerns about adaptation to these changes have come to the fore and will no doubt figure prominently in the legal regime that will result from the post-Kyoto negotiations. **Jolene Lin**, in ‘Supporting Adaptation in Developing Countries at the National and Global Levels’, reminds us that the UNFCCC and the Kyoto Protocol do contain provisions on adaptation, even if these provisions are not very explicit or extensive. This deficiency has led some scholars to call for the adoption of a special Adaptation Protocol. Lin believes however that adaptation is now accepted as an essential element in the UNFCCC agenda and, therefore, there is no longer a need to call for the adoption of a separate instrument to rally the international community
around this concept. Progress on the adaptation front requires more expertise and financial commitments. International organizations already play a key role, having ‘mainstreamed adaptation’ in their agenda, as Lin explains. In the second part of her paper, Lin draws on three case studies (Vietnam, China and Laos) to conclude that the domestic institutional and normative framework for adaptation work in developing countries needs to be further strengthened to allow, among other things, for proper input from local communities and NGOs. Imposing legal obligations on the Parties to the UNFCCC to establish a focal point for adaptation issues and to provide for the involvement of local governments would be further steps in the right direction.

The Kyoto Protocol lacks specific means to deal with some of the major causes of global GHG emissions. For instance, deforestation, which accounts for approximately 20 per cent of global emissions, was not included as a component of the CDM. The post-2012 negotiations provide an opportunity to revisit this issue, with some countries supporting the creation of a REDD programme. Given the diversity of causes of deforestation, designing this programme will no doubt be complicated. Key choices will have to be made on several issues that Claire Stockwell, Bill Hare and Kirsten Macey canvass in ‘Designing a REDD Mechanism: The TDERM Triptych’. They firstly highlight the host of choices facing the international community when addressing elements that are inherent to this kind of programme. For instance, what will be the nature of commitments (incentive or obligation-based) and will they be confined to developing countries or extend to developed countries? Will this programme be funded by market or non-market means? Will sub-national actors have access to these international mechanisms? What will the nature of institutional arrangements be? As these issues overlap with those that have arisen for the CDM, the authors point to some of the lessons and warnings one can draw from the establishment and implementation of this mechanism. Finally, they propose a Tropical Deforestation Emission Reduction Mechanism (TDERM) to address REDD. One of the proposal’s distinctive features is to include some asymmetry in most of its key components in order to ensure participation by developing countries with limited economic and technological capacities.

In ‘The Role of Marine “Forests” and Soils as Carbon Sinks: Enhanced Bio-Sequestration as a Mitigation Strategy to Help Avoid Dangerous Climate Change’, Robert Fowler explores another way in which the scope of an international agreement could be enlarged as part of the post-Kyoto negotiations in order to stabilize GHG emissions at a safe level. Recent scientific studies suggest that the stabilization target could be much higher than what was projected a few years ago. This prompts Fowler to assess
the potential of enhanced bio-sequestration. In particular, he focuses on two carbon sinks which, until now, have been neglected: sea-grass meadows and soils. Developing countries could play a major role in the implementation of this new strategy. More generally, Fowler suggests that states should build flexible mechanisms into the agreement that will emerge from post-Kyoto negotiations to be able to react promptly to new scientific developments.

Climate change has surged on the lists of threats to biodiversity since the late 1990s. The legal means that may help the North and the South meet this complex challenge are the object of the last chapter in this part. In ‘Adaptation to Climate Change to Save Biodiversity: Lessons Learned from African and European Experiences’, Saja Erens, Jonathan Verschuuren and Kees Bastmeijer canvass the extent to which regional instruments related to protected areas in Europe and Africa implement an ‘ecological network’ approach as a means to respond to the fragmentation and isolation of species caused by climate change. They highlight initiatives in two regions (the Danube River Basin in Europe and the Southern African Development Community), from which they draw useful lessons for climate change adaptation.

**The Clean Development Mechanism and Mitigation Strategies**

At its inception the CDM was seen as a win-win proposal for the North and the South, as it allowed flexibility for developed states to comply with their reduction commitments under the Kyoto Protocol and enabled the funding of new sustainable projects and transfers of technology to developing countries. Since then many scholars have raised a number of concerns with regard to the CDM and see the post-Kyoto negotiations as an opportunity to improve on it. Likewise, governments in developing countries need to modify their laws to take full advantage of the benefits that the CDM can offer.

As Christina Voigt explains in ‘The Deadlock of the Clean Development Mechanism: Caught between Sustainability, Environmental Integrity and Economic Efficiency’, the mechanism will only be able to deliver long-term benefits once existing tensions within it are properly addressed. In her view, the contribution of the CDM to sustainable development and environmental integrity is counterbalanced by its demands for procedural efficiency and economic feasibility. Currently, the latter considerations too often outweigh the former. Voigt argues that additional legal rules are needed to right this balance, including measures to (i) ensure the additionality of projects; (ii) prevent a CDM project leading to increased emissions in another industry or neighbouring region (known as ‘carbon leakage’).
or a reduction of energy through a project being neutralized by a surge of energy elsewhere (the ‘rebound effect’); (iii) require environmental and sustainability impact assessments and an increase in the scope of these assessments beyond GHG emissions; and (iv) decrease the probability that CDM projects will act as a disincentive for developing countries to accept binding obligations to reduce emissions or for developing and developed countries to pursue emission reductions within their territory. Finally, Voigt addresses the ethical dimensions of the CDM, and proposes some political and legal reforms that, in her view, are necessary if the CDM is to survive as an innovative tool for North–South collaboration.

A specific example of the potential of the CDM is the forestry sector. Forestry management can help mitigate GHG emissions and enhance adaptation to climate change while contributing to sustainable development. In his chapter, ‘Policy and Legal Dimensions of CDM Projects in the Forestry Sector: Implications for Climate Change Mitigation and Adaptation in Uganda’, Emmanuel B. Kasimbazi details some of the CDM projects in Uganda’s forestry sector. He also explains the legal framework and the key policies necessary for the implementation of these projects, detailing the desired relationships between private entities, government and local communities. Kasimbazi identifies several obstacles to effective implementation of CDM forestry projects, such as gaps in the regulatory framework and conflicts that pit government and private entities against local communities in which environmental regulatory agencies appear to be powerless. Other factors, such as the lack of financial resources and expertise, hamper the proper implementation and verification of CDM projects. Kasimbazi formulates a series of recommendations aimed at the Ugandan government and the international community to improve on a mechanism which still has the potential to play a key role in Uganda’s efforts to mitigate and adapt to climate change.

Uganda is not alone in facing challenges in relation to the CDM. To date, Africa has attracted only 2 per cent of all CDM projects, with the lion’s share going to so called ‘CDM giants’, namely large developing countries such as Brazil, China, India and Indonesia. In ‘Beautifying Africa for the Clean Development Mechanism: Legal and Institutional Issues Considered’, Damilola S. Olawuyi explores the main reasons why developed countries have not invested more in this continent. These reasons include: a limited potential to deliver high mitigation at low cost; prevailing insecurity in the political and investment climates; and the absence of sound institutional and legal frameworks governing CDM investments. It is to this last factor that Olawuyi devotes most of the chapter. Obvious barriers are, for many countries, the absence of a legislative framework governing CDM and, as a result, the lack of a legally
constituted Designated National Authority. Other obstacles canvassed by Olawuyi include: (i) conflicting environmental regulations in federal states such as Nigeria; (ii) archaic laws on technology transfer as well as lack of capacity to integrate properly this technology into the economy; (iii) gaps in contract laws and limited legal expertise in this area; (iv) the absence of a CDM national master plan; and (v) a lack of intergovernmental linkages and coordination. The chapter concludes with a list of legal and policy initiatives that African countries should take to remove, or at least limit, the negative impact of these barriers.

The fight against climate change has led to investment in sources of energy that were largely untapped until recently. Prominent among these, especially in developing countries, is the rise of the biofuel industry which is promoted by many as a clean and renewable source of energy. In ‘Brazilian Policy on Biodiesels: A Sound Means of Mitigating Climate Change?’ Solange Teles da Silva and Carolina Dutra examine the development and regulation of this industry in the country that is the leading producer and consumer of biofuel energy. They explain why, in their view, the current Brazilian regulatory framework for biofuels, in terms both of standards and implementation, does not adequately address some of the main concerns that have been voiced with regard to this industry, from deforestation and its impact on biodiversity to the impact on food prices. According to da Silva and Dutra, the promise of biofuels as a clean energy source will only be realized if they can contribute to sustainable development, notably through the CDM.

Climate Policy Bridging the North and South

The CDM is one of myriad means by which the North and South interact with each other in the climate change context. In the last section of this volume, the authors consider other forums in which the interests of the North and the South are at play: voluntary offset markets, the World Trade Organization and development cooperation policies.

Citizens and businesses from developed countries have access to a growing environmental market in which they can purchase ‘carbon credits’ to offset their GHG emissions. As Marjan Peeters explains in ‘Improving Citizen Responsibility in the North and Its Consequences for the South: Voluntary Carbon Offsets and Government Involvement’, the reductions in emissions represented by these credits originate in great part from developing countries, including through the CDM. However, an increasing portion of these credits is not linked to the Kyoto mechanisms. The carbon credit market raises for Peeters a question of integrity: is this market, driven by the North, beneficial for the populations in the
South? As well, there is a question of credibility to consider: can the consumer from the North get assurances that the carbon credits he or she is purchasing will indeed translate into emission reductions? At the heart of these questions is the issue of governance. Should this market be regulated and, if so, at what level and by whom? Should it be through the UNFCCC, through ‘private’ regulation by NGOs, as exemplified by the Gold Standard and the Voluntary Carbon Standard, or through official state regulation? To examine these questions, Peeters draws on the practices of the United Kingdom and the Netherlands, two states with divergent approaches to the regulation of the voluntary private carbon offset market. She concludes with remarks on the role governments can play as important buyers of these carbon offsets.

Reconciling economic development with measures to mitigate and adapt to climate change is a daunting challenge for developing countries. One factor that could affect how they address this problem is the climate change policy conditions that developed nations could impose on these countries when importing their products. In ‘Climate and Trade in a Divided World: Can Measures Adopted in the North End Up Shaping Climate Legislative Frameworks in the South?’, Francesco Sindico explores this issue by examining recent US legislative initiatives and their compatibility with international trade rules. Questions related to the coverage of goods, the criteria according to which a developing country would be targeted and the implementation of climate related trade measures are canvassed. Sindico concludes that real change will not come from looking at climate change as an environmental and trade problem, but rather as an issue rooted in consumption and production patterns.

Effective climate change strategy by developed countries will necessitate the adoption of development cooperation policies toward the South that address the latter’s need for adaptation and mitigation. Over the last few years the EU has developed a policy that is examined in detail by Marie-Pierre Lanfranchi and Sandrine Maljean-Dubois, in terms both of its legality and legitimacy. In ‘Climate Change in the European Union Development Cooperation Policy’, they take a critical approach, highlighting differences between discourse and implementation. Maljean-Dubois and Lanfranchi consider, in particular, various funding schemes that have been considered or set up recently, such as the Global Energy Efficiency and Renewable Energy Fund. While acknowledging a number of important measures taken by the EU to clarify and improve its development cooperation policy, they also highlight the elements that hamper the effectiveness of an aid package that the EU itself must deliver in tandem with initiatives taken by some of its Member States. Maljean-Dubois and
Lanfranchi conclude by asking whether the EU has the means to deliver its ambitious programme on climate change.

NOTES

* Professors Richardson and Wood are with the Osgoode Hall Law School, York University, and Professors McLeod-Kilmurray and Le Bouthillier are at the University of Ottawa Faculty of Law.

1. For more information on the conference, see www.iucnael.org/content/view/17/30/lang,english (visited 10 April 2009).
2. See www.iucnael.org.
3. This measure reflects the fact that CO₂ is not the only GHG. In order to create a single measure, other GHGs such as methane and nitrous oxide are converted into a CO₂ equivalent.
5. The target of 350 ppm has attracted a growing grassroots movement as well: see www.350.org (visited 10 April 2009).
10. Ibid., Art. 11(2)(a).
11. Ibid., Art. 11(2)(b).

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