

The Evolution and Governance Architecture of the Climate Change Regime

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I. INTRODUCTION

Although the general theory of greenhouse warming has been understood by scientists since the end of the nineteenth century, an international legal regime¹ to address the problem of climate change began to develop only in the late 1980s. In the two decades since then, the regime has undergone a remarkable evolution. In 1992, states adopted the UN Framework Convention on Climate Change (FCCC), which took effect in 1994 and serves as the ‘constitution’ for the international climate change regime. In 1997, the FCCC was supplemented by the Kyoto Protocol, which requires industrialized countries to reduce their emissions of carbon dioxide and five other gases that contribute to the greenhouse effect (greenhouse gases or GHGs). The 2001 Marrakesh Accords further elaborate the Kyoto Protocol’s regulatory regime, setting forth detailed rules regarding the operation of the Kyoto Protocol.² After the Marrakesh Accords were negotiated, States turned their attention to addressing the post-2012 period, when the emission targets for the Kyoto Protocol’s first commitment period end. States agreed in late 2007 to begin a round of negotiations pursuant to the Bali Action Plan. This is scheduled to end in 2012. A new round of negotiations was launched in 2011 pursuant to the Durban Platform to negotiate a post-2020 climate regime.

Several general features of the emerging climate change regime are noteworthy. First, the regime has aimed, thus far, at the widest participation possible, due to the global nature of the greenhouse effect and the recognition that human-induced (anthropogenic) climate change is the ‘common concern of humankind’ (FCCC, Preamble, para 1). This aim has been undermined by the withdrawal of the US from the Kyoto Protocol in 2001, and the reluctance of developing countries to accept quantified limitations on their GHG emissions. Currently, the US contributes more than one-fifth of global CO₂ emissions and all Organization for Economic Co-operation and Development (OECD) countries roughly half (WRI 2012). Moreover, although emissions from most developing countries are comparatively low in per capita terms, they are growing rapidly and are projected to account for three-quarters of the increase in emissions over the next quarter century; indeed, China has already overtaken the US as the world’s biggest emitter.

Second, the climate change regime exemplifies the ‘framework convention/protocol’ approach to international environmental law. As its title indicates, the FCCC established the basic

¹ The term ‘regime’ is used here to signify the United Nations legal regime. This forms part of the so-called ‘regime complex’ on climate change (Keohane and Victor, 2010)

² As of October 2012, 195 states (and the European Community) were party to the FCCC and 192 were party to the Kyoto Protocol (although only 37 of the Kyoto Protocol Parties have quantified emission targets).

framework for the climate change regime. The 1997 Kyoto Protocol then built on that framework by specifying obligations and mechanisms to control the GHG emissions of industrialized countries.

Third, the climate change regime has an exceptionally broad scope, encompassing not simply environmental protection as traditionally conceived (that is, limiting emissions of pollutants), but economic and development policies more generally. Virtually the entire range of human activities contributes to GHG emissions. GHG emission scenarios, for example, are highly sensitive to population growth assumptions (DeCanio 1992, 41-62). Thus, population policy could conceivably play a prominent role in the climate change regime. GHG emissions are inextricably linked to development aspirations as well. Indeed, the United Nations Development Programme (UNDP) has characterized climate change as the ‘the defining human development challenge for the 21st century’ (UNDP, 2008).

Fourth, the climate change regime is largely neutral regarding policy options. Climate change is primarily a problem of carbon dioxide (which accounts for about 75% of current emissions) (WRI 2005), fossil fuels (which account for 57% of greenhouse gas (GHG) emissions) (Stern 2006, 170), and ultimately coal (which represents more than three-quarters of the carbon in estimated fossil fuel reservoirs) (IPCC 2001, 121, Figure 7-5). While the climate change regime may place GHG-intensive sectors at a disadvantage, neither the FCCC nor the Kyoto Protocol singles out any particular greenhouse gas, economic sector or technology for special attention. Indeed, while attention has focused thus far on mitigation an emphasis reflected in the Kyoto Protocol, the FCCC addresses adaptation as well. As a result, states have significant flexibility in designing strategies to respond to climate change.

This chapter provides an introduction to the international climate change regime. Part II reviews the development of the regime, from the emergence of the climate change issue in the 1980s through the adoption of the 1997 Kyoto Protocol, the 2001 Marrakech Accords, the 2007 Bali Action Plan, the 2009 Copenhagen Accord, the 2010 Cancun Agreements, and the 2011 Durban Platform. Part III outlines the principal elements of the regime, and Part IV concludes with some brief observations about the future direction of the climate change regime.

II. THE EVOLUTION OF THE GLOBAL CLIMATE CHANGE REGIME

The development of the climate change regime in the late 1980s and 1990s rode a wave of environmental activity that began in 1987 with the discovery of the ozone hole and the publication of the Brundtland Commission report, *Our Common Future* (World Commission on Environment and Development 1987), and crested at the 1992 UN Conference on Environment and Development

(UNCED) in Rio de Janeiro. An earlier wave of international environmental activism, culminating in the 1972 Stockholm Conference and the establishment several years later of the UN Environment Programme (UNEP), focused on local, acute, and relatively reversible forms of pollution - for example, oil spills and dumping of hazardous wastes at sea. The cycle of environmental activity in the 1990s has concerned longer-term, irreversible, global threats, such as depletion of the stratospheric ozone layer, loss of biological diversity, and greenhouse warming, and has focused not merely on environmental protection *per se*, but on the more general economic and social policies needed to achieve sustainable development (Clark 1989, 47).

The development of the climate change regime can usefully be divided into six periods: the *foundational period*, during which scientific concern about global warming developed; the *agenda-setting phase*, from 1985-1988, when climate change was transformed from a scientific into a policy issue; a *pre-negotiation period* from 1988 to 1990, when governments became heavily involved in the process; the *constitutional period* from 1991 to 1995, leading to the adoption and entry into force of the FCCC; and a *regulatory phase*, focusing on the negotiation, elaboration and implementation of the Kyoto Protocol from 1995 to 2007, and a second constitutional phase from 2001 to the present, focusing on the negotiation and elaboration of the future climate regime.

1 Foundational Period: The Emergence of Scientific Concern

Although the greenhouse warming theory was put forward a century ago by the Swedish chemist Svante Arrhenius, climate change did not emerge as a *political* issue until the late 1980s. The issue was raised and discussed in the UN General Assembly in 1988 and international meetings such as the 1988 Toronto Conference, the 1989 Hague and Noordwijk Conferences, and the 1990 Second World Climate Conference that attracted numerous ministers and even some heads of government.

The development of the climate change issue initially took place in the scientific arena, as understanding of the climate change problem improved. The so-called 'Keeling curve,' which shows the rise of atmospheric concentrations of CO₂ (the primary greenhouse gas), is one of the few undisputed facts in the climate change controversy and led to the initial growth of scientific concern in the late 1960s and early 1970s. During the 1970s and 1980s, improvements in computing power allowed scientists to develop much more sophisticated computer models of the atmosphere, which, while still subject to considerable uncertainty, led to increased confidence in global warming predictions. Moreover, in the mid-1980s, scientists recognized that emissions by humans of other trace gases such as methane and nitrous oxide also contribute to the greenhouse effect, rendering

the problem more serious than previously believed. Finally, careful reassessments of the historical temperature record in the 1980s indicated that global average temperature had indeed been increasing since the middle of the twentieth century.

2 Agenda-Setting, 1985-1988

Although the growth of scientific knowledge was significant in laying a foundation for the development of public and political interest, three additional factors acted as the direct catalysts for governmental action. First, a small group of Western scientists worked to promote the climate change issue on the international agenda. As major figures in the international science establishment, with close ties to World Meteorological Organization (WMO) and UNEP, these scientists acted as ‘knowledge-brokers’ and entrepreneurs, helping to translate and publicize the emerging scientific knowledge about the greenhouse effect through workshops and conferences, articles in non-specialist journals, and personal contacts with policymakers. The 1985 and 1987 Villach meetings, the establishment of the Advisory Group on Greenhouse Gases under the joint auspices of WMO and UNEP, the report of the Enquete Commission in Germany, the testimony of climate modelers before US Congressional committees - all these developments helped familiarize policymakers with climate change and to convert it from a speculative theory into a real-world possibility.

Second, as noted above, the latter half of the 1980s was a period of increased concern about global environmental issues generally. The discovery of the so-called Antarctic ‘ozone hole,’ followed by the confirmation that it resulted from emissions of chlorofluorocarbons (CFCs), demonstrated that human activities can affect the global atmosphere and raised the prominence of atmospheric issues. Initially, public concern about global warming rode on the coat tails of the ozone issue.

A conference organized by the Canadian government in June 1988 called for global emissions of CO₂ to be reduced by 20% by the year 2005; the development of a global framework convention to protect the atmosphere; and establishment of a world atmosphere fund financed in part by a tax on fossil fuels (Proceedings of the World Conference 1989).

3 Pre-Negotiation Phase: Early International Responses, 1988-1990

1988 marked a watershed, with the emergence of the climate change regime as an intergovernmental issue. During the agenda-setting stage, the climate change issue had been dominated essentially by non-governmental actors - primarily environmentally oriented scientists. Their actions did not reflect official national positions, and the quasi-official meetings that they

helped organize - which were influential in communicating an ostensible scientific consensus about climate change and articulating a set of initial policy responses - were *non-governmental* rather than *inter-governmental* in character.

The period from 1988 to 1990 was transitional. Governments began to play a greater role, but non-governmental actors still exerted considerable influence. The IPCC reflected this ambivalence. Established by WMO and UNEP in 1988 at the instigation of governments, in part as a means of reasserting governmental control over the issue, the IPCC's most influential outputs have been their scientific assessment of global warming - products more of the international scientific community than of governments.

Among the landmarks of the pre-negotiation phase of the climate change issue were:

- the 1988 General Assembly resolution on climate change, characterizing the climate as the 'common concern of mankind' (UN General Assembly 1988);
- the 1989 Hague Summit, attended by seventeen heads of state, which called for the development of a 'new institutional authority' to preserve the earth's atmosphere and combat global warming (Declaration Adopted at The Hague 1989);
- the 1989 Noordwijk ministerial meeting, the first high-level inter-governmental meeting focusing specifically on the climate change issue (Vellinga 1989);
- the November 1990 Second World Climate Conference (SWCC) (Jäger and Ferguson 1991), a major political event, held at the ministerial level.

[Figure 1]

By the end of 1990 three basic dynamics in the climate change negotiations, virtually unchanged to day, had begun to emerge:

- First, a division within the industrialized country group between supporters and opponents of binding, quantitative limits on greenhouse gas emissions.
- Second, a division between industrialized and developing countries over their respective responsibilities for addressing climate change.
- Finally, a division amongst developing countries between those concerned more about climate change and those concerned more about development and poverty eradication.

The division among industrialized countries was the first dynamic to emerge. At the 1989 Noordwijk meeting, the divergence among them became apparent. Most European countries

supported adopting the approach that had been used to address the acid rain and ozone depletion problems, namely, establishing quantitative limitations on national emission levels of greenhouse gases ('targets and timetables'). The US - supported at Noordwijk by Japan and the Soviet Union - challenged this approach, on the grounds that targets and timetables were too rigid, did not take account of differing national circumstances, and would be largely symbolic. Instead, the US argued that emphasis should be placed on further scientific research and on developing national rather than international strategies and programs.

The Second World Climate Conference saw the emergence of a second fault-line in the climate change negotiations: the divide between industrialized countries (often referred to as the 'North') and developing countries (the 'South').³ Earlier that year, at the London Ozone Conference, developing countries had successfully pressed for the establishment of a special fund to help them implement the Montreal Protocol on Substances that Deplete the Ozone Layer, and, in the UN General Assembly, had insisted that the environmental conference scheduled to be held in Rio de Janeiro in 1992 give equal weight to environment and development. In the climate change context, they sought greater representation and argued that climate change be viewed not simply as an environmental issue but as a development issue as well. For both reasons, they sought to move the negotiations from the comparatively technical, narrow confines of the IPCC, in which they found it difficult to participate on an equal basis with industrialized countries, to the UN General Assembly. Their efforts proved successful, and the December 1990 resolution authorizing the initiation of negotiations placed the negotiations under the auspices of the General Assembly rather than the IPCC, UNEP or WMO, as developed countries would have preferred (UN General Assembly 1990).

As early as 1990, however, the division among developing countries had also become apparent. Developing countries agreed on the need for financial assistance and technology transfer, but on little else. At one extreme, the small island countries, fearing inundation from sea level rise, supported strong commitments to limit emissions. At the Second World Climate Conference, they organized themselves into the Alliance of Small Island States (AOSIS), which played a major role in the subsequent FCCC negotiations in pushing for CO₂ emissions reductions. At the other pole, the oil-producing countries questioned the science of climate change and argued for a 'go slow' approach. In

³ 'Developed countries' include the US, Western European states, members of the former Soviet bloc, Japan, Canada, Australia and New Zealand. These countries are listed in Annex I of the FCCC. The term 'developing countries' is a term of art. Developing countries comprise all those countries that are not developed, including the states of Central and South America, the Caribbean, Africa, Asia (except Japan) and the Pacific. 'Developing' countries are a heterogeneous group, including both the least developed countries of sub-Saharan Africa as well as wealthy countries such as Kuwait, Saudi Arabia, Singapore and South Korea.

the middle, the large developing countries such as Brazil, China and India insisted that measures to combat climate change not infringe on their sovereignty, in particular, their right to develop economically. They argued that, since the North was historically responsible for creating the climate change problem, the North should be responsible for solving it.

4 Constitutional Phase: Negotiation and Entry into Force of the FCCC

Although international environmental law underwent impressive growth in the 1970s and 80s, when the climate change issue emerged in the late 1980s, international environmental law had little to contribute (Zaelke and Cameron 1990). The existing air pollution conventions addressed transboundary air pollution in Europe (LRTAP 1979) and depletion of the stratospheric ozone layer (Vienna Convention 1985, Montreal Protocol 1987). While customary international law articulates general principles relevant to atmospheric pollution (see e.g. principle 21, Stockholm Declaration 1972), these principles do not have the specificity and certainty needed to address the climate change problem effectively (Magraw 1990). Therefore, it became evident that a new treaty would need to be negotiated. The process began in December 1990, when the UN General Assembly established the Intergovernmental Negotiating Committee (INC) for a Framework Convention on Climate Change (FCCC), with the mandate to negotiate a convention containing ‘appropriate commitments,’ in time for signature in June 1992 at UNCED (UN General Assembly 1990). Between February 1991 and May 1992, the INC held five sessions. It adopted the FCCC on May 9, 1992, and the Convention entered into force less than two years later on March 21, 1994 as a result of its ratification by 50 countries.

In understanding the INC process, four factors are critical. First, the June 1992 UNCED deadline exerted pressure on governments. Given the public visibility of the UNCED process, most countries wished to have a convention ready for signature in Rio. Second, in contrast to the agenda-setting and pre-negotiation phases, governments were in control and non-governmental actors played a limited role. Third, although many of the principal issues in the FCCC negotiations were real issues with potentially substantial implications for national interests, the negotiations were often more semantic than substantive in character. Words were debated and selected as much for their political as for their legal significance. Proposed formulations took on a symbolic and even talismanic quality, only distantly connected to the actual meaning of the words. Linguistic debates became a proxy for political confrontation, with success or failure measured not just by the substantive outcomes but by the inclusion or exclusion of particular terms. Fourth, the desire for consensus decision-making gave individual countries (in particular, the US) substantial leverage - if not a complete veto - over the final outcome.

The negotiation of the FCCC followed a pattern common to international environmental negotiations. At first, little progress was apparent, as countries debated procedural issues and reiterated their positions rather than seeking compromise formulations. But, this sparring process allowed countries to voice their views and concerns, to learn about and gauge the strength of other states' views, and to send up trial balloons. Real negotiations began only in the final months (or even hours) before the negotiations were scheduled to conclude, when governments realized that they would need to compromise to avoid failure, and involved only a small group of key delegations (generally referred to as the 'friends of the chair').

The initial baseline for the FCCC negotiations was the 'framework agreement' model. Framework conventions are largely procedural in nature. Their main purpose is to establish a legal and institutional framework for future work through regular meetings of the parties and the possible adoption of more substantive protocols.

Most countries agreed that the FCCC should include, at a minimum, the basic elements of a framework convention. The main question was whether to include additional provisions. As a whole, the FCCC reflects the US preference for what might be called a 'framework convention plus.' It does not contain legally-binding emission targets, as the EU and AOSIS advocated. But it extends beyond previous framework conventions by establishing a financial mechanism and comparatively strong implementation machinery, including detailed reporting requirements and international review.

However, the provisions of the FCCC did not resolve differences so much as paper them over, either through formulations that preserved the positions of all sides (see e.g. FCCC, art. 11), that were deliberately ambiguous (see e.g. FCCC, art. 4(2)), or that deferred issues until later (see e.g. FCCC, art. 13). The Convention, therefore, represented not an end point, but rather a punctuation mark in an ongoing process of negotiation that continues to this day.

5 Regulatory Phase: Negotiation and Elaboration of the Kyoto Protocol

The FCCC entered into force on March 21, 1994, less than two years after its adoption. Most countries agreed, however, that its commitments were inadequate and needed to be supplemented by more specific emission limitation objectives. In 1995, the first Conference of the Parties (COP-1) adopted the 'Berlin Mandate,' which established the Ad Hoc Group on the Berlin Mandate (AGBM) charged with negotiating a new agreement that would specify additional commitments for industrialized countries for the post-2000 period. The Berlin Mandate clarified that there would be 'no new commitments for developing countries.'

The negotiations concluded with the adoption of the Kyoto Protocol in December 1997. Following the pattern of the FCCC negotiations, little progress was made initially, as some countries questioned the need for legally-binding emission targets. Until the end, negotiations remained deadlocked over three issues: first, the emissions limitation targets for developed countries; second, the inclusion of ‘flexibility mechanisms,’ such as emissions trading, to allow countries to meet their targets in a cost-effective manner; and third, the inclusion of emission objectives for developing countries. With regard to the first issue, the EU initially proposed 15 percent and then a 10 percent cut in greenhouse gas emissions below 1990 levels by the year 2010, while other industrialized countries such as the US and Australia proposed much weaker targets, with Japan in the middle. The debate about flexibility was similarly divisive. The US sought mechanisms to allow developed countries to achieve their emissions targets in the most flexible, cost-effective manner possible, through mechanisms that would, among other things, allow countries to receive credit for emissions reductions in other countries as well as for forest and agricultural activities (‘sink activities’) that remove carbon dioxide from the atmosphere. The EU (generally supported by developing countries) wanted to limit these flexibility mechanisms to ensure that industrialized countries met their emissions targets primarily through emissions reductions at home. Finally, on the third issue, the US pressed for the inclusion of a mechanism to allow developing countries to ‘voluntarily’ assume emission limitation objectives. Most developing countries strongly opposed this approach, arguing that they were not responsible for creating the climate change problem and had other pressing priorities.

In essence, the Kyoto Protocol is a product of mutual concessions - the US conceded on the stringency of the emission targets, the EU conceded on the flexibility mechanisms and developing countries were exempted from mitigation targets. The US accepted a much stronger target (minus 7% from 1990 levels) than it had wanted, but succeeded in incorporating significant flexibility into the Protocol. Most importantly the Protocol provided for the development of an international emissions trading system; created the Clean Development Mechanism (CDM), by which industrialized countries can receive credit for emission reduction projects in developing countries; and allowed for the possibility of credits for certain sink activities. The Protocol also permitted countries to undertake mitigation commitments jointly, thereby allowing the EU the internal flexibility it had sought in fulfilling its commitments. Developing countries, however, successfully resisted strong US pressure to establish a process by which they could assume quantitative emission limitation goals. In essence, the Protocol reflected US architecture but EU targets.

While a tremendous achievement, the Kyoto Protocol deferred to future negotiations most of the detailed issues about how it would work, allowing states to attempt to renegotiate the Protocol in the context of elaborating its rules. The EU, for example, attempted to place quantitative limits ('concrete ceilings') on the extent to which developed countries could meet their targets through emissions trading, while the US sought to weaken its own emission target through the inclusion of expansive credits for sink activities, as well as to persuade at least some developing countries to accept emission targets of their own. The scope of these negotiations was agreed upon at COP-4 in Buenos Aires, where the parties adopted a comprehensive plan for the completion of work on the Kyoto Protocol rules, known as the 'Buenos Aires Plan of Action'. Initially, negotiations were scheduled to conclude in November 2000 at COP-6 in The Hague, but negotiations broke down at the eleventh hour, principally over the issue of credits for sink activities, and parties agreed to reconvene the following summer. The rejection of the Kyoto Protocol by the newly elected Bush Administration in March 2001 led many to predict the Protocol's demise. But, ironically, the peremptory nature of the Bush Administration's action galvanized other countries into action - in particular, the EU - and led them to make the necessary compromises for adoption in November 2001 of the Marrakesh Accords.⁴ These Accords set forth detailed rules fleshing out the Kyoto Protocol's skeletal provisions. Ironically, the Marrakesh Accords largely reflect the US positions during these negotiations. In particular, they do not impose any quantitative limits on the use of the flexibility mechanisms, and allow significant credits for sink activities. As a result of Russia's ratification, the Protocol entered into force on February 16, 2005.

The Second Constitutional Phase: Negotiating the Future Climate Regime

At the first Meeting of Parties to the Kyoto Protocol and COP-11, in December 2005, discussions commenced on how the climate regime might be structured after 2012. Although the Kyoto Protocol, against all odds, had entered into force, many believed the climate regime to be inadequate in terms of coverage since both the US and developing countries were not subject to targets and timetables, and in terms of stringency since those targets that states had fell short of that which prevailing scientific knowledge indicated. Two separate processes were therefore initiated: an *Ad Hoc* open-ended Working Group to consider further commitments for developed countries beyond

⁴The Marrakesh Accords laid down operating rules for the mechanisms and, accounting procedures for emissions reduction credits (UNFCCC, Report of the Conference of the Parties 2002). They established a compliance system and set out the consequences for non-compliance..

2012 under the Kyoto Protocol (AWG-KP) and a 'Dialogue on long-term cooperative action' under the FCCC. The AWG-KP has no specific deadline, but is supposed to conclude its work 'in time to ensure that there is no gap between the first and second commitment periods' (UNFCCC, Decision 1/CMP.1 2006). The Dialogue, which stressed development and poverty eradication as well as the role of technology, covered actions by *all* Parties but was neither binding nor authorized to open negotiations leading to new commitments. The initiation of the Dialogue on these terms was perceived as a compromise in that whilst it would not launch negotiations on a future regime or call for an agreed outcome, it would permit discussions on future climate actions to continue and it would keep non-Parties to the Kyoto Protocol such as the US at the table. The Dialogue drew to a formal close when COP-13 in Bali 'took note' of the report of the co-facilitators. The COP President, however, drew attention to the need identified by Parties to enhance long-term cooperative action to address climate change. This led, after extensive negotiation, to the Bali Action Plan on 15 December 2007 (UNFCCC, Decision 1/CP.13 2008).

The Bali Action Plan launched a process to reach an 'agreed outcome' to advance the climate regime with a scheduled end at COP-15 in 2009 at Copenhagen. The term 'an agreed outcome,' in the Bali Action Plan indicated a lack of agreement on both the legal form that the likely outcome of this process could take, and the level of ambition that it should reflect. It did specify, however, that developed countries were to take measurable, reportable and verifiable nationally appropriate mitigation actions or commitments, including targets, and that developing countries were to take nationally appropriate mitigation actions in the context of sustainable development, with the provision of assistance, in a measurable reportable and verifiable manner. Even at this early stage, it was evident, that the US intended any agreement that would emerge from this process to create a 'soft' alternative to replace the Kyoto Protocol. Despite intense negotiations at the highest levels in the two years leading to Copenhagen, COP-15 could not reach an 'agreed outcome.' A subset of Parties to the FCCC did however arrive at the Copenhagen Accord (UNFCCC, Decision 2/CP.15 2010).

The Copenhagen Accord was reached among 28 Parties to the FCCC, including all major emitters and economies, as well as those representing the most vulnerable and least developed. As deliberations remained deadlocked well into the second week of COP-15 the Danish Prime Minister, Lars Løkke Rasmussen, in a bid to salvage the floundering conference, organized a high-level negotiation, in parallel with the official negotiations, to agree on the elements of a political deal. The high-level negotiations did not link back to the official negotiations. The COP, therefore, had neither authorized the formation of a group to negotiate the Accord, nor was it kept abreast of the negotiations as they evolved. Consequently, when the Accord was presented to the COP for adoption

it was categorically rejected by, among others, members of the Bolivarian Alliance for the Americans (ALBA) - Bolivia, Cuba, Ecuador, Nicaragua, Venezuela - Sudan and Tuvalu. They did so both because of the manifest procedural irregularities in the negotiation of this Accord as well as the substantive infirmities they perceived in it. Bolivia argued that the Accord fell far short of requiring that which was necessary from developed countries – a reduction of 49% below 1990 levels by 2020, and a 6% of GDP contribution towards adaptation finance for developing countries. Sudan characterized the Accord as a ‘suicide pact for Africa.’ As COP decisions require consensus for adoption, the COP, in a night marked by unparalleled histrionics could only resolve to ‘take[s] note’ of the Copenhagen Accord.

The Copenhagen Accord recognizes ‘the scientific view that the increase in global temperature should be below 2 degree Celsius,’ but does not prescribe aggregate or individual emission reduction targets, either mid-term or long-term. Rather, it requires Annex I Parties to commit to targets, and developing countries to undertake mitigation actions, which are to be inscribed in its Appendix I and II respectively, as well as compiled in information documents. The Accord addresses the related issue of transparency of mitigation actions, of tremendous interest to the US, by exponentially increasing the quantity and quality of mitigation related information flowing through the system. It also created a Green Climate Fund, incorporated financial promises from the developed to the developing world, and launched a technology mechanism. The Accord, however, having merely been taken note of by the COP has no formal legal standing in the FCCC process. At COP-16 in Cancun, a year later, Parties agreed to incorporate the core compromises contained in the Copenhagen Accord into the FCCC process. In so doing the Cancun Agreements,⁵ as they are called, fleshed out the cryptic outline of the Copenhagen Accord and ironed out the creases that are an inevitable part of any last minute deal negotiated by heads of states.

At COP-17 in Durban in 2011, Parties operationalized many of the promises of the Copenhagen Accord and Cancun Agreements, and also launched a new process, the Ad Hoc Working Group on the Durban Platform (ADP) to negotiate a post-2020 climate agreement. Parties launched a process to negotiate ‘a Protocol, another legal instrument or agreed outcome with legal force under the Convention applicable to all’ (UNFCCC, Decision 1/CP.17 2012). This instrument is scheduled to be adopted in 2015, and implemented from 2020. It is significant that it was deemed necessary to launch a new process. The Bali Action Plan, 2007, which launched a process to reach an ‘agreed outcome’ on long term cooperative action on climate change could have offered the basis for a new climate regime. The Bali Action Plan, however, is interpreted by developing countries as creating a firewall

⁵ The Cancun Agreements, 2010, comprise UNFCCC, Decision 1/CP.16 2011(hereinafter ‘Cancun Agreements LCA’) and, UNFCCC, Decision 1/CMP.6 2011.

between developed country commitments and developing country actions. In a bid to move away from the Bali 'firewall', the US, among others, insisted on a new process, and on terminating the Bali process in 2012. Durban delivered the new process and with it a clean slate on differentiation.

In this context it is also significant that there is, in a marked departure from other milestone COP decisions, no reference to equity or the principle of common but differentiated responsibility and respective capabilities in this decision. This is no oversight. Most developed countries believe that economic and political realities have evolved since the FCCC was negotiated in 1992, and common but differentiated responsibilities must be interpreted as a dynamic concept that evolves in tandem with changing economic and other realities. Today, fifty non-Annex I Parties have higher per capita income than the poorest Annex I Party, leading some developed countries to argue that the Annex I/Non-Annex I distinction should not be the basis of the climate change regime going forward. Many developing countries, in particular India and China, were not willing to countenance such an interpretation of the principle. The text is rooted in the Convention – 'under the Convention' - thereby implicitly engaging its principles, including the principle of common but differentiated responsibilities, but excludes an explicit reference to this principle. This, it was believed, would hold efforts to reinterpret and qualify this principle at bay, or at least leave the issue of 'differentiation' to be resolved in the future.

COP-17 also proved momentous for the Kyoto Protocol. After years of uncertainty about the future of the Kyoto Protocol, in Durban Parties finally extended the Kyoto Protocol for a second commitment period. Although negotiations on a second commitment period have been ongoing since 2005, in the wake of the US rejection of the Kyoto Protocol, and the gradual disenchantment of the rest of the developed world with a regime that did not include either the US or emerging economies, the prospects for a renewal of the Kyoto Protocol appeared dim. The EU, Australia, New Zealand, Norway and Switzerland, alone among Kyoto Annex B Parties, were willing to take on a second commitment period under the Kyoto Protocol. Their willingness was conditional however on the adoption of a roadmap towards a legally binding agreement applicable to all. Since the Durban Platform delivered such a roadmap, it was possible then to agree a Kyoto second commitment period in Durban. Notwithstanding the adoption of a second commitment period, the future of the Kyoto Protocol beyond the second commitment period, remains dim. Canada has withdrawn from the Kyoto Protocol, and Japan and Russia have formally expressed their decision not to take on targets under the second commitment period. Although the text of the decisions emerging from COP-17 and CMP-7 are agnostic to the future of the Kyoto Protocol, the political understanding underlying the Durban

deal that led to the launch of the ADP and the second commitment period of the Kyoto Protocol, however, is that there will be no further commitment periods of the Kyoto Protocol.

III. PRINCIPAL ELEMENTS OF THE INTERNATIONAL CLIMATE CHANGE REGIME

Legal scholarship on the climate change problem reflects two contrasting approaches to international law - what might be called a 'hard' and a 'soft' approach. The hard approach views international law as a command backed by the threat of sanctions, while the soft approach views international law in facilitative terms, as a means of fostering greater cooperation among countries. At the risk of oversimplification, the FCCC reflects a soft approach to the climate change problem, while the Kyoto Protocol reflects a much harder approach. The FCCC does not impose strong substantive commitments on countries, rather it puts in place a long-term, evolutionary process to address the climate change problem that: enunciates the regime's ultimate objective and guiding principles; establishes an infrastructure of institutions and decision-making mechanisms; promotes the systematic collection and review of data; and encourages national action.

The Kyoto Protocol represents a progressively harder approach in the climate change regime, including quantified emissions limitation targets. Its provisions include:

- Specific emissions targets for each developed country party for the 2008 to 2012 commitment period, aimed at reducing overall developed country emissions by 5 percent from 1990 levels.
- Mechanisms to allow countries to achieve these targets in a flexible manner, including international emissions trading, the Clean Development Mechanism (CDM), Joint Implementation (JI), and the joint fulfillment of commitments ('bubbles').
- Strong reporting, review and compliance mechanisms, including requiring states to establish national systems for the estimation of anthropogenic emissions, submit annual inventories, and subject these to the scrutiny of expert review teams.

[Figure 2]

The outcomes of the post-2012 negotiations – the non-binding Copenhagen Accord and the Cancun Agreements - the rapidly diminishing support for the Kyoto Protocol, as well as early signals from the Durban Platform negotiations, however, suggest that at least some Parties are rethinking the hard

approach, and the post-2020 climate regime may either embody a soft approach, or more likely a mix of soft and hard approaches.

1 Basic Goals and Principles

OBJECTIVE: The FCCC defines the regime's ultimate objective as the stabilization of atmospheric concentrations of greenhouse gases at safe levels (i.e., levels that would 'prevent dangerous anthropogenic interference with the climate system'). Stabilization should be achieved within a time frame that: allows ecosystems to adapt naturally; ensures that food production is not threatened; and enables sustainable economic development (FCCC, art. 2).

Three features of this objective are noteworthy. First, it focuses on atmospheric *concentrations* of GHGs rather than *emissions*, thereby emphasizing a build up of emissions rather than current emissions alone. Second, it addresses not only concentration *levels*, but also *rates of change*. Thus far, states have not been able to agree on what concentration levels and rates of change the climate change regime should aim for. Although science can provide guidance on these questions, in the final analysis they involve value choices and will require political answers. Third, the reference to sustainable economic development requires that as states make the political choice of an objective, attention be paid to the impact this could have on sustainable development. States have, in the recent past, added greater specificity to the objective by agreeing in the Cancun Agreements to hold global average temperature increase (some increase being inevitable) to below 2°C above pre-industrial levels. This objective is to be met 'consistent with science and on the basis of equity.' States also agreed to review this goal in relation to a goal of 1.5°C (Copenhagen Accord, para. 2; Cancun Agreements LCA, para. 4).

PRINCIPLES: In addition to defining the regime's ultimate objective, the FCCC enunciates several guiding principles (FCCC, art. 3). These include:

- *Equity:* The FCCC is the first international environmental agreement to articulate the principle of common but differentiated responsibilities and respective capabilities in an operational provision. Developing countries have used this principle to argue for leadership from developed countries and against proposals that require them to accept quantitative emission targets on par with developed countries.
- *Precaution:* Given the significant uncertainties concerning climate change, the FCCC recognizes that lack of full scientific certainty should not be used as a reason for postponing action. This

principle is often invoked by AOSIS in urging states to adopt ambitious and urgent action to address climate change.

- *Cost-effectiveness and comprehensiveness*: At the insistence of the US, the FCCC explicitly articulates the principles of cost-effectiveness and comprehensiveness. Climate measures should provide global benefits at the lowest cost; cover all relevant sources, sinks, and reservoirs of GHGs; and comprise all economic sectors.
- *Sustainable development*: The FCCC recognizes that countries have a right to and should promote sustainable development, and that policies and measures to protect the climate system should be appropriate for the specific conditions of each party and should be integrated into national development programs. In this regard, the FCCC specifically acknowledges that the GHG emissions of developing countries will need to grow. The Cancun Agreements add further gloss to the obligation developing countries have to develop sustainably. Developing countries, in particular BASIC (Brazil, South Africa, India and China), sought and received recognition for 'equitable access to sustainable development' (Cancun Agreements (LCA), para 6). While this notion, coined anew, is yet to be defined, it is intended to stake a claim to the requisite atmospheric space to develop and eradicate poverty.
- *International economic system* The FCCC provides that countries should promote a supportive and open international economic system, and should not take measures that constitute arbitrary, unjustifiable or disguised barriers to trade. This provision has been at the centre of recent efforts by some developing countries, including the BASIC, to reject unilateral climate change measures taken by the EU, as for instance, in relation to aviation emissions.

The principles in the FCCC form the conceptual architecture of the climate change regime. They provide benchmarks against which proposals such as targets and timetables may be evaluated. Most reflect more general principles of international law for example, the principles of common but differentiated responsibilities, intra- and inter-generational equity, and precaution. But while the principles guide interpretations of current commitments, and set the terms of debate for future discussions and negotiations, they guide rather than determine what measures should or should not be taken. The precautionary principle, for example, does not specify the appropriate level of precaution or how much certainty is needed before taking action. Nor does the principle of common but differentiated responsibilities specify the basis or extent of differentiation. In practice, resolution of these issues depends on negotiation rather than abstract principles.

2 Commitments

The climate change regime contains different categories of commitments applicable to different categories of countries,

GENERAL COMMITMENTS: The FCCC's general commitments apply to all Parties, both developed and developing, and are intended to promote long-term national planning and international review. The most significant general commitment is to develop a national inventory of emissions by sources and removals by sinks of GHGs. These national inventories provide better information about countries contribution to the climate change problem, and help promote an internal process of learning. Other general commitments include provisions to formulate and implement national programs to mitigate and adapt to climate change, and to promote and cooperate in scientific research, exchange of information, education, training and public awareness related to climate change (FCCC, arts. 4.1, 5, 6). These commitments are general in their applicability to all countries and in their content. They do not compel particular actions; rather, they reflect a 'bottom up' approach, encouraging countries to undertake a comprehensive and systematic review of existing policies, to better coordinate the activities of different national agencies, and to implement their national programs to address climate change.

TARGETS AND TIMETABLES: To date, targets and timetables have been the preferred international method for controlling atmospheric pollution, although its future has been cast in doubt in the ongoing negotiations. They are what international lawyers refer to as obligations of result rather than obligations of conduct: while they constrain countries, they give each country flexibility to choose how it will meet its national target, whether by means of direct regulation, market mechanisms or taxes. Targets and timetables in the climate regime apply only to industrialized countries.

Emission targets can be specified in a variety of ways: they can set a fixed limit on emissions for a given time frame or they can be indexed to a variable such as gross domestic product (GDP) or weather; they can apply on an economy-wide basis or to a particular sector; they can apply absolutely or be made conditional on, say, a state's economic wealth or on compliance costs remaining below a specified level (in order to prevent targets from imposing unacceptable economic costs). The emission targets specified in the Kyoto Protocol are fixed, absolute, economy-wide targets. But in discussions concerning the future climate regime, and after Kyoto's second commitment targets end, sectoral and emissions intensity targets have received increasing attention.

From the outset of the FCCC negotiations, it was generally accepted that any quantitative limitations on greenhouse gas emissions would apply, at least initially, only to industrialized countries (listed in Annex I of the FCCC and generally referred to as Annex I Parties⁶). Despite strong efforts by the EU and the Alliance of Small Island States (AOSIS) to include a binding emission target, the FCCC includes only a nebulous, non-binding aim for industrialized countries to return, individually or jointly, to their 1990 level of emissions by the year 2000 (FCCC, art. 4.2). Although Annex I did jointly meet this aim, this was primarily due to the collapsing economies and corresponding emissions decreases in the economies in transition. Many OECD countries individually recorded significant increases. The principal exceptions were the United Kingdom and Germany, both of which had lower emissions in part due to non-climate factors (in the case of the UK, the shift from coal to natural gas as a fuel source and, in Germany, reunification with East Germany).

[Figure 3]

The principal purpose of the Kyoto Protocol negotiations was to adopt binding emission targets for the post-2000 period. By the terms of the Berlin Mandate, these emission targets were to apply only to industrialized countries. Nevertheless, during the negotiations the US continued to press for ‘meaningful participation’ by key developing countries, for example, in the form of ‘voluntary commitments’ to limit greenhouse gas emissions. In the end, developing countries succeeded in resisting any new mitigation commitments and the Kyoto Protocol specifies emission targets only for industrialized countries. Rather than establish a single uniform target for all developed countries, the Protocol specifies individualized targets for each participating country, ranging from an 8 percent reduction from 1990 levels for the EU and a seven percent reduction for the US, to an 8 percent increase from 1990 levels for Australia and a 10 percent increase for Iceland.⁷ As without Kyoto, emissions in most Annex I countries would ordinarily increase due to economic growth, the targets for most Kyoto countries are more ambitious than the targets themselves would suggest.⁸ The Russian target is a notable exception. Since it is considerably higher than Russia’s expected emissions, Russia

⁶ Annex I lists thirty-six states (or groupings) including all members of the OECD except Mexico (which had not yet joined the OECD when the FCCC was adopted); countries with “economies in transition” (i.e., the former members of the Soviet bloc); and the European Economic Community. Six countries were added to this list, and one deleted in 1998, bringing the total to forty-one.

⁷ The targets in Annex B of the Protocol are defined in terms of an assigned amount of emissions for each country listed in Annex B.

⁸ For example, if the US had joined the Protocol it would have needed to reduce its emissions by about a third from business-as-usual scenarios for the 2008-2012 period.

has a large supply of surplus credits (popularly known as ‘hot air’) that it can sell to other countries through the emissions trading mechanism. Whether countries have met their targets or not can only be formally determined at the end of the compliance assessment period in 2015. However, it is evident that some countries, for instance, Canada, are unlikely to meet their targets. It is unclear what, if any, consequences will follow for Canada, given its decision shortly after COP-17 to withdraw from the Kyoto Protocol.

Parties agreed in Durban, COP-17, to extend the Kyoto Protocol for a second commitment period, albeit with a reduced set of Parties. Beyond that, however, there was much Parties could not agree on: the length of the commitment period - whether it would be five or eight years (to coincide with the launch of the post-2020 agreement under the FCCC); the scale or ambition of individual quantified emissions limitation and reduction objectives; and, on the implications of ‘carry-over’ of assigned amount units to the second commitment period. These are due to be decided at COP-18 in Qatar in 2012.

The future of the Kyoto Protocol, notwithstanding the adoption of a second commitment period remains dim. Not just have ‘targets and timetables’ lost favor in recent times, but also the specific targets and timetables in the Kyoto Protocol do not extend either to developing countries or to those countries that have explicitly distanced themselves from the Protocol, such as the US, Canada, Russia and Japan. The EU, Australia, New Zealand, Norway and Switzerland, countries that have agreed to undertake second commitment period targets, between them account for 22% of global emissions.⁹ Even if contributions to the global carbon stock or historical responsibility are factored in, these countries will account only for 25% of global emissions.¹⁰ The Kyoto Protocol cannot, therefore, by itself, address the climate change problem. There is clearly a need for an instrument that covers those countries that have slipped the Kyoto net. However, as Kyoto Parties are keen to be in the same instrument as the US and BASIC, and subject to the same rigor or flexibility, Kyoto is unlikely to survive beyond the second commitment period. In fact the instrument that Parties are negotiating under the Durban Platform is explicitly intended to be ‘applicable to all.’

Until this new instrument is in place, the pledges that FCCC Parties have made under the Copenhagen Accord, taken note of in the Cancun Agreements, are the only targets in the regime that apply to a large number of countries across the developed-developing country divide. These targets

⁹ Data for 1970-2008 - EU (27) - 19.94%; Australia - 1.27%; Norway - 0.15%; New Zealand - 0.11%; Switzerland - 0.21% (WRI 2012).

¹⁰ Data for Concentrations of GHG Emissions (1850-2008) - EU (27) – 23.81%; Australia - 1.18%; Norway - 0.16%; New Zealand - 0.12%; Switzerland - 0.21% (WRI 2012).

or pledges, however, are fundamentally different from the Kyoto targets and timetables in several respects. First, they are self-selected voluntary targets that have not, unlike the Kyoto targets been subject to international negotiation. Second, these targets are, unlike the Kyoto targets that are contained in a legally binding instrument backed by a compliance system, contained in information documents taken note of by the COP (UNFCCC Compilations, 18 March 2011, and 7 June 2011). The COP has merely acknowledged the existence of these targets not endorsed or incorporated them. They have limited legal significance (albeit considerable political significance having emerged from a head of state level negotiation), and no compliance consequences will follow their breach. Third, these targets, since they are self-selected, and perhaps self-serving, vary considerably in terms of nature, stringency and baseline across countries. Australia, for instance, has selected a reduction target of 25% from 2000 levels by 2020, Canada and the US a reduction target of 17% below 2005 levels by 2020, and the EU a reduction target of 20% below 1990 levels by 2020. Brazil has indicated an expected emissions reduction of between 36.1 per cent and 38.9 per cent below its projected emissions in 2020, China is aiming to lower its CO₂ emissions per unit of GDP by 40–45 per cent and India by 20–25 per cent by 2020 compared with the 2005 level. While some countries have indicated economy wide targets, many have communicated specific sectoral actions and targets, rendering comparability across pledges and determinations of adequacy difficult. Fourth, these targets, unlike the Kyoto targets, are heavily qualified. Many developing countries, including all the BASIC countries, refer in their submissions to FCCC Article 4.7 which links the fulfillment of developing country commitments to the provision of support by developed countries. Developed countries have also made their targets conditional on for instance, the achievement of a ‘global’ and ‘comprehensive’ agreement, ‘legally binding obligations’ by ‘all major emitters,’ or on the passage of domestic legislation in their own or another country. The Cancun pledges are however similar to the Kyoto targets in one respect. They too are unlikely to meet the demands of science and challenges of climate change. There is a considerable gap between the aggregate effect of Parties’ current mitigation pledges, and emissions pathways consistent with holding the increase in global average temperature below 2°C above pre-industrial levels (UNEP 2011). There are efforts underway to review the 2°C goal, as well as to enhance mitigation ambition with a view to closing the ambition gap.

KYOTO MECHANISMS: In addition to setting specific short-term emission targets for the 2008-2012 period, the Kyoto Protocol establishes a long-term architecture for climate change mitigation commitments. Although critics of Kyoto focus on Kyoto’s short-term targets, Kyoto’s architecture may prove more important in the long run. Indeed, even if Kyoto does not survive, elements of its architecture are likely to make their way into any successor regime.

Kyoto's architecture reflects the flexible approach promoted by the US from the beginning of the climate change negotiations. The nebulous emission target in the FCCC already incorporated this flexible approach by leaving open the possibility of trade-offs in emission controls both between different greenhouse gases (the 'comprehensive approach' (Stewart and Weiner 1992) and between different countries (Kuik et al 1994). The incorporation of various flexibility mechanisms into the Kyoto Protocol and their elaboration in the Marrakesh Accords also represents the triumph of what traditionally was perceived as the US approach to climate change mitigation. Central to this approach is flexibility in terms of what, when and where emissions reductions will occur.

The Kyoto Protocol reflects the 'comprehensive approach' in two ways. First, the Kyoto targets apply to the CO₂-equivalent emissions of a basket of six greenhouse gases (carbon dioxide, methane, nitrous oxide, and three trace gases), rather than to each gas individually, thereby giving Parties flexibility in choosing the lowest-cost mix of gases to reduce. Second, Parties may receive credit, up to specified limits, for the removal of carbon dioxide from the atmosphere through certain sink activities such as afforestation, reforestation, forest management and agricultural lands management.

The Kyoto targets apply not on a year-by-basis but to a five-year commitment period running from 2008 to 2012. In addition, they allow countries to 'bank' surplus emission reductions for application in subsequent commitment periods.

The most important, and most innovative, type of flexibility in the Kyoto Protocol is 'where flexibility.' During the negotiations both before and after Kyoto, the EU and developing countries attempted to limit this type of flexibility, arguing that industrialized countries should achieve the bulk of their emission reductions at home, rather than pay for reductions elsewhere. At their insistence, the Kyoto Protocol includes language providing that emissions trading and JI should be 'supplemental' to domestic action. But during the negotiations leading to the Marrakesh Accords, efforts by the EU to define this supplementarity requirement in quantitative terms (by setting a 'concrete ceiling' on use of the flexibility mechanisms) proved unsuccessful. The Marrakesh Accords do not impose any quantitative requirement about how much a country must do at home to achieve its target.

The Kyoto Protocol includes four mechanisms to enable countries to achieve their targets wherever emission reductions can be made most cheaply.

- *Emissions trading* (Protocol Article 17): Parties listed in Annex B of the Kyoto Protocol may trade parts of their 'assigned amounts' with each other. The Kyoto Protocol represents the first significant application of a market-based approach to environmental regulation internationally. The Protocol authorized Parties to develop

rules for emissions trading, the rules were finalized in the 2001 Marrakesh Accords. The Kyoto Emissions Trading system provided the necessary impetus for the creation of regional and national emissions trading systems, including in particular in the EU. The EU Emissions trading scheme, launched in 2005, covers 11,000 installations in 30 countries. It has also recently extended its coverage to aviation emissions in relation to all flights landing in and departing from EU airports. This extension has, however, proven controversial, and has been the subject of a legal challenge before the European Court of Justice, and intense political challenge at the International Civil Aviation Organization (ICAO) discussions and elsewhere. The carbon market, as it is now known, is in full swing, and in 2011 hit a record value of 176 billion \$.

- *Joint implementation among Annex I countries* (Protocol, Article 6): In addition to emissions trading, developed country Parties may receive ‘emission reduction units’ (ERUs) through investments in projects in other developed country Parties that result in emission reductions that are ‘additional’ to any that would otherwise occur. These ERUs are added to the emissions target of the acquiring state and subtracted from the target of the transferring state. Like emissions trading, the acquisition of ERUs must be ‘supplemental to domestic actions,’ but, as noted above, this condition is not quantitatively defined in the Marrakesh Accords.
- *Clean Development Mechanism* (Protocol Article 12): The Kyoto Protocol establishes the ‘Clean Development Mechanism’ (CDM), which allows private and public entities to fund projects in developing countries, in order to generate ‘certified emission reductions’ (CERs) that Annex I Parties may use to meet their emissions targets. In essence, the CDM allows joint implementation between developed and developing country Parties. The CDM is under the control of the meeting of the Parties and supervised by an executive board. Part of the proceeds from CDM projects are used to cover the CDM’s administrative costs, as well as to assist developing country Parties that are particularly vulnerable to climate change. As with emissions trading and joint implementation, the modalities and procedures of the CDM are elaborated in the Marrakesh Accords. The CDM Executive Board has registered 4,160 projects, since 2006, anticipated to produce CERs amounting to over 2 billion tonnes of CO₂ equivalent in the first commitment period of the Kyoto Protocol. The vast majority of these CERs are generated in China (64%), followed by India (10%) and Brazil (4%). This

has led to calls from African countries in particular for 'equitable geographical distribution of CDM projects.'

- *Bubbles* (Protocol Article 4): Finally, the Kyoto Protocol allows any group of developed country Parties, prior to ratifying the Protocol, to agree to pool their emissions targets. The EU used this provision to establish a collective target with a burden sharing agreement that reallocates the Kyoto targets within EU member states.

Today, there is a vast institutional architecture to support the implementation of these mechanisms, and considerable public and private investment in them. Should the Kyoto Protocol come to an end in 2017 or 2020, arrangements will need to be made both to segue way to a new set of institutions and mechanisms in the post-2020 agreement, as well as to carry these mechanisms forward, in whatever modified form they prove acceptable to Parties.

ASSISTANCE: FINANCIAL AND TECHNOLOGICAL: In relation to developing countries, the FCCC seeks to enhance compliance with its obligations primarily through the provision of assistance. FCCC Article 4.7 article conditions developing countries' participation and implementation to developed countries' implementation of their commitments. In so doing Article 4.7 underpins and reinforces the compact between developing and developed countries with respect to international environmental protection. The precise contours of this compact, however, are unclear. Do developing countries have a responsibility, however circumscribed, to contain climate change even if financial assistance and technology transfer are not forthcoming? Or, is the provision of financial assistance and technology transfer a precondition to the implementation of their commitments? If assistance is critical to the implementation of the agreement, what is the content of the obligation to assist, what is its legal character, and to what extent is the FCCC regime designed to ensure compliance with this obligation?

Financial Assistance: Apart from emissions targets, perhaps the most contentious issue in the climate change regime has been that of financial transfers from developed to developing countries. Financial assistance is important for both mitigation and adaptation purposes. Unlike ordinary development assistance, the financial and technological assistance required by the FCCC for mitigation purposes could be viewed as a form of North-South partnership or solidarity. Its fundamental purpose is to benefit the global environment by averting climate change, not to benefit developing countries themselves. Nonetheless, the FCCC's provisions regarding financial assistance are weak. The FCCC requires certain developed countries (listed in Annex II) to provide financial assistance to developing countries, but neither specifies the amount of that assistance nor provides for mandatory

assessments (FCCC, arts. 4.3, 4.4). The FCCC requires Annex II countries to provide full funding only for the costs of developing country inventories and reports. And, even with respect to these costs, the FCCC does not require any particular country to contribute any specified amount. Financial assistance for other mitigation measures depends on approval by the Global Environment Facility (GEF) and covers only a project's 'incremental' costs (i.e. the additional costs relating to climate change mitigation). Meanwhile, assistance for adaptation has been limited thus far to capacity building and demonstration projects.

The amount of assistance provided pursuant to these provisions has been quite modest - particularly compared to the expectations of developing countries. During the negotiations leading to the Marrakesh Accords, developing countries renewed their efforts to obtain greater financial assistance. But, although the Marrakesh Accords established three new climate-related funds, these did not lead to significant increases in the funding provided.

The Copenhagen Accord, however, provided a fillip to efforts to obtain greater funding for climate change. The Accord established a Green Climate Fund as an operating entity of the financial mechanism of the Convention. The Green Climate Fund was subsequently incorporated into the FCCC process through the Cancun Agreements and operationalized in Durban at COP-17. Developed countries agreed to raise 30 billion US\$ in the 2010-2012 timeframe and 100 billion USD per year by 2020. These are not direct North-South transfers, however. Such funding will come from a 'wide variety of sources, public and private, bilateral and multilateral, including alternative sources of finance.' A significant portion of such funding is intended to flow through the Copenhagen Green Climate Fund.

Technological Assistance: The FCCC's provisions on technology, like the provisions on financing, are relatively weak (FCCC, art. 4.5). The FCCC requires developed countries to take 'all practicable steps' to promote, facilitate and finance, 'as appropriate,' the transfer of, or access to, environmentally sound technologies and know-how to developing countries. To discharge this obligation industrial countries would only need to show that they have taken practicable steps to transfer technology, not that they have actually transferred technology. Although on the agenda of successive COPs, efforts to enhance technology transfer have only recently taken concrete shape. The Cancun Agreements created a Technology Mechanism to implement the FCCC's provision on technology. In particular the Technology Mechanism is required to recommend actions to promote environmentally sound technology transfer, provide guidance on policy and program priorities, facilitate collaboration

between state and non-state actors, recommend actions to address barriers to technology transfer, and catalyze development and use of technology road maps or action plans.

ADAPTATION: Although adaptation is central to the FCCC, it suffered years of relative neglect as Parties focused on the development of mitigation obligations. This neglect has been remedied in the recent past. The Bali Action Plan identified adaptation as one of the pillars on which the future climate regime must be built. In furtherance of this mandate in Cancun Parties launched a 'Cancun Adaptation Framework' as well as a 'Work Programme on Loss and Damage' (Cancun Agreements (LCA), paras 13 and 26). The Cancun Adaptation Framework aims to enhance action on adaptation, including through international cooperation, and the Work Programme on Loss and Damage aims to strengthen international cooperation and expertise so as to understand and reduce loss and damage associated with the adverse effects of climate change in developing countries particularly vulnerable to climate change.

ADEQUACY OF COMMITMENTS AND ADJUSTMENT PROCEDURE: The FCCC acknowledges that its limited obligations may be inadequate, and that the regime will need to evolve in response to new scientific information. Accordingly, both the FCCC and the Kyoto Protocol call for periodic reviews, modeled on those of the ozone regime, which have led to progressively stricter international regulation of ozone-depleting substances. Thus far, however, the only review of commitments took place in 1995, initiating the Kyoto Protocol negotiations. Since then, proposals for further review under the FCCC have been blocked by developing countries, who fear that a further review might conclude that emission targets by developed countries alone will be insufficient to address climate change, and that developing countries emission targets are also needed. Developing countries argued instead that the focus should be on the review of adequacy of *implementation* of existing commitments of developed countries. This back and forth however has been overtaken by the events of recent years.

3. Implementation & Compliance

The development of a strong reporting and review procedure for industrialized countries has been one of the principal achievements of the climate change regime. Reporting and review serve several functions. First, they place pressure on countries by holding them up to domestic and international scrutiny. Second, by improving transparency, the review process helps build confidence among Parties that others cannot free ride without being caught. Third, reporting and review serve

an educational function. By sharing information, countries can benefit from each others' experiences. Finally, reporting and review produce useful information for assessing the effectiveness of the FCCC and the Kyoto Protocol, and the need for further commitments.

NATIONAL COMMUNICATIONS: Under the FCCC and the Kyoto Protocol, Annex I Parties are required to submit annual greenhouse gas inventories and periodic national communications containing detailed information on their climate change policies. Developing countries are also required to submit national reports or communications, but these are set to longer timeframes. The annual greenhouse gas inventories are the backbone of the national communications process. They help improve understanding of the sources and sinks of GHGs, provide a baseline for evaluating the FCCC's implementation and effectiveness, and provide the basic data needed to evaluate the compliance of Annex I Parties with their Kyoto targets. In order to be eligible to use the Kyoto flexibility mechanisms, Annex I countries must show that their national systems to produce emission inventories meets detailed requirements designed to ensure reliability.

The Cancun Agreements enhance the rigor of national communications and inventory requirements for developed and developing countries (Cancun Agreements (LCA), para. 40 and 60), as well as enhance the frequency of national communication for developing countries. They require non-Annex I Parties to submit national communications every four years as well as biennial update reports. Thus far non-Annex I Parties have been required to submit their national communications every four to five years, and Annex I Parties every four years. The Cancun Agreements render national communication requirements symmetrical across developed and developing countries. The requirement to produce biennial update reports, in particular, may prove particularly onerous for many developing countries. However, the Cancun Agreements do recognize 'flexibility' for least developed countries and small island developing countries (Cancun Agreements (LCA), para. 60, chapeau), and condition the production of these reports on 'capabilities and level of support' (Cancun Agreements (LCA), para. 60(c)). Parties agreed in Durban to reporting guidelines for the enhanced and more frequent reporting required of developing and developed countries, respectively, under the Cancun Agreements.

INTERNATIONAL REVIEW: Under both the FCCC and the Kyoto Protocol, national communications by industrialized countries are subject to international review by teams of experts nominated by the Parties (and certain international organizations) and selected by the FCCC Secretariat. The review mechanism is intended to be non-confrontational and facilitative in nature, and has two components:

(1) In-depth reviews of each national communication to promote individual accountability and enhance comparability. These in-depth reviews are like outside audits; they examine the reliability, consistency, accuracy, and relevancy of national communications by reviewing key data points, verifying methodologies, and comparing assumptions across countries and with international sources. Because objective international reviews are critical for assessing countries' compliance with their Kyoto targets, the Kyoto Protocol provides a considerably strengthened review process.

(2) A synthesis report pursuant to the FCCC, which compiles and aggregates the data in the various Annex I country reports, to determine their overall progress in implementing the Convention.

The Cancun Agreements added to the existing review processes for developed country communications a process of 'international assessment and review' (IAR) (Cancun Agreements (LCA), para. 44). For developing countries, the Cancun Agreements for the first time created a review process, although deliberately not titled as such. The biennial update reports that countries are required to produce are subject to a process of 'international consultation and analysis' (ICA) (Cancun Agreements (LCA), para. 63). The ICA process is to be conducted in a manner that is 'non-intrusive, non-punitive and respectful of national sovereignty.' In Durban, Parties fleshed out the modalities for IAR and ICA – for developed and developing countries targets and actions respectively. Both IAR and ICA are a judicious mix of technical and political components. These processes have been designed to be robust and to generate credible information on and confidence in mitigation targets and actions, but they are not authorized or tailored to address the issue of 'adequacy' or 'ambition' of these targets and actions in relation to the 2°C goal.

DISPUTE RESOLUTION / COMPLIANCE SYSTEM: As a cooperative, forward-looking instrument that attempts to encourage and facilitate rather than coerce national action, the FCCC does not include a robust dispute settlement mechanism. It includes a dispute settlement provision, calling for the settlement of disputes by negotiation, conciliation, and, if both sides agree, arbitration or the International Court of Justice (FCCC art. 14). But this type of procedure, found in most international environmental agreements, is seldom used in part because global environmental disputes do not have the bilateral character of traditional international disputes.

The FCCC does, however, provide for the establishment of a multilateral consultative process (FCCC, art. 13, and UNFCCC, Decision 10/CP.4 1999), for the resolution of questions regarding the implementation of the Convention. The multilateral consultative process is Party driven. The process is facilitative, cooperative, non-confrontational, transparent, and non-judicial. It is mandated to provide advice on procuring technical and financial resources to address difficulties in

implementation, and in compilation and communication of information. The process is also mandated to clarify and resolve questions relating to implementation. This process, albeit negotiated in large part, has yet to enter into force.

The Kyoto Protocol establishes a much more robust compliance system, including a standing compliance body with two branches, one focused on facilitation and the other on enforcement. Of the two branches of the compliance committee, only the facilitative branch applies to developing countries (UNFCCC, Decision 27/CMP.1 2006). And, the facilitative branch, which is empowered to provide financial and technical assistance, and/or advice, is required to do so ‘taking into account the principle of common but differentiated responsibilities and respective capabilities.’ The enforcement branch applies exclusively to developed countries. In the event that the enforcement branch determines that a county has not complied with its emission target, the Kyoto compliance system provides for the excess tons to be subtracted (at a penalty rate) from the country’s emission target in the next commitment period. The Kyoto compliance system in its years of operation has successfully addressed several cases of non-compliance with national system requirements. Whether it will successfully address cases of non-compliance with targets and timetables, however, remains to be seen, as the first commitment period, and the compliance assessment process will only come to an end in 2012, and 2015 respectively (See chapter 10, this volume).

It is worth noting that there are very few calls for a compliance system in the future climate regime, and the Copenhagen Accord, Cancun Agreements, and the Durban Platform, do not refer to or begin the process of building a robust compliance system. The emerging climate regime will likely be founded on self-selected mitigation actions or commitments, increased information flow as well as symmetry between developed and developing countries. Such a system does not lend itself to the rigors of the Kyoto compliance system. The multilateral consultative process, or something like it, is more likely to complement such a non-prescriptive regime. The multilateral consultative process is a facilitative process aimed solely at promoting compliance unlike the Kyoto compliance system that also seeks to punish non-compliance. The multilateral consultative process is a state-centric process that reaches conclusions, rather than prescribes consequences, and it applies, unlike the Kyoto Compliance system, in a uniform manner across states.

4 Governance Architecture

When the climate change issue first emerged as a policy issue, some leaders felt that it required the development of supranational bodies, with authority to adopt and enforce regulatory

standards (Palmer 1992). At the 1989 Hague Conference, seventeen heads of state called for the establishment of 'new institutional authority' to address climate change, with non-unanimous decision-making powers. This proposal was never pursued in the FCCC negotiations, the FCCC instead relies on more traditional types of international bodies, which are essentially intergovernmental rather than supranational in nature, and play a primarily coordinating and facilitative role.

[Figure 4]

CONFERENCE OF THE PARTIES / MEETING OF THE PARTIES: The annual COP serves as the FCCC's 'supreme body,' with authority to examine the Convention's obligations and institutional arrangements, to supervise its implementation, and to develop amendments and protocols (FCCC, art.7). Among its functions, it provides a permanent forum for discussion and negotiation and helps build a sense of community. Moreover, by permitting environmental and industry groups to attend as observers, it provides them a forum for offering inputs and exerting pressure. Although the COP has no explicit regulatory powers (unlike its analogue in the ozone regime, which can tighten regulatory measures on ozone-depleting substances by a 2/3 vote), its decision-making authority is broad. COP-1, for example, initiated the new round of negotiations that led to the Kyoto Protocol, established a pilot phase of joint implementation, adopted reporting and review procedures, designated a permanent secretariat, and defined the roles of its subsidiary bodies. Similarly, COP-7 adopted the Marrakech Accords, which set forth detailed operational rules for the Kyoto Protocol. COP-13 and 17 launched the Bali process that led to the Cancun Agreements, and the Durban Platform process that will lead to the post-2020 agreement. The COP's decision-making authority makes its voting rules vital, and countries have yet to reach agreement on voting. Some countries insist that consensus should be required for important decisions such as the adoption of protocols, while others prefer a 2/3 or 3/4 voting rule for all substantive matters so that a small minority of countries cannot block agreement. Unless the COP is able to resolve this question (which appears unlikely), consensus decision-making will continue to be the default rule, given the FCCC's requirement that the COP's rules of procedure themselves be adopted by consensus. The notion of consensus, however, was severely tested at COP-2 in Geneva in the context of the Geneva Ministerial Declaration, and at COP-16, in Cancun, where the COP President declared consensus despite repeated, explicit and vocal objections from Bolivia.

Because membership in the Kyoto Protocol is different from the FCCC, Kyoto provides for a Meeting of the Parties (MOP)¹¹ to decide on Kyoto Protocol issues. Although not authorized to adopt new commitments, the MOP has significant powers, including the authority to revise the rules governing emissions trading, the CDM and credit for carbon sinks.

SECRETARIAT: At COP 1, Parties decided that the interim secretariat initially established for the INC should become the FCCC secretariat, providing general administrative and policy support to the COP and its subsidiary bodies. Over its twenty year lifetime, the secretariat has grown substantially in size. During the negotiations, it served a primarily administrative function. But since the FCCC's adoption, it has played an increasingly important role in organizing the FCCC's review processes and serving as an information clearinghouse and, under recent Executive Secretaries, the secretariat has attempted to inject itself more forcefully in the policy development process.

FINANCIAL MECHANISM: During the FCCC negotiations, the financial mechanism was one of the most contentious issues. Large donor countries insisted on using the GEF to provide climate assistance, an institution created in 1991 at their instigation and which, through the World Bank, they dominated. Developing countries favored the creation of a new institution under the control of the COP. Article 11 of the FCCC represents a compromise between these positions. Rather than create a new fund, it entrusts the GEF with the operation of its financial mechanism on an interim basis and gives the GEF authority over individual funding decisions. But it gives the COP authority over the financial mechanism's policies, program priorities and eligibility criteria.

In 1994, in response to demands by developing countries and environmental groups for greater transparency and democracy, representatives of 73 countries participating in the GEF agreed to restructure it. The restructured GEF is functionally autonomous from the World Bank and is governed by a 32-member Council, evenly split between developing and developed country representatives. The decision-making rules require the concurrence of both developing and donor countries for all substantive decisions.

Thus far, GEF financing has focused on assisting developing countries with preparation of their initial national communications under the FCCC. The GEF's mandate permits it to fund only those 'incremental' costs of a project that produce global environmental benefits (and hence are ineligible for ordinary World Bank lending, which focuses on the local benefits of projects). Hence it is

¹¹ The MOP meets in conjunction with the COP and is referred to as the COP/MOP.

important to determine which costs are 'incremental' and which benefits are global (in particular, do adaptation measures provide global or local benefits)? The World Bank has favored limiting GEF assistance to 'net incremental costs' that is, the difference between the total costs of a project and its local benefits. Developing countries and environmental non-governmental organisations (NGOs), in contrast, have argued that the GEF should provide assistance for the full costs of projects to implement the FCCC. This would permit funding of 'no regrets' strategies, which have a negative net cost. Since determining which costs produce local as opposed to global benefits is nearly impossible, in practice this issue is worked out flexibly and pragmatically, on a project-by-project basis, through negotiations between the GEF and the country concerned.

The Cancun Agreements established the Green Climate Fund as an operating entity of the financial mechanism of the Convention. Although the full operational details of the Green Climate Fund are yet to be finalized, the Fund is accountable to and will function under the guidance of the COP. The assets of the Fund are being managed by the World Bank on an interim basis, until a trustee is selected, and the Secretariat as well as GEF function as the Fund's interim Secretariat.

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE: The IPCC has thus far served the crucial function of providing collective appraisals of scientific knowledge. Although questions have been raised about the IPCC's role, the IPCC has largely successfully walked the tightrope between governmental ownership and professional autonomy, thereby maintaining both political and scientific legitimacy. On the one hand, its intergovernmental character has given governments a sense of ownership and stake in its work, leading them to accept its assessments as authoritative. On the other hand, it has managed to maintain its autonomy as a scientific body and thereby its scientific credibility a point substantiated by its receipt of the Nobel Peace Prize in 2007. In the recent past, however, the image of the IPCC has taken a beating. Evidence emerged suggesting that some of the claims in the IPCC's 2007 report, for instance, in relation to the Himalayan glaciers, were false, and could be attributed to the IPCC's reliance on non-peer reviewed sources. The IPCC issued a retraction in relation to these claims, and it has for its forthcoming report sought to tighten its literature review process.

IV. CONCLUSION

The climate change regime is still in evolution. The Framework Convention is the central forum not only for discussions among governments, but also among business and non-governmental groups. And its system for reporting and review, augmented by the Cancun Agreements, provides a solid base of information on which arguably credible climate actions can be built and scaled up. But the FCCC has done comparatively little to build trust among states or to foster a sense of community. Much of the recent political momentum has been generated outside the regime, as for instance in the G-8 or G-20, and only filtered through to the FCCC process.

The Kyoto Protocol represents an even more ambiguous achievement. On the one hand it establishes comparatively ambitious emission targets for most developed countries. Its flexibility mechanisms are remarkable in their novelty and complexity, and have catalyzed the emergence of a multi-billion dollar carbon market. Yet Kyoto's targets, in particular its second commitment period, only cover a fraction of global emissions. Despite comparatively strong compliance provisions, some countries are not on track to meet their targets. Even before Kyoto's first commitment period was underway, attention shifted first to the post-2012 period, when the first commitment period ends, and then to the post-2020 period, when it became clear the political conditions for the adoption of a new legally binding instrument were not yet ripe. The post-2012 and emerging post-2020 negotiations, as well as the tortured negotiations on a second commitment period of the Kyoto Protocol, indicate, however, that Kyoto, with its prescriptive targets and timetables approach, has lost favor as a politically viable model. Although Parties agreed in Durban to a second commitment period, it appears clear that the end of the second commitment period will also mark the end of Kyoto. In its place, Parties are exploring a more flexible design, involving different types of targets, commitments and actions, defined through a decentralized, bottom-up process, rather than a global international negotiation.

Whatever emerges from the Durban Platform process, however, Kyoto's mere existence, has changed the political and economic landscape. It has spurred significant activity not only by Parties, but by sub-national levels of governments such as cities and states within countries, as well as by the private sector. And its market-based approach is likely to figure prominently in any future climate change regime. Although, the international process has been moving at a frustratingly glacial pace, the climate change regime has come a remarkable way in the past twenty years, from an issue barely on the agenda of most countries, to a major focus of international attention and activity. The Copenhagen Conference that attracted over 120 heads of state stands testimony to the heightened

profile of the climate issue. The question is whether, in the next twenty years, it will continue to maintain this profile and develop quickly enough to succeed in stabilizing the climate system at an acceptable level.

Note

This chapter draws from the authors' previously published work, including Bodansky 1993, 1994, 1995, and 2005 and Rajamani 2008, 2009, 2010, 2011 and 2012.

Figure 1
MILESTONES IN THE CLIMATE REGIME

- | | |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1988 | <i>Toronto Conference</i> calls for a 20% cut in global CO ₂ by 2005, and for a comprehensive framework convention on the law of the atmosphere |
| 1988 | <i>UN General Assembly</i> characterizes climate change a 'common concern of mankind |
| 1989 | <i>Hague Summit</i> calls for new institutional authority to combat global warming, involving non-unanimous decision-making |
| 1990 | <i>IPCC</i> issues first assessment report, estimating that global mean temperature likely to increase by about 0.3° C per decade, under business-as-usual emissions scenario |
| 1990 | <i>Second World Climate Conference</i> concludes that countries need to stabilize GHG emissions and that developed countries should establish emissions targets and/or national programs or strategies |
| 1990 | <i>UN General Assembly</i> establishes INC to negotiate a climate change convention |
| 1992 | FCCC opened for signature at Rio Summit |
| 1994 | FCCC enters into force |
| 1995 | <i>COP-1</i> adopts Berlin Mandate authorizing negotiations to strengthen FCCC commitments |
| 1997 | <i>COP-4</i> adopts Kyoto Protocol |
| 2001 | <i>COP-7</i> adopts Marrakesh Accords, spelling out the detailed rules for the Kyoto Protocol |
| 2004 | Kyoto Protocol enters into force |
| 2007 | <i>COP-13</i> adopts the Bali Action Plan, initiating a new round of negotiations |
| 2009 | <i>COP-15</i> takes note of the Copenhagen Accord, containing voluntary mitigation pledges |

2010	COP-16 adopts the Cancun Agreements, incorporating elements of the Copenhagen Accord into the FCCC process
2011	COP-17 adopts the Durban Platform, launching negotiation towards a post-2020 agreement

Figure 2
KEY PROVISIONS OF THE FCCC

Objective	Stabilize atmospheric greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system, within a time-frame sufficient to: (a) allow ecosystems to adapt naturally, (b) protect food production, and (c) allow sustainable economic development (Art. 2)
Principles	Intra- and inter-generational equity; common but differentiated responsibilities and respective capabilities; special needs of developing country Parties; right to sustainable development; precaution; cost-effectiveness; comprehensiveness; and a supportive and open economic system (Art. 3)
Commitments	<i>All countries</i> - General commitments to: develop national GHG inventories; formulate national mitigation and adaptation programs; promote and cooperate in scientific research, education, training and public awareness (Arts. 4.1, 5, 6). <i>Developed countries</i> (listed in Annex I) - Non-binding aim to return emissions to 1990 levels by end of the decade. (Art. 4.2) <i>OECD countries</i> (listed in Annex II) - Commitments to fully fund developing country inventories and reports; to fund the incremental costs of agreed mitigation measures; to provide assistance for adaptation; and to facilitate, promote and finance technology transfer (Art. 4.3-5)
Bodies	Conference of the Parties (Art. 7), secretariat (Art. 8), Subsidiary Body for Scientific and Technological Advice (SBSTA) (Art. 9), Subsidiary Body for Implementation (SBI) (Art. 10), financial mechanism (Art. 11)
Reporting ('communication of information')	<i>All countries</i> - National GHG inventories; steps taken to implement the Convention (Art. 12.1) <i>Developed countries</i> (Annex I) - Detailed description of policies and measures to limit GHG emissions and enhance sinks, and a specific estimate of their effects on emissions (Art. 12.2) <i>OECD countries</i> (Annex II) - Details of financial and technological assistance measures (Art. 12.3)

Figure 3

KEY PROVISIONS OF THE KYOTO PROTOCOL

Aim	Reduce Annex I country emissions by 5 percent from 1990 levels during the 2008-2012 commitment period (Art. 3.1)
Commitments	Specific emissions target for each country listed in Kyoto Protocol Annex B for the 2008-2012 commitment period, generally defined relative to 1990 emissions Applies to ACO ₂ -equivalent emissions of basket of six GHGs (CO ₂ , methane, nitrous oxide, HFCs, PFCs and SF ₆)
Institutions	Same as FCCC, except decision-making by Meeting of the Parties, which meets as part of FCCC Conference of the Parties (Art. 13)
Flexibility mechanisms	<i>Bubbles</i> (Art. 4) - Any group of Annex I Parties may, when ratifying, agree to pool their assigned amounts and fulfill their emissions commitments jointly <i>Joint implementation</i> (Art. 6) - Annex I Parties may earn Aemission reduction units (ERUs) for investments in mitigation projects in other Annex I Parties. ERUs are Asupplemental to domestic action <i>Clean Development Mechanism</i> (CDM) (Art. 12) - Annex I Parties may earn Acertified emission reductions (CERs) for emission reduction projects in non-Annex I Parties <i>Emissions Trading</i> (Art. 17) Annex B countries may engage in emissions trading Asupplemental to domestic action
Compliance	COP/MOP to consider the question of compliance. Legally-binding consequences for non-compliance would require amendment of Kyoto Protocol (Article 18)

Figure 4:
CLIMATE CHANGE BODIES

<i>Name</i>	<i>Acronym</i>	<i>Description</i>
Intergovernmental Negotiating Committee	INC	Established December 1990 by UN General Assembly. Negotiated the FCCC. Now replaced by the FCCC Conference of the Parties (COP).
Conference of the Parties/Meeting of the Kyoto Protocol Parties	COP/MOP	Established by FCCC Art. 7. 'Supreme body' of FCCC. Meeting of the Parties (MOP) of Kyoto Protocol held in conjunction with COP (Kyoto Art. 13). Functions: regular review of implementation; decisions necessary to promote effective implementation; adoption of amendments and protocols. Meets yearly.
Secretariat		Established by FCCC Art. 8. Administrative functions in support of COP, COP/MOP and other Convention and Protocol institutions. Located in Bonn.
Subsidiary Body for Scientific and Technological Advice	SBSTA	Established by FCCC Art. 9. Composed of government experts. Provides assessments of scientific knowledge, reviews scientific/technical aspects of national reports and effects of implementation measures.
Subsidiary Body for Implementation	SBI	Established by FCCC Art. 10. Composed of government experts. Reviews policy aspects of national reports; assists COP in assessing aggregated effect of implementation measures.
Financial mechanism		'Defined' by FCCC Art. 11. Operation entrusted to GEF on interim basis.
Inter-Governmental Panel on Climate Change	IPCC	Established in 1988 by WMO and UNEP to provide assessments of the science, impacts and policy aspects of climate change. First Assessment Report in 1990; Second Assessment Report in 1995; Third Assessment Report in 2000.
Global Environment Facility	GEF	Established by World Bank, UNDP, and UNEP in 1991. Restructured in 1994.

Clean Development Mechanism	CDM	Defined by Kyoto Art. 12. Under the control of the COP, and supervised by an executive board.
Compliance Committee		Established by Marrakesh Accords pursuant to Kyoto Art. 18. Facilitative and enforcement branches, each with 10 members. Decisions by enforcement require double-majority of developed and developing country members.
Green Climate Fund		Established by the Cancun Agreements. World Bank is its interim trustee, and the FCCC Secretariat and the GEF its interim Secretariat.
Technology Mechanism		Established by the Cancun Agreements. Comprises a Technology Executive Committee and a Climate Technology Centre and Network.

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