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The International Climate Change Legal and
Institutional Framework: An Overview

David Freestone*

*The George Washington University, University of New South Wales

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Abstract

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ABSTRACT

In December 2009 the Parties to the 1992 UN Framework Convention on Climate Change (UNFCCC) will meet at the 15th session of the Conference of the Parties (COP) in Copenhagen to agree the fundamental principles of the legal regime that will apply post 2012. This chapter provides an overview of the complex regime established by the Convention, the processes leading up to the adoption of the Kyoto Protocol and key implementation challenges it has experienced. It introduces some of the key processes and institutions and describes some of the key concepts that will be further developed in later chapters. It also discusses briefly the explosive growth of carbon trading and the challenges faced by the UNFCCC parties at Copenhagen.

In December 2009 the Parties to the 1992 UN Framework Convention on Climate Change (UNFCCC) will meet at the 15th session of the Conference of the Parties (COP) in Copenhagen. The primary agenda item of the Copenhagen COP will be to agree the fundamental principles of the legal regime that will apply post 2012. With the new Obama administration now in power in Washington the United States is expected to be a major and positive participant at the conference for the first time for many years, but the challenges meeting the parties in addressing global climate change are enormous.

The UNFCCC was opened for signature in Rio de Janeiro in June 1992 and came into force on 21 March 1994.² It now has 192 Parties which have met at least annually since then. The details of the Convention and of the negotiating processes that it has initiated are discussed in more detail below, in order to set the scene for the rest of this volume. However it is important to start by emphasizing the importance of the UNFCCC and the process that it represents and to highlight its significant achievements as well as the major challenges that it faces. In the 17 years since the finalization of the Convention at the UN Conference on Environment and Development in Rio de Janeiro it has achieved virtual universality. In 1997 in Kyoto, its Parties negotiated an important Protocol that envisages reduction of Greenhouse Gases (GHG) by developed countries by an average of 5.2% from 1990 levels by 2008–2012.³ In Marrakech in 2001, the parties also developed complex

¹ Lobingier Visiting Visiting Professor of Comparative Law and Jurisprudence, The George Washington University Law and 2009 Ingram Visiting Fellow, Faculty of Law, University of New South Wales. This paper is the introductory chapter to David Freestone and Charlotte Streck (eds) *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond*, to be published by Oxford University Press in December 2009. It is published here with the permission of OUP. For more information on the book see:

<http://www.oup.com/us/catalog/general/subject/Law/EnvironmentalLaw/?view=usa&ci=9780199565931>

² UN Doc Distr General A/AC.237/18 (Part II)/Add.1, 15 May 1992.

³ FCCC/CP/1997/L.7/Add.1, Decision 1/CP.3 Adoption of the Kyoto Protocol to United Nations Framework Convention on Climate Change, Annex, reprinted in (1998) 37 *International Legal Materials* (ILM) 22.

'guidelines, modalities and rules' for the implementation of the innovative 'flexibility mechanisms' contained in the Protocol.⁴

There are still outstanding issues: the fact that the US—until recently the largest single emitter of GHGs—is not a party; the fact that some states have expressed concerns about meeting their Kyoto emissions reduction targets and one, Canada, has openly stated that it will not try; and the fact that the reductions envisaged by the Kyoto Protocol will not by themselves solve the problem of climate change. But these, admittedly important, issues should not distract us from the significance of what has been achieved. The Kyoto Protocol was not designed to solve the problems of climate change; rather it was designed to set in motion a process by which the major economies of the developed world would begin to address in a meaningful way the means and modalities of radically reducing their carbon footprint. The model was the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer. Although the basic text was negotiated in 1987 the Montreal Parties have successively agreed, and progressively moved, to ever more rigorous requirements for the elimination of these substances so that by 2006 the UN Secretary-General was able to announce that the use of ozone depleting substances had been virtually eliminated and the ozone hole is predicted to have closed by 2050.

Climate change poses an unprecedented and as yet still not fully understood threat to the global climate system upon which mankind depends; remedial action requires an extensive, and expensive, overhaul of industrial economies which are still heavily dependent on non-renewable carbon-based fossil fuels. For decades scientist have understood the chemical processes by which emissions of carbon dioxide and other gases might warm the planet through the so-called 'greenhouse effect', nevertheless it was not until the 1980s that international concern about anthropogenic impacts on the atmosphere through such emissions came to a head, and it was only in the last two decades of the 20th century that the United Nations took the first, somewhat faltering, steps towards recognizing and addressing the issue.

The aim of this chapter is to provide an overview of the complex regime established by the Convention, the processes leading up to the adoption of the Kyoto Protocol and key implementation challenges it has experienced. It introduces some of the key processes and institutions and describes some of the key concepts that will be further developed in later chapters. It will also discuss briefly the explosive growth of carbon trading and the challenges faced by the UNFCCC parties at Copenhagen. This is only intended as a scene setting, for the majority of these issues are dealt with in considerable detail in the following chapters.

1. The Road to Rio and the UN Framework Convention on Climate Change

The publicity surrounding the discovery and mapping of the growing 'ozone hole' over the Southern Polar region during the early 1980s, together with the swift and successful negotiation of the 1985 Vienna Convention for the Protection of the Ozone Layer⁵ followed by its 1987 Montreal Protocol on Substances that Deplete the Ozone Layer⁶ focused attention on the much wider and more complex issue of the impacts of greenhouse gases on the global atmospheric system. By the late 1980s climate change was already firmly on the international agenda, and in 1988 the UN General Assembly (UNGA) passed Resolution 43/53 on the Protection of the Global Climate for Present and Future Generations of Mankind.⁷ It declared the issue to be one of 'common concern to mankind'⁸ and endorsed the action of the UN Environment Programme (UNEP)

⁴ UNFCCC, Decisions 15–19/CP.7 and Annexes; reproduced in David Freestone and Charlotte Streck, *Legal Aspects of Implementing the Kyoto Protocol Mechanisms* (OUP, 2005) 566–622.

⁵ (1985) 26 ILM 1527.

⁶ (1987) 26 ILM 1550.

⁷ UNGA Protection of Global Climate for Present and Future Generations of Mankind, UN Doc A/RES/43/53 (6 December 1988).

and the World Meteorological Organization (WMO) in jointly establishing an Intergovernmental Panel on Climate Change (IPCC) to 'provide internationally co-ordinated scientific assessments of the magnitude, timing and potential environmental and socio-economic impacts of climate change and realistic response strategies.'⁹ Two years later, in 1990, UNGA Resolution 45/212 established an Intergovernmental Negotiating Committee to develop a legal instrument on climate change. The outcome of a further two years of strenuous negotiations was the 1992 UN Framework Convention on Climate Change (UNFCCC).¹⁰

The UNFCCC was concluded in New York on 9 May 1992.¹¹ It was opened for signature in June 1992 as a part of the UN Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil. It now has 192 Parties. The basic objective of the Convention, set out in Article 2, is not to reverse greenhouse gas emissions but to stabilize them 'at a level that would prevent dangerous anthropogenic interference with the climate system.' Indeed, that article goes on to require that such stabilization should be achieved 'within a time frame sufficient to allow eco-systems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.'¹²

Article 3 then goes on to enumerate the principles by which the Parties should be guided in their actions to achieve this objective. These include a number of the innovative principles set out in the 1992 Rio Declaration, notably the precautionary principle,¹³ and the principle of inter-generational equity.¹⁴ Preeminent however is the new principle of 'common but differentiated responsibility'¹⁵ discussed in more detail below. The Convention also recognizes a number of other principles such as the special needs of developing country

⁸ See further Alan Boyle, 'International Law and the Protection of the Global Atmosphere: Concepts, Categories and Principles' in Robin Churchill and David Freestone (eds), *International Law and Global Climate Change* (Nijhoff: London, 1991) 17–20.

⁹ The IPCC has three Working Groups (WGs): WGI assesses the physical scientific aspects of the climate system and climate change; WGII assesses the vulnerability of socio-economic and natural systems to climate change, negative and positive consequences of climate change, and options for adapting to it; and WGIII assesses options for mitigating climate change through limiting or preventing greenhouse gas emissions and enhancing activities that remove them from the atmosphere.

¹⁰ UN Framework Convention on Climate Change (adopted 9 May 1992, entered into force 21 March 1994) 1771 UNTS 107 (UNFCCC).

¹¹ UN Doc Distr. General A/AC.237/18 (Part II)/Add.1.15 May 1992.

¹² UNFCCC, Art 2.

¹³ UNFCCC, Art 3(3). See also Principle 15 of the Rio Declaration (UN Doc Distr. General A/Conf.151/5/Rev.1 13 June 1992). There is an extensive literature on the Precautionary Principle, see eg David Freestone, 'The Precautionary Principle' in Robin Churchill and David Freestone(eds), *International Law and Global Climate Change* (London/Dordrecht, 1991) 21. See also T O'Riordon and J Cameron (eds), *Interpreting the Precautionary Principle* (London, 1994); D Freestone and E Hey (eds), *The Precautionary Principle and International Law: The Challenge of Implementation*, (The Hague/London, 1996); Arie Trouwborst, *Evolution and Status of the Precautionary Principle in International Law* (The Hague, 2002).

¹⁴ UNFCCC, Art 3(1) which provides that 'The Parties shall protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities.' See also Principle 3 of the Rio Declaration (n 12 above). On the principle of intergenerational equity see Edith Brown Weiss, *In Fairness to Future Generations: International Law, Common Patrimony and Intergenerational Equity* (Hotei Publishing, 1989); Catherine Redgwell, 'Intergenerational Equity and Global Warming' in Churchill and Freestone (eds), *International Law and Climate Change* (London/Dordrecht, 1991) 41–56.

¹⁵ UNFCCC, Art 3(1). The text of the article continues: 'Accordingly the developed country Parties should take the lead in combating climate change and the adverse impacts thereof'. See also Principle 7 of the Rio Declaration (n 12 above). For a wider discussion of the principle, see Christopher D Stone, 'Common but Differentiated Responsibilities in International Law' (2004) 98 *American Journal of International Law* 276–301. Also, more generally Lavanya Rajamani, *Differential Treatment in International Environmental Law* (Oxford, 2003).

Parties and of those ‘that would have to bear a disproportionate or abnormal burden under the Convention’,¹⁶ as well as the right of all Parties to promote sustainable development¹⁷ and the need to promote ‘a supportive and open international economic system’,¹⁸

The generally hortatory obligations of all Parties are set out in Article 4(1), but the full significance of the common but differentiated obligations emerges in Article 4(2)¹⁹ where the developed countries and countries with economies in transition (which are listed in Annex I) undertake to adopt policies and measures which will ‘demonstrate that developed countries are taking the lead in modifying longer term trends in anthropogenic emissions consistent with the objective of the Convention.’ While a number of particular factors are listed, the Article does recognize that ‘a return by the end of the present decade to earlier levels of anthropogenic emissions . . . would contribute to such modification.’ The Convention does not however provide any modality by which this return to ‘earlier’ levels can be made—nor indeed does it indicate which particular earlier levels should be used as the benchmark. Nevertheless, Article 4(3) does provide an unequivocal obligation that the developed countries listed in Annex II²⁰ shall provide ‘new and additional financial resources’ to meet the ‘agreed full costs’ incurred by developing countries in meeting their communication obligations under Article 12 and to meet the ‘agreed full incremental costs’ in implementing the measures envisaged in Article 4(1) and which are agreed between the developing country Party and the ‘entity or entities referred to in Article 11’ (ie the Financial Mechanism).²¹ The Annex II countries also undertake to assist countries particularly vulnerable to the impacts of climate change in meeting the costs of adaptation to those adverse effects²² and 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 other parties, particularly developing countries, to enable them to implement the provisions of the Convention.²³

However Article 4(7) goes even further in imposing what might be called a ‘blanket’ implementation conditionality. It provides that: ‘The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed Country Parties of their commitments under the Convention relating to financial resources and transfer of technology.’²⁴

Articles 7–11 follow the pattern of the more recent multilateral environment agreements by establishing a fairly sophisticated institutional framework. The Conference of the Parties, as the ‘supreme body’, is charged with keeping the implementation of the Convention under regular review and is specifically granted the power to make decisions necessary to promote the effective implementation of the Convention.²⁵ In addition, the Convention establishes a Permanent Secretariat, and two ‘Subsidiary Bodies.’ The Subsidiary Body for Scientific and Technological Advice (SBSTA) is established, and its role defined, by Article 9 and the

¹⁶ UNFCCC, Art 3(3).

¹⁷ UNFCCC, Art 3(4).

¹⁸ UNFCCC, Art 3(5). For a discussion of the legal status of the ‘guidance’ under Art 3 see Birnie and Boyle, *International Law and the Environment* (2nd edn, Oxford, 2002) 525.

¹⁹ As well as other articles of the Convention, see eg UNFCCC, Art 12.

²⁰ Annex II differs from Annex I in that it does not contain the countries with economies in transition.

²¹ Under UNFCCC, Art 21(3), the Global Environment Facility (see below) shall be ‘the international entity entrusted with the operation of the financial mechanism referred to in Article 11 on an interim basis.’ Note that Art 4(3) does qualify the obligation to provide ‘agreed full incremental costs’ by requiring that account be taken of the need for adequacy and predictability in the flow of funds and the importance of appropriate burden sharing among the developed country Parties.

²² UNFCCC, Art 4(4).

²³ UNFCCC, Art 4(5). .

²⁴ UNFCCC, Art 4(7) goes on to say that this implementation will also ‘take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.’

²⁵ UNFCCC, Art 7, provided of course that these are within its mandate.

Subsidiary Body for Implementation (SBI) by Article 10. The Subsidiary Bodies meet in conjunction with the Conference of the Parties and also inter-sessionally.²⁶

The chief modality for the mobilization of the new financial resources required by the Convention is the Financial Mechanism defined by Article 11 that will provide financing on a grant or concessional basis. The Mechanism is to function under the guidance of, and be accountable to, the Conference of the Parties, but its operation shall be entrusted to one or more existing international entities. The Convention also specifically provides that the financial mechanism shall have an equitable and balanced representation of all Parties within a transparent system of governance. To this end the interim arrangements set out in Article 21(3) specifically designate the Global Environment Facility as the international entity entrusted with the operation of the financial mechanism but only 'on an interim basis' and require that it be 'appropriately restructured and its membership made universal to enable it to fulfil the requirements of Article 11'.²⁷

2. The Global Environment Facility

The wording of Article 21(3)²⁸ demonstrates the considerable caution expressed at the UNCED Summit about the new and as yet unproven Global Environment Facility that had been set up by UNEP, UNDP, and the World Bank in 1991.²⁹ In the nearly two decades since then it has become an important part of the institutional landscape of the UNFCCC, so some brief appreciation of its origins and role, as well the resources it has available are appropriate.

Based on an idea from the 1987 Brundtland Commission,³⁰ in 1988 the French Prime Minister proposed the establishment of a grant-making fund devoted to addressing global environmental issues.³¹ The outcome of a series of meetings was a proposal to the World Bank Board of Executive Directors for a Global Environment Trust Fund (GET) with a commitment from donors of some US\$1.2 billion over a three-year pilot phase, approved on 14 March 1991.³² In October 1991, UNDP, UNEP, and the World Bank concluded a unique

²⁶ The Subsidiary Bodies commonly meet in the week prior to the COP and inter-sessionally—usually in June at the seat of the Secretariat in Bonn

²⁷ UNFCCC, Art 11 requires the Conference of the Parties at its first session to review the interim arrangements in Art 21(3) and to decide whether to maintain these arrangements. Within four years the financial mechanism shall be reviewed and 'appropriate measures' taken. These very cautious provisions indicate that the negotiators were not entirely happy with passing sole responsibility to the newly established GEF and it is equally clear that some fundamental changes in its governance structure would be necessary before the Parties would be willing to confirm its status as a [or the] financial mechanism for the Convention.

²⁸ And the equivalent similar provisions in the Convention on the Protection of Biological Diversity (Arts 21 and 39) and also Agenda 21, Chapter 33.16(a)(iii).

²⁹ For a detailed discussion see further, David Freestone, 'The Establishment, Role and Evolution of the Global Environment Facility: Operationalising Common but Differentiated Responsibility?' in Tafsir Ndlaye and Ru'diger Wolfrum (eds) *Liber Amicorum for Thomas A. Mensah: Law of the Sea, Protection of the Marine Environment and Settlement of Disputes* (Martinus Nijhoff, 2007) 1077–1107.

³⁰ Report of the World Commission on Environment and Development, *Our Common Future* (Oxford, 1987) at 338, proposed the 'development of a special international banking programme or facility linked to the World Bank . . . to finance investments in conservation projects and national strategies'.

³¹ He also pledged 900 million French francs over a three-year period, joined by the Federal Republic of Germany. See Laurence Boisson de Chazournes, 'The Global Environment Facility Galaxy: On Linkages among Institutions' (1999) 3 Max Plank UN Yearbook 243–85, at 246 (citing '1989 Annual Meeting of the Board of Governors, Summary Proceedings,' at 79 and 81–2 respectively).

³² A proposal for the establishment of a Global Environment Trust Fund was approved by the Bank's Board of Executive Directors by Resolution No 91–5 on 14 March 1991, (1991) 30 ILM 1735.

tripartite arrangement to cooperate in the implementation of the Facility.³³ The World Bank was to act as Trustee of the Fund and with UNEP and UNDP it was also to act as an Implementing Agency.³⁴

In part, the motive for the establishment of the GET in 1991 had been to acquire useful experience which could provide a useful input into the deliberations of the June 1992 Rio de Janeiro UNCED at which the UNFCCC was open for signature.³⁵ The 'restructuring process' required by UNCED involved negotiations among 73 states and was described by a participant as 'neither easy nor unimportant'.³⁶ After two years and seven meetings, it was completed in Geneva in March 1994. The text of a new 'Instrument for the Establishment of the Restructured Global Environment Facility'³⁷ was agreed and at the same time donors agreed to replenish the facility to the level of \$US2 billion for the period 1994–1998.

The GEF was innovative in many ways. Its legal status may be unique and the collaborative mechanism between UN entities and a Bretton Woods institution that it represents is also highly novel.³⁸ The Instrument itself is a *sui generis* document which does not follow the format of an international treaty.³⁹

The governance system for the restructured GEF draws on elements of both the UN and the Bretton Woods systems. It established a permanent Secretariat which, although housed within the World Bank, would be 'functionally independent' from the Bank.⁴⁰ This addressed concern voiced at UNCED that a new organization should not result from the process, and also created a clear functional space between the activities of the GEF and those of the World Bank. A representative Council was established to meet twice a year, overseen by an Assembly with universal membership.⁴¹

At a functional level the GEF was given four primary financing focal areas: Ozone Depletion (to the extent not covered by the Montreal Protocol Multilateral Fund), Biological Diversity, International Waters and Climate Change.⁴²

3. The Berlin Mandate

On 21 March 1994, the UNFCCC came into force. The First Session of the Conference of the Parties (COP1) was held in Berlin in April 1995. At the COP the major issue was the need for the Parties to address the vagueness of the commitments in the Convention. It was agreed to develop more concrete obligations in

³³ 'Operational Cooperation under the Global Environment Facility'. Reproduced in (1991) 30 ILM 1766.

³⁴ The governing bodies of each of the agencies then approved the Arrangement.

³⁵ Preamble to the GEF concept paper (1991) 30 ILM 1739, 1740. For a comprehensive overview including all the major documentation see Stanley P Johnson (ed), *The Earth Summit* (Nijhoff, 1993).

³⁶ See Stephen A Silard, 'The Global Environment Facility: A New Development in International Law and Organization' (1994) 28 *George Washington Journal of International Law and Economics* 607–54, 633. The author is a former World Bank finance lawyer.

³⁷ For text of the Instrument for the Establishment of the Restructured Global Environment Facility, Report of the GEF Participants Meeting, Geneva 14–16 March 1994, see 33 ILM 1273 (1994) [Hereafter: 'the Instrument'].

³⁸ See J Werksman, 'Consolidating Governance of the Global Commons. Insights from the Global Environment Facility' (1995) 6 *Yearbook of International Environmental Law* 27–63.

³⁹ The Instrument is not registered with the UN. After the text had been negotiated, it was approved by three separate resolutions of the three Implementing Agencies. See further Freestone, (n 28 above); Boisson de Chazournes (1999) 3 *Max Plank UN Yearbook* at 255; and Boisson de Chazournes, 'The Global Environment Facility as a Pioneering Institution' (2003) GEF Working Paper.

⁴⁰ Instrument, para 21.

⁴¹ The Instrument envisages the Assembly meeting every three years. It has the authority, inter alia, to 'consider for approval by consensus, amendments to the present Instrument on the basis of recommendations by the Council.' Instrument, para 14(d).

⁴² Instrument, para 2.

two respects: a more precise time frame for the reduction of emissions of GHGs restricted to the industrialized countries in Annex I. This became known as the Berlin Mandate.⁴³

The Conference also endorsed the concept of a pilot phase for joint implementation activities. Some degree of co-operation had been envisaged by the 1992 Convention itself which in Article 4(2)(b) talks of the aims of ‘returning [GHG emissions] individually, *or jointly*, to their 1990 levels . . .’⁴⁴ This pilot phase was to be called ‘activities implemented jointly (AIJ) under the pilot phase’.⁴⁵ The objective was to allow investments by Annex I countries in a range of GHG mitigation projects outside their own borders to allow them to begin to understand more clearly the implications of developing such ‘off shore’ projects. The decision did not envisage Annex I countries being able to claim credit against future reduction targets for investments made under this AIJ pilot phase.

Building on the mandate of COP1 an *ad hoc* group was established to advance the concepts of the adequacy of the commitments under Article 4 and the development of a new instrument to crystallize the inspirational wording of the Framework Convention. The Ad Hoc Group on the Berlin Mandate (AGBM) met regularly at COP2 and at the intervening Subsidiary Bodies meetings. The culmination of this process, which involved a series of submissions by the Parties of observations and of draft language, was the COP3 meeting in Kyoto.

4. The Kyoto Protocol

The Kyoto negotiations were not easy. On 11 December 1997, in the early morning of the day after that scheduled for the completion of COP3, after nearly 48 hours of continuous negotiation, the Parties to the 1992 UNFCCC concluded the long-awaited protocol. The 1997 Kyoto Protocol strengthens the commitments of the 1992 Convention—particularly Article 4(2) (a) and (b)—by setting out a firm schedule for reductions of GHG emissions by Annex I countries and firm targets to be met within an agreed commitment period (2008–12). In adopting the Protocol the COP recalled that it had decided in Berlin in 1995 at its first Conference to start a process by which it could take ‘appropriate action’ for the period beyond 2000 by the adoption of a protocol or another legal instrument at its third session; and recalled that one aim of that process was to strengthen the commitments in Article 4(2)(a) and (b) for developed country parties and other parties included in Annex I of the 1992 Convention both to require them to elaborate policies and measures and to set quantified limitation and reduction objectives (QELROs) within specified time frames for their anthropogenic emission sources, and removal by sinks of greenhouse gases.⁴⁶

The COP decision also recalled that according to the Berlin Mandate, the process would not introduce any new commitments for developing countries but would reaffirm existing commitments in Article 4(1) and continue to advance the implementation of these commitments in order to achieve sustainable development, taking into account Article 4(3), (5), and (7).

⁴³ At the final plenary session of the Conference, the President, Angela Merkel introduced the review of the adequacy of commitments in Art 4.2(a) and (b) (FCCC/CP/1995/L.14, review of the adequacy of commitments in Art 4.2(a) and (b)). She said that the industrialized countries’ agreement to specific measures and the developing countries’ agreement to reaffirm and advance existing commitments meant that the process would advance. India for the ‘G77 and China’ said the decision to launch a process to strengthen the commitments made COP1 a success, noting that consultations were not easy. The EU stated its understanding that the wording ‘developed countries/other Parties’ in section II(2)(a) must be interpreted as ‘developed countries and/or other Parties’ and means that this sub-paragraph applies to Annex I Parties within the European Community, individually or jointly among themselves, in accordance with Art 4.2(a) and (b) of the Convention.

⁴⁴ The idea that the parties might seek to do this jointly was the basis for the AIJ pilot phase.

⁴⁵ FCCC/CP/1995/L.13.

⁴⁶ The UNFCCC and its Kyoto Protocol both purport to regulate greenhouse gases ‘not controlled by the Montreal Protocol’. This form of words is used as some gases that contribute to global climate change also deplete the ozone layer and are already subject to the legal regulatory regime of the Montreal Protocol. To avoid undue repetition this important qualification is not used in the text of this chapter but should be borne in mind.

The specific commitments of Annex I parties are set out in Annex B to the Protocol. These envisage that during the five years of the 'commitment period' from 2008 to 2012, those parties will have reduced their emissions by an average of 5.2% from 1990 levels. The specific targets (or assigned amounts) however range from Iceland and Australia which were able to increase their emissions from the 1990 base levels (by 10% and 8% respectively) to the countries of the European Union which accepted an 8% reduction from 1990 levels.

Since 1990 many of the Annex I countries had substantially further increased their GHG emissions through growth in their economies. The commitments to reduce emissions below 1990 levels are therefore commensurably even more rigorous, and the potential economic impacts of these obligations are unparalleled in international environmental law.⁴⁷ However, the most innovative aspects of the Protocol may in fact not be these strict commitments but the introduction of so-called market mechanisms, initially called flexibility mechanisms (or flex-mechs) but now known as the Kyoto Mechanisms, into the process by which Annex I countries can meet their obligations. As indicated above, some degree of co-operation is envisaged by the 1992 Convention itself which in Article 4(2)(b) talks of the aims of 'returning [GHG emissions] individually, *or jointly*, to their 1990 levels . . .' The wording of the 1992 Convention is echoed in Article 3(1) of the Protocol which re-affirms that these commitments may be made individually or jointly, and has also been developed further in Article 4 in response to requests by the EU to allow it to be done within the EU group of nations as a whole. This mechanism, the so-called EU 'Bubble', requires that Parties in Annex I which reach an agreement to fulfil their commitments under Article 3 jointly shall be deemed to have met those commitments if their total combined aggregate emissions do not exceed their assigned amounts calculated in accordance with Annex B. Such an inter-state agreement must be formally concluded and notified to the Parties through the UNFCCC Secretariat; and in the event of failure of the group of states to meet the required reductions, each party becomes again individually liable for its own levels of emissions.⁴⁸

5. The Kyoto Mechanisms

More radical than the joint responsibility agreements envisaged under UNFCCC Article 4 however are the provisions of Article 6 and Article 12 of the Kyoto Protocol— each of which envisages that in various ways emission reductions financed in other countries might be set off against the financiers' GHG reduction targets. The theory behind this approach is that the 'marginal abatement cost', ie the cost of financing an emission reduction, will usually be far higher in a relatively fuel efficient industrialized country than in a country such as an EIT or a developing country which may have less efficient fuel-use technology. As the global climate system benefits from these reductions wherever they are made, making reductions in an EIT or a developing country as part of a national strategy which also of course includes the introduction of domestic 'policies and measures' to reduce emissions at home, will make the cost of reaching these reduction target cheaper and increase the chances that they will actually be reached. The consequential advantages for the project host countries are new resource and technology transfers, including access to cleaner technology and contributions to sustainable development. In addition, Article 17 even contemplates a system of emission rights trading whereby one Annex I country might directly purchase from another Annex I country some of its rights to emit GHG, known as Assigned Amounts.

5.1 Article 6: Joint Implementation

Article 6 builds directly on the wording of UNFCCC, Article 4(2)(b) which envisages that countries listed in Annex I may act individually or jointly to meet their emission reduction objectives. Article 6 of the Kyoto

⁴⁷ The potential impacts of the economic changes necessary to meet the commitments are different in kind from the very significant commitments made by developed countries under the 1987 Montreal Protocol (as amended and adjusted) to the 1985 Vienna Convention for the Protection of the Ozone Layer 26 ILM (1987) 1527. The text of the Montreal Protocol on Substances that Deplete the Ozone Layer; as changed by the London adjustments and the amendments of 1990, 1992, 1995 and 1997 can be found at <www.unep.org/ozone>, accessed 31 March 2009. For the trade and investment implications of these economic challenges, see Cordonnier-Segger and Gehring, chapter 4 below.

⁴⁸ See also Art 4(6) which applies the same principles to co-operation within a 'regional economic integration organization' (the standard treaty language for bodies such as the EU) which is itself a Party to the Protocol

Protocol allows any Annex I country to transfer to, or acquire from, another Annex I country, reductions of GHG emissions, described as Emission Reduction Units (ERUs), achieved by project activities.⁴⁹ These ERUs may be generated by any projects that reduce anthropogenic emissions of designated greenhouse gases or which enhance the anthropogenic removal by sinks⁵⁰ of such gases. The key feature of this mechanism is that all the emission reductions need to be brought about, and verified, by investments in specific projects.⁵¹ It is also subject to a number of further requirements. First, these projects require the express approval of both the State Parties acting as transferor and transferee. The Protocol uses the term 'Parties', hence both States must be parties to the Protocol. Second, the reduction of GHGs that take place as a result of the project must also be 'additional' to any that would otherwise have occurred.⁵² Third, no State Party can acquire ERUs if it is not itself in compliance with a number of other obligations under the Protocol.⁵³ Finally the acquisition of such ERUs is not a substitute for domestic action to reduce GHG emissions, for all such acquisitions must be 'supplemental to domestic actions.'⁵⁴

In order to make it clear that the full risk of any non-compliance with other provisions of the Protocol rests entirely with the acquirer of the ERUs the Protocol goes on to provide that where an issue of non-compliance is raised, transfer and acquisition transactions may continue but entirely at the risk of the acquirer. As the usual modality for these transfers will be by investment or purchase, this is known as 'buyer risk.'⁵⁵

The final issue of importance is that although the Protocol talks clearly about Party-to-Party transactions it does envisage others such as the private sector (or even international organizations, such as the World Bank) participating in the financing and organizing of such projects. Article 6(3) permits any party to authorize a legal entity to participate in 'action leading to the generation, transfer or acquisition' of ERUs, provided however that that authorization is under the responsibility of the authorizing State Party.

5.2 Article 12: the Clean Development Mechanism

This Article was the great surprise of the Kyoto Meeting.⁵⁶ The Brazilian delegation had proposed a form of Green Development Fund at an earlier meeting but the forms and modalities of the Clean Development Mechanism (CDM) defined in Article 12 were truly the results of the negotiations at Kyoto. Perhaps as a result of the fact that the negotiation of Article 12 took place in a different drafting group from that of Article 6, or perhaps deliberately, each article uses rather different language to describe concepts that are essentially very similar. The most important aspect of Article 12 is the fact it is to be used by Annex I countries to finance emission reductions in countries which have not made commitments under the Protocol to meet GHG

⁴⁹ Once verified and reported in accordance with guidelines to be elaborated by the UNFCCC COP/MOP, Art 6(2).

⁵⁰ Such removal could include the sequestering of carbon by land use, land use change or forestry (LULUCF), in which case they are termed RMUs (Removal Units).

⁵¹ In the case of Track 1 JI verification is the responsibility of the host country concerned; Track 2 JI projects are under the supervision of the JI Supervision Committee, discussed by Hoogzaad and Streck in chapter 8 and Hobley and Roberts in chapter 9.

⁵² Sometimes called the 'but for' test: 'But for the project' . . . would not have happened.

⁵³ See Arts 5 and 7, Kyoto Protocol.

⁵⁴ This term is not defined, but the European Union has decided that this means at least 50% by domestic policies and measures.

⁵⁵ Article 6(4) reads: 'If a question of implementation by a Party included in Annex I of the requirements referred to in this Article is identified in accordance with the relevant provisions of Article 8, transfers and acquisitions of emission reduction units may continue to be made after the question has been identified, *provided that any such units may not be used by a Party to meet its commitments under Article 3 until any issue of compliance is resolved.*' (Emphasis added).

⁵⁶ Jacob Werksman, 'Unwrapping the Kyoto Surprise' (1998) 7 Review of European Community and International Environmental Law 147, 151.

emission reduction targets, ie developing countries which are not listed in Annex I. Article 12(2) sets out clearly the objective which is 'to assist Parties not included in Annex I to achieve sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their . . . commitments under Article 3.'

The particular appeal as well as the tension of the CDM however lies in the fact that States with commitments would be financing projects in countries without commitments. This should mean of course that developing countries share the benefits of project investments in clean technology within their economies, but also that a far wider pool of possible reductions are possible than would be available through reductions in Annex I countries alone. Even if the majority of the responsibility for the historical emissions leading to climate change can be laid at the doors of the developed world, a reduction of emissions anywhere in the world has an equally beneficial impact on the global climate system, and it is in the developing world—notably in India and China—where much of the increase in future emissions of GHG seems likely to take place in the decades to come. A mechanism therefore that encourages investments in climate friendly projects in developing countries was also thought to have a beneficial impact on the global climate system as well as a net beneficial impact on sustainable development. As a number of the later chapters in this book demonstrate,⁵⁷ there is however also a global community interest in ensuring that Annex I countries or entities only be permitted to claim credit for those projects in developing countries which demonstrably reduce GHG emissions. Hence the Protocol envisaged a supervisory structure—the CDM Executive Board acting under the guidance of the COP/MOP⁵⁸—including an emission reduction verification and certification system. CDM projects need to be validated and registered as CDM projects by 'operational entities' designated by the COP/MOP who are also responsible for verifying and certifying that emission reductions actually occurred. Validation of the project through the designated operational entity (DOE) is the modality for the certification of the project as contemplated by Article 12(5). DOEs also certify the emission reductions generated by the project. Emission reductions so certified are therefore termed Certified Emission Reductions (CERs), to distinguish them from the products of Article 6 projects, which are termed Emission Reduction Units (ERUs).

The administrative expenses of the Convention servicing these bodies are covered inter alia by a levy of 'a share of the proceeds' from certified project activities. This share is used to 'assist developing countries that are particularly vulnerable to the adverse effects of climate change to meet the cost of adaptation.'⁵⁹ In a number of other respects CDM projects resemble Article 6 projects. Participation in CDM projects must be voluntary; projects must manifest real measurable and long-term benefits relating to mitigation of climate change; and a project activity generating CERs must be 'additional' to that which would have occurred in its absence.⁶⁰ Participation in the CDM is also open to the involvement of private and/or public entities,⁶¹ subject to the guidance of the Executive Board. More significant however is the absence from Article 12 of the express distinction (made in Article 6) between emission reduction activities and those designed to enhance anthropogenic removal by sinks of GHGs. The COP/MOP has overarching responsibility to provide 'authority and guidance' and is responsible for elaborating 'modalities and procedures'⁶² for the operation of the

⁵⁷ See chapters on the CDM below: Netto and Schmidt, chapter 10; Krey and Santen, chapter 11; Michaelowa, chapter 12; and Voigt, chapter 13.

⁵⁸ Art 12(4). See section 6 below.

⁵⁹ The share of proceeds for adaptation measures is fixed at 2%. In addition, the participants in a CDM project have to pay an administrative fee of US\$0.10 for the first 15,000 CERs issued for each project. An additional US\$0.20 has to be paid for all subsequent CERs. FCCC/KP/2005/CMP/8/Add.1, Decision 3/CMP 1, Modalities and procedures for the clean development mechanism as defined in Article 12 of the Kyoto Protocol, para 15(a) and the relevant decision of the Executive Board at its 23rd meeting (Annex 35 to the report of the Executive Board).

⁶⁰ See Art 12(5)(c), and Michaelowa, chapter 12 below.

⁶¹ cf. Art 6(3) which says legal entities may participate in 'actions *leading to* the generation, transfer or acquisition . . . of emission reduction units. This could be interpreted as saying that they may not be transferred or acquired (and therefore perhaps not owned?) by such entities. By contrast Art 12 envisages 'participation . . . in the acquisition of certified emission reductions' suggesting that private/public entities might own these CERs.

⁶² Article 12(7) empowers the COP/MOP at its first meeting, to 'elaborate modalities and procedures with the objective of ensuring transparency, efficiency, and accountability through independent auditing and verification of project activities.'

CDM. At COP7 it was decided that 'afforestation and reforestation' projects were CDM eligible⁶³ and the modalities for such projects were finalized at COP9 in Milan in December 2003,⁶⁴ although the COP has yet to reach final decisions on whether other sink projects will be CDM eligible in the longer term.⁶⁵

5.3 Article 17: Assigned Amount Trading

The third mechanism envisaged by the Kyoto Protocol allows the trading of parts of Assigned Amounts (or Assigned Amounts Units (AAUs)) among Annex I Countries (Article 17 of the Protocol).⁶⁶ This is discussed in detail in chapter 7.

The rules for IET have now been laid down.⁶⁷ 'Everybody, whether a state or not, whether a Party to the Kyoto Protocol or not, can trade Kyoto emission rights. But if such trade leads to a transfer, such transfer can, as a general rule, only be effected by Parties to the Kyoto Protocol.'⁶⁸ For this reason, the trading of AAUs between governments not linked to any emission reducing activity is still not, or not yet, widely supported by Annex I countries in need of AAUs. Most governments are reluctant to use taxpayers' money for the purchase of abstract paper values and have expressed a clear preference for 'greened' AAUs. Green Investment Schemes (GISs) offer a way to earmark AAU revenues for environment-related activities. Selling countries can choose to reinvest their proceeds into measures that further reduce their emissions, thereby freeing up additional AAUs, or to support measures with other environmental benefits. A credible GIS increases the value of the traded AAUs and is in the interest of both the selling and the buying country. The World Bank has been pioneering the design of GISs.⁶⁹

This Mechanism is also referred to as 'emission trading', a term commonly used to describe the trading in emission rights. Article 17 of the Kyoto Protocol forms the basis for a global emissions trading system among Annex B Parties, which may be used by Annex B Parties for compliance purposes. Since international emission trading involves the transfer of AAUs, actual trades could only be settled once the first commitment period of the Kyoto Protocol started in 2008. Even before the start of 2008 however emissions trading at a national and regional level has gone through a period of unprecedented popularity. Within the last few years, emission trading systems in Australia, the UK and Denmark, followed by an EU-wide emission trading system, have been implemented and a voluntary market in emission reductions has also flourished, in which private actors have been the most important participants.⁷⁰ Legislative conditions for State level emission trading are currently being created in a number of US states, and even before the election of Barak Obama in November several bills

⁶³ FCCC/CP/2001/13/Add.2 Decision 17/CP.7, para 7, Modalities and procedures for the clean development mechanism as defined in Article 12 of the Kyoto Protocol.

⁶⁴ FCCC/KP/2005/CMP/8/Add.1, Decision 5/CMP1.Modalities and procedures for afforestation and reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol.

⁶⁵ The treatment of land use, land use change and forestry project activities under the CDM in future commitment periods will be decided as part of the negotiations of the second commitment period, FCCC/KP/2005/CMP/8/Add.1, Decision 5/CMP1 recital 3.

⁶⁶ Assigned Amounts' refers to the quantity of GHGs a Party to the Kyoto Protocol is allowed to release in the global atmosphere as calculated on a yearly basis in Annex B of the Protocol (Article 3 of the Protocol).

⁶⁷ Annex to Decision 11/CMP.1.

⁶⁸ See Simonetti and de Witt Wijnen, chapter 7, below.

⁶⁹ See Jane Ebinger and Jari Vayrynen, 'The Greening of AAUs and the Interface with Joint Implementation,' in David Freestone and Charlotte Streck, (eds) Special Issue: *The Kyoto Protocol: Current Legal Status of Carbon Finance and the Flexible Mechanisms* (2007) 15–2 Environmental Liability 73–80

⁷⁰ On the voluntary carbon market, see Passero, chapter 23 below, and on the role of private actors see Lin, chapter 6.

proposing the establishment of a federal emission trading system were being considered by the US Congress. All these initiatives are discussed in detail later in this volume.⁷¹

6. Implementation of the Kyoto Mechanisms

Immediately after the finalization of the Kyoto Protocol, the Parties to the UNFCCC began negotiating the ways in which its mechanisms would operate. After a protracted negotiating process which included an extra full COP Meeting (COP6.5 or COP6bis), by the time that the previously scheduled Seventh Session of the Conference (COP7) took place in Marrakech in November 2001 the parties were in a position to agree a major package of measures to enable the Kyoto mechanisms to start operations. This bundle of some 262 pages and 39 decisions was called the Marrakech Accords. As will be seen in the following pages of this book, the Accords provide a much needed framework of 'guidelines, modalities and rules' for moving forward with implementation of the Protocol; however a number of key issues remained still to be settled either through practice or by further COP decisions.

In 2000 there had been other setbacks to the Kyoto process. Although the US under the Clinton administration had signed the Protocol, after the November 2000 US Presidential election the incoming administration of George W Bush announced its intention to withdraw from Kyoto—indeed to 'unsign' the Protocol. To enter into force the Kyoto Protocol required ratification by 55 Parties to the Convention including ratification by Annex I Parties 'which accounted in total for at least 55 per cent of the total carbon dioxide emissions for 1990 of the Parties included in Annex I'.⁷² The result of the US decision was therefore that virtually all the other Annex I parties—including the Russian Federation—had to ratify the Protocol in order to bring it into force. Paradoxically, the decision of the world's largest GHG emitter to withdraw from the process seems to have galvanized the remaining UNFCCC Parties to move forward with the finalization of the Marrakech Accords and to proceed with the establishment of the bodies—such as the CDM Executive Board—and of the procedures to enable an immediate start of the Kyoto Mechanisms once the Protocol did enter into force.⁷³ On 16 February 2005, after the Russian Federation had ratified the Protocol it came into force, and the First Meeting of the Parties to the Protocol (MOP) meeting with the 11th Session of the Conference of the UNFCCC Parties (jointly COP11/MOP1) took place in Montreal in 2005.

The Kyoto Mechanisms had put a market value on GHG emission reductions even before the Kyoto Protocol entered into force. Starting from modest beginnings there has been an explosion in the size of the carbon market created by the Kyoto Protocol but supplemented by a number of regional and national emission trading schemes, of which the largest by far is the EU Emission Trading Scheme (EU ETS). In 2008 the World Bank estimated that the total size of the carbon market in 2007 was some US\$67 billion—of which some US\$50 billion was from the EU ETS.⁷⁴ Recent figures for 2008 suggest that the total size of the market in 2008 at a time of an incipient economic recession was over US\$120 billion.⁷⁵

⁷¹ On the EU ETS see Pohlmann, chapter 16 and Ghaleigh, chapter 17; on Australia, Wilder and Fitz-Gerald, chapter 20; on Canada, Taylor and Barrett, chapter 21; and on the US, LaMotte, Williamson and Hopkins, chapter 18 and Danish, chapter 19 below. On the linking of schemes see Mehling, chapter 5

⁷² Kyoto Protocol, Art 25(1).

⁷³ Indeed many of the preliminary procedures such as validation of project baseline methodologies by the Executive Board and its Methodology panel had already begun before entry into force.

⁷⁴ K Capoor and P Ambrosi, 'State and Trends of the Carbon Market 2008' (Washington, DC: The World Bank, 2008) <siteresources.worldbank.org/NEWS/Resources/State&Trendsformatted_06May10pm.pdf>, accessed 9 April 2009.

⁷⁵ Point Carbon, 'Carbon 2009: Emissions Trading Coming Home' (Point Carbon, March 2009) <<http://www.pointcarbon.com/1.1083366>>, accessed 9 March 2009; and K Capoor and P Ambrosi, 'State and Trends of the Carbon Market 2009' (The World Bank, Washington, DC, 2009) <http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/State___Trends_of_the_Carbon_Market_2009-FINAL_26_May09.pdf>, accessed 1 June 2009.

Meanwhile the 2007 publication of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), and the publicity surrounding their award of the Nobel Prize,⁷⁶ has sharply focussed public and political attention on the very real risk of dangerous climate change of which they warn. Indeed the IPCC Fourth Assessment showed that the current situation and prognosis for dangerous climate change is already far worse than had previously been envisaged.⁷⁷ In addition, the 2007 *Stern Review of the Economics of Climate Change* suggests that if serious action is not taken within the next 15–20 years then the costs of coping with climate change could be in excess of 20% of total global income, annually.⁷⁸ The World Bank has estimated total global income currently at some US\$35 trillion per annum, rising by 2050 to perhaps US\$135 trillion, when the global population is estimated to be some 9 billion, with major relocations of population in developing countries and a huge demand for new infrastructure and power sources.⁷⁹ 20% of US\$135 trillion in 2050 is some US\$27 trillion per annum. These are enormous sums of money that put the current need for serious investments in new technology and innovative approaches to tackling both mitigation and adaptation into proper perspective.

Against this background, and although it is only a modest first step in tackling the problem, the Kyoto Protocol and various regional emission trading schemes have already had an important impact in making companies internalize and integrate a price for GHG emissions into their operations. Trading in carbon credits, allowances and emission rights now forms part of the GHG emissions management of most major industrial GHG emitters and very few corporate players today have not yet engaged in this fast growing market, which has been expanding exponentially for more than five years. The trading of carbon credits has lost much of its exotic flavour and is considered a serious factor in the closely related oil, gas and electricity markets.

In this rapidly evolving market, the Kyoto Mechanisms provide the reference point for a growing number of regulations, systems and standards, and the Clean Development Mechanism (CDM) remains the only mechanism that links emission reductions achieved in developing countries to the global carbon markets. The link between the Kyoto Protocol mechanisms and the EU Emission Trading Scheme through the adoption of the 'Linking Directive'⁸⁰ has increased the attractiveness of credits generated by CDM and JI projects for private sector participants. Of the two mechanisms, to date it has been the CDM which has attracted most attention (and the majority of funds—more than US\$ 12 billion in 2007). JI has been put at a disadvantage compared with the CDM, not only because the countries holding the biggest JI potential (Russia and Ukraine) have been slow to develop an approval framework, but also because JI does not benefit from the 'prompt start' provisions of the CDM. The prompt start of the CDM is based on Article 12(10) of the Kyoto Protocol and allows emission reductions obtained between 2000 and the beginning of the Protocol's first commitment period to be used to meet Annex I commitments. Consequently, the CDM started operating shortly after the adoption of the Marrakech Accords in 2001 and the Parties authorized the retroactive crediting of emission reductions from 2000. As the first international mechanism to start operating, the CDM gave project developers time to design and develop emission reduction projects. The establishment of the basic JI infrastructure was dependent on the Kyoto Protocol entering into force, which in turn delayed the establishment of the JI Supervisory Committee (JISC, the equivalent to the CDM Executive Board) until December 2005. However, in parallel to the activities of the JISC an increasing number of JI projects were being designed and as we will see,⁸¹ with the beginning of the Kyoto commitment period in 2008, the market in ERUs has gained momentum.

⁷⁶ Together with former US Vice President Al Gore.

⁷⁷ Intergovernmental Panel on Climate Change, 'IPCC Fourth Assessment Report' (2007) <<http://www.ipcc.ch/ipccreports/ar4-syr.htm>> accessed 9 April 2009.

⁷⁸ Commissioned by the then UK Chancellor of the Exchequer, Gordon Brown: 'Stern Review on the Economics of Climate Change' (2007) <http://www.hm-treasury.gov.uk/sternreview_index.htm>, accessed 9 April 2009.

⁷⁹ Kirk Hamilton and Ian Johnson, *Responsible Growth to 2050* (The World Bank, 2004).

⁸⁰ Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms.

⁸¹ See Hoogzaad and Streck, chapter 8 and Hopley and Roberts, chapter 9.

At the time of writing, more than 1500 CDM projects have been internationally approved and registered. As the later chapters in this book show clearly, most of the experience in the development of emission reduction projects, the development of baseline and monitoring methodologies and the financial structuring of carbon finance can thus be attributed to the CDM.⁸² This enthusiasm for the CDM is surprising, bearing in mind that the CDM is the most complex of the mechanisms established under the Kyoto Protocol. It is governed by a complicated (unsystematic and not readily available) set of rules, decisions and guidance documentation established by the COP/MOP, but drafted and interpreted by the Executive Board, its panels and working groups as well as the UNFCCC Secretariat. The process is complex and not always transparent and there is ample room for criticism. Some see the practice of the CDM leaning too much toward the objective of generating cost-efficient emission reductions—mostly through projects involving the simple destruction of high potential GHG gases—losing sight of the impact of the CDM on sustainable development, the other objective of the mechanism. Others complain about the long and costly procedures, the dubious added value of the additionality test and the lack of transparency of the process.⁸³ While it is obviously necessary to ensure the environmental integrity of the process through rigorous standards and evaluation mechanisms, the CDM institutions are currently being challenged by the very popularity of the mechanism. The increasing number of projects processed by the Executive Board and its panels are demonstrating the obvious constraints and limitations of using UN procedures and committees to regulate a private market. Despite these valid points of criticism, the CDM must be considered a success. The measure of its success lies not only in the reduction of GHG emissions that it has facilitated—for so far these are still too small to change the emission trends on a global scale—but more importantly in the fact that the CDM has helped to create a global partnership between countless actors united in their efforts to finance emission reducing projects and create emission reductions. The CDM has proven to be a global market experience of unprecedented scale. It has brought the idea of market based approaches to parts of the world new to the notion of a global market. It has helped to leverage funds for renewable energy technologies and other emission reducing activities. And, last but not least, it has helped to test methods to calculate emissions and emissions reductions, develop monitoring protocols, and an essential infrastructure of emission registers. All these issues are explored fully in the chapters that follow.

By contrast with the CDM, in JI, where the host country is ultimately responsible for all project activities, the host country has the right, under the so called Track I procedure, to verify emission reductions as being additional as soon as it has the proper monitoring and accounting framework in place. Even if the Annex I country hosting a JI activity does not meet the full set of accounting criteria, it can nevertheless participate in JI, in which case the rules and procedures are modelled after the CDM (Track II JI). But even then the country needs to meet the reporting requirement of the Protocol in order to issue and transfer ERUs.⁸⁴ Consequently, Article 12(7) states that the COP/MOP 'shall' at its first session elaborate modalities and procedures with the objective of ensuring transparency, efficiency and accountability through independent auditing and verification of project activities.⁸⁵ COP/MOP1 complied with this mandate when it established the JISC and elaborated the basic procedures governing Track II JI. Since its establishment the JISC has completed an impressive amount of work, generally in an efficient and cooperative manner. The Committee relies wherever possible on the model documents and procedures of the CDM Executive Board without uncritically copying them. It evaluates, interprets and modifies the CDM rules wherever it considers it inadequate, bearing in mind that JI is a mechanism implemented between two countries with quantified emission reduction targets where ultimate liability for any overestimation of emission reductions lies with the host country.

7. Carbon Contracting

Any type of transaction involving the transfer of carbon credits needs to rely on the proper set of contracts. Once issued, CERs and ERUs as well as allocated allowances under various emission trading schemes are traded on the so-called secondary market. This is an area of law which, as we will see below, is becoming

⁸² See chapters 10–13 below.

⁸³ And the inability to challenge the decisions—see particularly Voigt, chapter 13 below.

⁸⁴ FCCC/CP/2001/13/Add.2 Draft Decision-/CMP/1 (art 6), Annex, para 25.

⁸⁵ In 2001, the COP adopted the Marrakech Accords that set out the necessary guidelines and modalities. These were then submitted to and approved by the COP/MOP at its first session.

extremely sophisticated and complicated.⁸⁶ Most of these secondary transactions are governed by standard and relatively simple spot contracts. However, most JI and CDM credits are still traded under forward contracts (commonly referred to as Emission Reduction Purchase Agreements or ERPAs).⁸⁷ The implementation of JI/CDM projects leads to the establishment of legal links between the different sovereign Parties and the private or public project participants involved. Carbon contracts governing the implementation of the Kyoto Mechanisms include the following type of contractual instruments:

- Unilateral instruments of Non Annex I and Annex I Parties, such as Approval Letters for JI and CDM project activities;⁸⁸ .
- Bilateral instruments between Annex I and non-Annex I Parties, such as Host Country Agreements or Memoranda of Understanding that govern the transfer of AAUs⁸⁹ or ERUs under Article 6 or Article 17 of the Kyoto Protocol; or .
- Bilateral or multilateral instruments between project participants, which may include Annex I and non-Annex I Parties, private and public sector entities, and which govern the implementation of the emission reduction project, risk allocation and the transfer of funds and carbon credits.

The first two categories of agreements focus on the authorization of the project by the Parties involved and the transfer of the internationally defined carbon credits to the extent that sovereign action is necessary. JI project activities rely on the confirmation of the host government to convert AAUs into ERUs once they have been verified. In the case of the CDM a simple host country approval is sufficient to allow the issuance of credits. In this volume, we focus in our analysis on the last of the three categories, which includes the commercially structured contracts that govern the purchase and sale of rights to the GHG emission reductions (or removals) generated by CDM or JI projects. CDM and JI transactions need to be based on innovative and robust contracts which enable the parties successfully to implement the project long after the attention of the initial project developers and consultants has moved on to other tasks. Carbon contracts define the relationship between parties in an emerging market, which is characterized by a wide variety of uncertainties and risks. The contracts need to record the agreement between the parties, identify responsibilities, allocate risks, establish rights and create clear and enforceable obligations. There have been various efforts to standardize ERPAs and other carbon related documents. Experience shows, however, that carbon projects come in all kind of forms and varieties. Regional context, project type, project size and financial status of the project and project owner determine the conditions of and the format of forward CDM/JI transactions. Still, publicly available contract models assist buyers and sellers of emission reductions in the definition of the key terms, in the proposal of model formulation, and in providing a starting point for negotiations. The World Bank and the International Emission Trading Association have developed standardized and publicly available ERPA templates.⁹⁰

⁸⁶ On the secondary market see Hedges, chapter 15.

⁸⁷ In the course of negotiating the very first project of the Prototype Carbon Fund in Latvia, the World Bank transformed its traditional project investment finance agreement into a totally new instrument—an Emissions Reduction Purchase Agreement. This is discussed in detail in David Freestone, ‘The World Bank’s Prototype Carbon Fund: Mobilising new Resources for Sustainable Development’ in S Schemmer-Schulte and Ko-Yung Tung (eds) *Liber Amicorum for Ibrahim S I Shihata* (Kluwer Law International: The Hague, 2001) 265–341. The basic structure was that in return for the project generating emission reductions verified by an independent certifier, the PCF would pay agreed amounts. This model, with modifications, appears to have been the one that the market has followed and recent developments are discussed in this volume: see for JI transactions Hobley and Roberts, chapter 9; and generally Wilder and Fitz-Gerald, chapter 14.

⁸⁸ Letters of Approval have an interesting double nature as administrative instruments under the domestic law of the host country and at the same time as unilateral statements under international public law generally directed towards an Annex I Party and authorizing private entities to participate in the project.

⁸⁹ For the CDM, the Executive Board has clarified that a project participant is either a Party involved or a private and/or public entity authorized by a Party to participate, under the Party’s responsibility, in CDM project activities which takes decisions on the allocation of CERs from the CDM project activity under consideration. See UNFCCC, ‘Glossary of CDM terms’ <<http://cdm.unfccc.int/Reference/glossary.html>>, accessed 9 April 2009.

⁹⁰ See, eg, The World Bank Carbon Finance Unit, ‘Document Library’ <<http://wbcarbonfinance.org/Router.cfm?Page=DocLib&ItemID=24703>>, accessed 9 April 2009; International

8. Public Sector Financing for Climate Change

This section will look at the ways in which the donor community has been able to respond to the challenge of climate change and the funding requirement provisions of the UNFCCC. It should be pointed out at the beginning that despite the fact that although a number of different funds have been established, the scale of funding has not—until perhaps recently—been commensurate with the needs of the tasks in hand.

Like the UNFCCC itself, the Instrument of the Restructured GEF envisages ‘agreed incremental financing’ to be provided by the Facility. However in addition to climate change the Instrument also identifies three other focal areas: ozone depletion (to the extent not covered by the Montreal Protocol Multilateral Fund), international waters, and conservation of biodiversity. Moreover, in 2002 the text of the 1994 Instrument was amended and a further two focal areas were added to mandate support for land degradation, particularly desertification and deforestation, and persistent organic pollutants.⁹¹ In addition, paragraph 3 of the Amendment recognizes that ‘the agreed incremental costs of activities to achieve global environmental benefits concerning chemicals management as they relate to the [existing six] focal areas shall be eligible for funding.’ The outcome is that there are currently 15 GEF Operational Programmes (OPs) approved by the Council that map out strategy in each focal area and provide synergies and crosscutting themes between the focal areas.⁹² Of these 15 OPs, four relate to climate change.⁹³

The GEF only finances ‘incremental costs’—the cost of those activities and investments that represent a gain to the international as opposed to the national environment. In relation to climate change this concept may be relatively easy to calculate—or at least to understand. Here the GEF might, for example, finance the extra cost of converting a ‘least-cost’ but climate damaging project (such as a coal-fired power station) to a climate friendly project (such as a wind farm or a solar thermal plant). In such a situation, the country contributes the amount it would have contributed to the ‘least-cost’ project and the GEF finances the additional (incremental) costs of the climate friendly technology. However, these incremental cost calculations are more difficult in relation to other focal areas.⁹⁴

Since 1994 the GEF has been replenished four times: the ‘restructuring’ involved pledges of US\$2 billion to this new Trust Fund, for the four-year period 1994–1998.⁹⁵ In March 1998 the second replenishment (GEF-2) was completed with commitments totalling US\$2.75 billion for the four-year period to 2002.⁹⁶ In August 2002 after a long negotiating process the GEF was replenished for a third time to a total sum of US\$2.92 billion for the period 2002–2006. After another evaluation,⁹⁷ and another protracted negotiation,

Emissions Trading Association, ‘Emissions Reduction Purchase Agreement version 3’ <<http://www.ieta.org/ieta/www/pages/download.php?docID=1793>>, accessed 9 April 2009.

⁹¹ Instrument as amended, Para 2.

⁹² The full texts of the OPs are available on the GEF website. See <<http://www.gefweb.org>>, accessed 9 April 2009.

⁹³ Climate Change:

OP5. Removal of Barriers to Energy Efficiency and Energy Conservation;

OP6. Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs;

OP7. Reducing the Long-Term Costs of Low Greenhouse Gas Emitting Energy Technologies;

OP11. Promoting Environmentally Sustainable Transport.

⁹⁴ The Council considered this issues specifically in relation to the new land degradation focal area, see ‘Legal, Operational and Financial implications of an Amendment to the GEF Instrument to reflect the designation of the GEF as a financial mechanism of the UNCCD’ (GEF/C.30/7. December 2006), at para 37ff.

⁹⁵ And the first of the Overall performance assessments which have preceded replenishments: GEF Secretariat, *Study of GEF’s Overall Performance* (1998, GEF).

⁹⁶ And see GEF Secretariat, *The First Decade of the GEF: The Second Overall Performance Evaluation* (25 January 2002, GEF).

⁹⁷ OPS3: Progressing towards Environmental Results (June 2005, GEF).

and despite major reductions in the pledges of two major donors (the US and Japan) the GEF was replenished to a sum of US\$3.12 billion.⁹⁸ The Third OPS found that the impact of the GEF was not restricted to the \$6.2 billion dollars that it had itself committed since 1991—of which some US\$1.75 billion was to the climate change portfolio⁹⁹—but also included the more than \$20 billion that had been mobilized in co-financing by a range of international and bilateral agencies as well as the private sector. In the area of climate change while its role in mitigating changes is obviously minor, the study found that it had ‘played an important catalytic role in developing and transforming markets for energy and mobility in developing countries.’¹⁰⁰ Looking at the replenishment figures however what is most noteworthy is that since 1998 the GEF has effectively been functioning with level, maybe even decreasing, funding while at the same time it has been given new focal areas, wider ranges of interlocutors, and extra tasks and responsibilities have been imposed by the donors. The contrast with the size of the resources mobilized by carbon finance discussed above could not be starker.

8.1 The new Climate Funds

Another important outcome of COP7 in Marrakech in November 2001 was that the COP invited the GEF as the financial mechanism of the Convention to establish and operate two new funds related to the UN Framework Convention on Climate Change. By decision 7/CP.7 it decided to establish a Special Climate Change Fund¹⁰¹ and a Least Developed Countries Fund.¹⁰² By decision 10/CP.7 it also established a new fund related to the Kyoto Protocol (the Adaptation Fund) which would be financed by a ‘share of the proceeds’ of Clean Development Mechanism project activities, as envisaged by Article 12 of the Kyoto Protocol and by additional funding invited from those Annex 1 Parties intending to ratify the Protocol.¹⁰³ While COP7 did not provide full guidance on these funds, the COP Decision did lay down certain types of activities which might be financed by these funds.

8.1.1 *The Special Climate Change Fund*

This Fund will be available to finance activities, programmes and measures relating to climate change, in accordance with paragraph 2 of decision 7/CP.7, that are complementary to those funded by the resources allocated to the climate change focal area of the GEF and by bilateral and multilateral funding, in the following areas: (a) adaptation, in accordance with paragraph 8 of decision 5/CP.7; (b) transfer of technologies, in accordance with decision 4/CP.7; (c) energy, transport, industry, agriculture, forestry and waste management; (d) activities to assist developing country Parties referred to under Article 4, paragraph 8(h) (ie countries whose economies are highly dependent on income generated from the production, processing and export, and/or on consumption of fossil fuels and associated energy-intensive products) in diversifying their economies.¹⁰⁴

8.1.2 *Least Developed Countries Fund*

⁹⁸ *Summary of the negotiations on the Fourth Replenishment of the GEF Trust Fund*. Paper for the Third GEF Assembly, Cape Town, South Africa, August 2006 (GEF/A.3/6). A major aspect of the replenishment was the approval of a Resource Allocation Framework (RAF) that had been first raised at the second replenishment discussions, see further Freestone, n 28, 1099–1102.

⁹⁹ OPS 3 p. 30.

¹⁰⁰ *Ibid*, p. 4.

¹⁰¹ 7/CP.7, Para 2.

¹⁰² *Ibid*, Para 6.

¹⁰³ 10/CP.7, Para 2.

¹⁰⁴ In accordance with Decision 5/CP.7.

Initial guidance on the Least Developed Countries Fund was provided by decision 7/CP.7: (a) as a first step, to provide funding from the LDC Fund to meet the agreed full cost of preparing the National Adaptation Plans of Action (NAPAs), given that the preparation of NAPAs will help to build capacity for the preparation of national communications under Article 12, paragraph 1, of the Convention; (b) to ensure complementarity of funding between the LDC Fund and other funds with which the operating entity is entrusted; (c) to ensure separation of the LDC Fund from other funds with which the operating entity is entrusted; (d) to adopt simplified procedures and arrange for expedited access to the Fund by the least developed countries, while ensuring sound financial management; (e) to ensure transparency in all steps relating to the operation of the Fund; (f) to encourage the use of national and, where appropriate, regional experts; (g) to adopt streamlined procedures for the operation of the Fund.

8.1.3 Kyoto Protocol Adaptation Fund

In accordance with paragraph 1 of Decision 10/CP.7, the Kyoto Protocol Adaptation Fund is to finance concrete adaptation projects and programmes as well as the following activities identified in paragraph 8 of decision 5/CP.7: (a) starting to implement adaptation activities promptly where sufficient information is available to warrant such activities, *inter alia*, in the areas of water resources management, land management, agriculture, health, infrastructure development, fragile ecosystems, including mountainous ecosystems, and integrated coastal zone management; (b) improving the monitoring of diseases and vectors affected by climate change, and related forecasting and early-warning systems, and in this context improving disease control and prevention; (c) supporting capacity building, including institutional capacity, for preventive measures, planning, preparedness and management of disasters relating to climate change, including contingency planning, in particular, for droughts and floods in areas prone to extreme weather events; (d) strengthening existing and, where needed, establishing national and regional centers and information networks for rapid response to extreme weather events, utilizing information technology as much as possible.

8.2 Governance of the Climate Change Funds

However the main issues have not been with the mandate of these new funds but with their governance. After COP7 the Trustee and the Secretariat of the GEF proposed arrangements for the establishment and operation of these new funds.¹⁰⁵ These envisaged that the World Bank would act as Trustee for the three funds but that they would each be managed separately from the GEF Trust Fund. Mobilization of resources for these funds would also not be through the four-yearly GEF replenishment process but through a separate process managed by the Secretariat. It was also agreed that the operational policies and procedures and governance structure of the GEF would apply to these voluntary funds. These arrangements were reported to the 8th session of the Conference of the Parties (COP8) in New Delhi. Further guidance was provided by COP8 on the LDC Fund as a result of which the LDC Trust Fund was made operational and by spring of 2003 pledges in the order of US\$15 million were received from nine donors.¹⁰⁶

8.2.1 LDCF and SCCF

Since that time procedures have been established for the governance of the LDCF and the SCCF. The GEF Council meets as the LDCF/SCCF Council.¹⁰⁷ Any Council member is eligible to take part and participate or attend as an observer. Formal voting is, as normal, by consensus but in the event of a vote the normal GEF rule would be amended to require both 60% majority of GEF Participants represented at the LDCF/SCCF Council and 60% majority of the total contribution to such fund.¹⁰⁸

¹⁰⁵ GEF Sec prepared a paper for the May 2002 GEF Council Meeting, GEF/C.19/6, *Arrangements for the Establishment of the New Climate Change Funds*.

¹⁰⁶ For further details see: GEF/C.21/5/Rev.1. Operation of the LDC Trust Fund for Climate Change

¹⁰⁷ The first such meeting took place in December 2006. GEF, 'LDCF/SCCF Council Meeting, December 8, 2006' <<http://www.gefweb.org/interior.aspx?id=16718>> accessed 1 June 2009.

¹⁰⁸ As of November 2006 pledges to the LDCF stood at US\$115 million and to the SCCF at US\$ 37.7 million. *Status Report on the Climate Change Funds* (GEF/LDCF/SCCF.1/Inf.2/Rev. 1). Average portfolio size for the LDCF in 2009 is estimated at US\$114 million and US\$87 million for the SCCF

8.2.2 *The Adaptation Fund*

In the COP decision cited above,¹⁰⁹ the Conference of the Parties had decided that the Adaptation Fund should be operated by an entity entrusted with the financial mechanism of the Convention. It will be recalled that under the Kyoto Protocol Article 12(8) a 'share of the proceeds from certified emission reductions' under the Clean Development Mechanism shall be made available 'to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.' Hence this Fund is not intended to be primarily a donor fund—although donors may contribute to it. The COP felt therefore that a different governance structure was appropriate than that used by the GEF. The GEF Council did make a submission to the UNFCCC COP/MOP regarding possible Arrangements for the Management of the Adaptation Fund (AF).¹¹⁰ However in Bali it was decided to establish a separate governance structure with an Adaptation Fund Board chosen by the COP itself from among its members.¹¹¹ The Board met for the first time in March 2008 in Bonn. In the meantime the COP invited the GEF Secretariat to act as the secretariat 'on an interim basis' and the World Bank as Trustee—also on the same interim basis. A key role of the Trustee is the 'monetization' of the CERs allocated as the share of the proceeds of CDM projects. The World Bank made detailed proposals as to the way that it would handle this task, clearly defining its responsibilities and liabilities—these were accepted at COP14 in Poznan in December 2008.¹¹²

8.3 The World Bank Climate Investment Funds

After the World Bank/IMF Annual Meeting in the autumn of 2007, in the follow up to proposals from the Gleneagles G8 Summit in 2005, a number of donors, led by the United Kingdom began to talk to the World Bank about establishing a Climate Investment Fund. These proposals were formally approved by the World Bank's Board of Executive Directors on 1 July 2008 and in the following September pledges totaling nearly US\$6.2 billion were received from 10 donors.¹¹³ The funds, to be disbursed as grants, highly concessional loans, and/or risk mitigation instruments, are administered through all the multilateral development banks and the World Bank Group. The World Bank is the Trustee. There are two funds. The Clean Technology Fund will invest in projects and programs in developing countries that contribute to the demonstration, deployment, and transfer of low-carbon technologies. The projects or programs must have a significant potential for long-term greenhouse gas savings. The second fund, the Strategic Climate Fund, is broader and more flexible in scope. It will serve as an overarching fund for various programs to test innovative approaches to climate change. The first program under this fund is a pilot aimed at increasing climate resilience in developing countries. A Forest Investment Program and a Scaling-Up Renewable Energy Program are also expected to be created during 2009.

<http://www.gefweb.org/uploadedFiles/Documents/LDCFSCCF_Council_Documents/LDCFSCCF6_June_2009/LDCF.SCCF.6.5.pdf>, accessed 1 June 2009.

¹⁰⁹ Decision 10/CP.7.

¹¹⁰ Submission of the Global Environment Facility (GEF) on Possible Arrangements for the Management of the Adaptation Fund. GEF/C.29/Inf.2. 8 August 2006.

¹¹¹ Decision 5/CMP.2. The Board's composition would be: two from each of five UN regions; one from the Small Island Developing States (SIDS); one from the LDCs; two from Annex 1 Parties; and two from non-Annex I Parties. See also Adaptation Fund, 'Meetings' <<http://www.adaptation-fund.org/meetings.html>>, accessed 9 April 2009.

¹¹² See Decision 1/CMP.4. Adaptation Fund (Addendum) Annex III at p. 14 see <<http://unfccc.int/resource/docs/2008/cmp4/eng/11a02.pdf>>, accessed 20 July 2009

¹¹³ Australia, France, Germany, Japan, The Netherlands, Norway, Sweden, Switzerland, the United Kingdom, and the United States. For details see The World Bank, 'Donor Nations Pledge Over \$6.1 Billion to Climate Investment Funds' (26 September 2008) <<http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:21916602~pagePK:34370~piPK:34424~theSitePK:4607,00.html>>, accessed 9 April 2009

In creating the funds, and in support of the Bali Action Plan, participants took care to recognize the primacy of the UNFCCC global climate negotiations, and to support those negotiations. All funds and programs under the CIF have a sunset clause in order not to prejudice UNFCCC deliberations regarding the future of the climate change regime. The design of the funds ensures that developing countries have an equal voice in the governance structures of the funds, and decisions on the use of funds are to be made by consensus. An annual Partnership Forum will be held to provide a venue for talks on the strategic directions, results, and impacts of the CIF, as well as provide a platform to share lessons learned as widely as possible.

9. The Bali Roadmap

The most important outcome of the Bali COP in December 2007 was the approval of the Bali Action Plan.¹¹⁴ This Action Plan includes the so-called ‘roadmap’ for the forthcoming negotiations which will aim to develop by 2009 a legal instrument to replace the obligations of the 1997 Kyoto Protocol when its commitment period expires in 2012, and which are due to culminate at the COP15 meeting in Copenhagen in December 2009. The ‘roadmap’ is of particular importance in that the UNFCCC Parties agreed to consider ‘measurable, reportable and verifiable nationally appropriate mitigation actions’ for *all* parties (including developing country parties), although developed country parties also agree to consider ‘commitments, . . . including quantified emission limitation and reduction objectives’.

Unlike the Berlin Mandate—which only referred to Annex I countries and only considered quantified emission limitation and reduction objectives (so-called QELROs)—the agenda mapped out by Bali is potentially much wider. A whole range of issues must be on the table. Since Kyoto, the emission of a number of middle income non-Annex I countries have increased steeply—notably China (which some reports suggest has overtaken the US as the biggest GHG emitter), India, and Brazil. While there is strong resistance among such countries to taking on the same sort of targets as Annex I countries assumed at Kyoto, there are a range of other options which are discussed in a number of the following chapters. Rather than economy-wide targets, for example, which do seem set to continue for Annex I countries, it might be possible that middle income countries agree to adopt sectoral ‘no-lose’ targets. These would not necessarily carry sanctions for non-compliance but would facilitate the inflow of investment and technology. These might relate to specific sectors such as, for example, the electricity generation or transmission sector, or for emission intensive industries such as cement or aluminium, or even for transportation. These agreements could be part of a global package or be linked perhaps to separate technology transfer agreements ‘off-line’ from the main negotiation.¹¹⁵ In addition as the agenda moves towards a more comprehensive emissions framework, significant non-covered sectors—such as aviation or maritime bunker fuels—need to be brought somehow within the negotiations.¹¹⁶

Bali makes it clear that for Annex I countries increased quantified limitation and reduction objectives (QELROs) are still definitely on the table. In order to prepare for these obligations a number of Annex I countries are implementing or (as with the case of the EU) enhancing existing, carbon trading schemes. The growth of regional and national emission trading schemes is dealt with in the following chapters covering the EU,¹¹⁷ Australia,¹¹⁸ Canada,¹¹⁹ and China,¹²⁰ as is the preparatory work which has started to bring the US into the global system. The incoming Obama administration has signalled that the US will adopt a cap-and-trade system, but important aspects of this are being worked out.¹²¹ At the same time the future of the Kyoto

¹¹⁴ Decision 1/CP.13.

¹¹⁵ As Ward explains in chapter 24.

¹¹⁶ Aviation is discussed by Chagas and Clarke in chapter 28.

¹¹⁷ See Pohlmann, chapter 16 and Ghaleigh, chapter 17.

¹¹⁸ Wilder and Fitz-Gerald, chapter 20.

¹¹⁹ Taylor and Barrett, chapter 21.

¹²⁰ Tung, chapter 22.

¹²¹ Explored by LaMotte, Williamson and Hopkins, chapter 18 and Danish, chapter 19.

Mechanisms is also under discussion. What would be the future for the Clean Development Mechanism in a world where more countries have targets—even ‘no-lose’ ones? Given the substantial achievement of the CDM in mobilizing resources for sustainable development, it is possible to have a vision for the CDM after 2012¹²²—even if as a minimum if were to be only for the poorest and smallest countries, as the European Commission has suggested. Joint Implementation, which has until recently been the ‘wallflower’ of the Kyoto Mechanisms, is beginning to take off.¹²³ In a post-2012 world project-based investments between countries with economy-wide or even sectoral targets may have an important role to play in the future. All these issues are covered in detail in the following chapters.

Another new agenda for Copenhagen is also set out in the Bali Action Plan which commits the parties to consider:

- (iii) Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries;¹²⁴

Although agriculture, forestry and other land use (AFOLU) accounts for some 20% of the total amount of carbon which exists on the planet, it was nevertheless decided at Marrakech that only reforestation and afforestation projects would be eligible for consideration under the CDM—and indeed to date only two such projects have been approved by the CDM Executive Board.¹²⁵ In 2005 at COP11, Papua New Guinea and Costa Rica—with support from a number of important forested countries—first put forward a formal proposal to include the crediting of benefits from avoiding further deforestation. The 2007 Stern Review identified avoided deforestation as the cheapest option to mitigate increases in emissions of greenhouse gases. Sophisticated monitoring mechanisms—often involving satellite surveillance—need to be put into place and effective compensation systems devised to encourage governments and their nationals to stop cutting down trees.¹²⁶

10. Conclusions

This chapter has sought to provide an introduction to the UNFCCC system and the key institutions as well as to the processes leading up to, and from, the adoption of the Kyoto Protocol. It has aimed to introduce some of the key concepts that will be further developed in later chapters. With the release of the IPCC Fourth Assessment Report it is clear that radical action needs to be taken to avoid dangerous climate change. The Stern Review forcefully reminds us that early, radical action in reducing emissions of GHGs is also the most economically sensible approach. At the Copenhagen summit UNFCCC parties will be negotiating the sorts of major commitments that need to be made to address seriously the challenge of climate change. Stern suggests that action within the next 10–15 years to keep carbon concentrations under that critical level could cost 1% of global product—ie some US\$3.5 trillion a year. Although discussion of the new Global Climate Fund is ongoing, it is unfortunately clear from the experience of the GEF that public sector financing—through government donors—is unlikely by itself to generate the level of resources that are necessary. Among the alternative or additional approaches, by contrast, carbon trading—worth more than US\$120 billion in 2008—can, if well managed, provide access to huge resources from the private sector that will be necessary to meet this challenge. The objective of the rest of this volume is explain the way that these markets can be put to work in the global effort to lower GHG emissions, decarbonize our economies, and to achieve truly sustainable development.

¹²² As Figueres and Streck point out in chapter 26.

¹²³ See Hoogzaad and Streck, chapter 8 and Hobley and Roberts, chapter 9.

¹²⁴ n 113 above, para 1(b)(iii).

¹²⁵ As we see from Pohlmann, chapter 16, the EU ETS does not currently count ERs from sequestration projects at all.

¹²⁶ For a full discussion, see O’Sullivan and Saines, chapter 27.