chapter two

The International Regime

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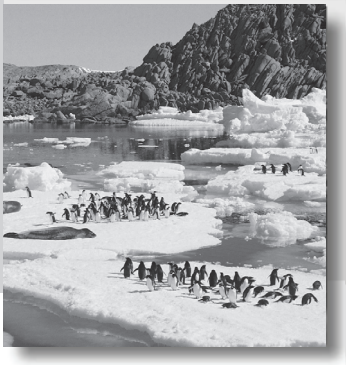
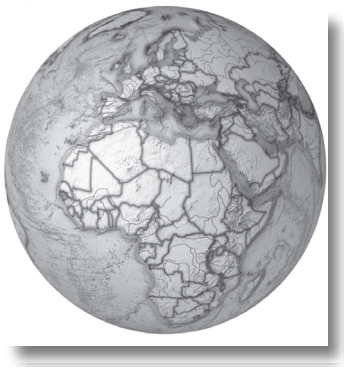




I. Introduction

Efforts to construct an international regime to address global climate change have been under way since 1990. A high water mark in the evolution of this regime was the entry into force in February 2005 of the Kyoto Protocol to the United Nations Framework Convention on Climate Change.[1] However, the Kyoto Protocol will not be the final word on the issue. Its emission limits cover only a fraction of the world's greenhouse gas emissions and those limits expire in 2012.

The current international climate change regime comprises a network of agreements and mechanisms.[2] Some of these agreements are "nested" in the sense that one unfolds from another. For example, the Kyoto Protocol is an outgrowth of and is formally linked to the United Nations Framework Convention on Climate Change.[3] The United States is a party to the Framework Convention, but opted not to join to the Protocol. The European Union Emissions Trading Scheme is a part of the European Union's strategy for compliance with the Kyoto Protocol, but could continue to exist after the expiration of the Protocol's 2008-2012 "commitment period." Standing parallel to these initiatives is the Asia-Pacific Partnership on Clean Development and Climate, which is a multilateral, not legally binding program. The Asia-Pacific Partnership is not formally linked to the Framework Convention or to the Protocol.

Addressing climate change presents unique challenges for international law, which already is complicated to negotiate and difficult to enforce. The climate change issue has a truly global reach, exceeding the ability of any one country to fully address. Ultimately, mitigating climate change risks will require engagement of the major countries of the developing world. While industrialized countries bear a greater historical responsibility, annual emissions from developing countries are expected to start exceeding those of industrialized countries within the next two decades.[4] Yet, different

countries place very different priorities on the issue, and climate change raises complicated issues of equity.

The success of international efforts to address environmental issues such as depletion of atmospheric ozone have turned out to have only modest precedental value for climate change, in no small part because of the far greater impact of climate policies on national economies. While ozone-related laws and policies affect a rather specialized industry, climate policies potentially reach all activities that burn fossil fuels and therefore go to the heart of each country's economy. Governments are understandably cautious about making commitments to limit greenhouse gas emissions and sensitive as to whether their trade competitors will commit to undertake comparable efforts.

Climate change presents other challenges for international cooperation. The nature of the issue is such that it will require a very long-term response under conditions of scientific uncertainty. Yet, countries have varying capacities to administer policies and have different views on what are appropriate policies in the first instance. For example, some governments, such as the U.S. administration of President George W. Bush, have questioned the emissions "cap" approach of the Kyoto Protocol and have advocated technology promotion and transfer policies as an alternative. The United States has opted not to be a party to the Protocol, and the possibility that the United States will join the Protocol before 2012 is increasingly remote irrespective of the party that occupies the Oval Office.

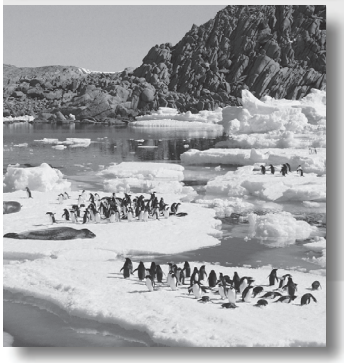
These challenges aside, the Kyoto Protocol has broken new ground in international law. The Protocol has spawned an international market in emissions trading, which generated upwards of $10 billion in transactions in 2005.[5] It also has a more robust compliance system than most other international agreements.

The long-term evolution of the Protocol, however, remains in question. The "first commitment period" of the Protocol expires in 2012 and it is unclear what will follow. A vigorous international discussion is under way about what kind of international climate change policy architecture can accommodate the United States and major developing-country emitters, especially China and India.

This chapter will provide an overview of the different treaties, rules, and institutions that constitute the existing international climate change regime, including a review of the negotiating history that has brought the regime to it current status. The chapter also will look ahead, outlining some of the proposals for international cooperation to address climate change "beyond Kyoto."

II. The United Nations Framework Convention on Climate Change

The foundation for the international climate change regime is the United Nations Framework Convention on Climate Change, a treaty with practically global participation by governments. The Framework Convention was the first chapter in the evolution of the regime and has served as a kind of constitution-like document guiding intergovernmen-



tal cooperation on climate change. The Kyoto Protocol is a direct and formal outgrowth of the Framework Convention.

A. Negotiating History

Outlining the history of the Framework Convention also provides an opportunity to introduce an influential institution in the evolution of the international climate change regime: the Intergovernmental Panel on Climate Change (IPCC). Formed in 1988 by the World Meteorological Organization and the United Nations Environment Programme, the mission of the IPCC has been to convene scientists and other experts to publish reports assessing the state of the science on climate change, as well as to evaluate climate change–related economic, technical, and other issues. The IPCC has issued three comprehensive "Assessment Reports" since its establishment. The IPCC's First Assessment Report, published in 1990, identified significant uncertainties about climate change, but characterized the phenomenon as a matter of substantial international concern.[6] Later in the same year, the United Nations General Assembly initiated negotiations on what later became the Framework Convention.

The Framework Convention provides that the "ultimate objective" is . . . "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system."

The Framework Convention was opened for signature at the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, also known as the "Earth Summit." It garnered a sufficient number of ratifications to enter into force in 1994 and now has 189 parties, including the United States.[7]

B. Structure and Objective

The Framework Convention does not establish binding limits on GHG emissions for any countries. Rather, true to its name, it forms a framework for further action and cooperation on the issue of climate change. This framework comprises principles, information requirements, and institutions. In this way, the Framework Convention has served as a kind of constitution for international action on climate change.[8]

The Framework Convention provides that the "ultimate objective" of the treaty and any of its "related legal instruments," which include the Kyoto Protocol, is "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system." This objective is notably general; it does not identify a particular quantitative goal.

C. Principles

Article 3 of the Framework Convention sets forth a series of guiding "principles" that have provided important signposts and negotiating points in further discussions and negotiations. A number of these principles attempt to balance the aims of environmental protection and economic development. They also address the general division of burdens between developed and developing country parties.

One of the Article 3 principles is the so-called "precautionary principle," which provides that where there are "threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing [precautionary] measures."[9] However, such measures should be "cost-effective so as to ensure global benefits at the lowest cost."[10] Furthermore, the parties have a "right to, and should promote sustainable development," taking into account "that economic development is essential for adopting measures to address climate change."[11]

A fundamental and recurring theme in the Framework Convention is that developed and developing country parties have "common but differentiated responsibilities and respective capabilities."[12] The Framework Convention generally reflects a view that developed countries bear a greater historical responsibility for the accumulation of greenhouse gas emissions and have greater capacity to take action. For this reason, a critical principle of the Framework Convention is that "the developed country Parties should take the lead in combating climate change and the adverse effects thereof."[13]

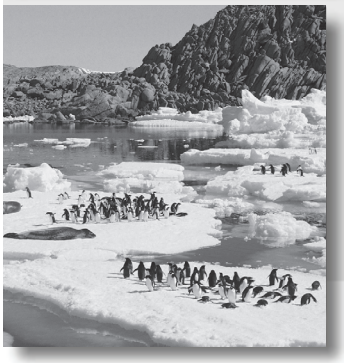
Furthermore, the parties are to give "full consideration" to the "specific needs and special circumstances of developing country parties, especially those that are particularly vulnerable to the adverse effects of climate change."[14]

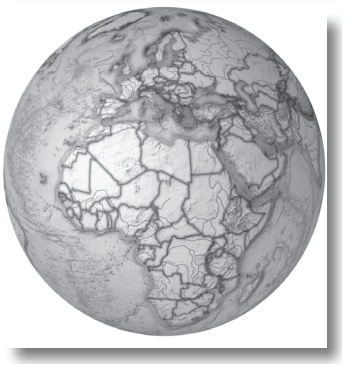
D. Commitments

Consistent with these principles, the Framework Convention divides the parties into two main groups: the Annex I countries, which comprise primarily developed countries, and the non-Annex I countries, which comprise primarily developing countries.[15] In setting forth commitments under the treaty, the Framework Convention makes certain commitments general to all parties, but also assigns certain additional commitments to the Annex I parties.

Thus, the Framework Convention provides that all parties will develop and submit national inventories of emissions by sources and removals by sinks,[16] implement national plans that include measures to mitigate climate change,[17] promote and cooperate in technology transfer,[18] and promote and cooperate in scientific research on climate change.[19] Each party is required to submit "national communications" reporting on its progress in meeting these various commitments.[20]

However, the Framework Convention also outlines certain commitments only for "developed countries and other Parties included in Annex I." The European Union and certain other parties had pressed to establish a binding emissions limit for the Annex I countries. In the face of resistance from the United States and others, the resulting commitment for Annex I parties became more hortatory in character. Article 4.2 obliges





Annex I parties to adopt national policies to mitigate climate change and to report on the progress of these policies "with the aim of" returning emissions to their 1990 levels.[21] This became a "soft" commitment; it was neither enforced nor, for the most part, achieved. The 1990 emissions "baseline," however, would become a touchstone for development of binding emissions limits under the Kyoto Protocol.

The Convention also states that the extent to which developing-country parties effectively implement their commitments will depend on the level of assistance from developed countries.[22] To this end, the Convention obliges developed countries to provide new and additional financial resources to developing countries,[23] to assist "particularly vulnerable" developing countries with costs of adaptation,[24] and to transfer mitigation technologies to developing countries.[25]

E. Institutions

The Framework Convention establishes a set of institutions to govern further cooperation among the parties. The most important of these institutions is the "Conference of the Parties" or "COP." A kind of super-legislature for the climate change regime, the COP consists of all of the governments that are parties to the Framework Convention. It has responsibilities for reviewing implementation of the Framework Convention, receiving information submitted by the parties, and considering the need for new measures or commitments.[26] In particular, article 4.2 obliges the COP to review at its first meeting the "adequacy" of the Convention. The COP also can adopt amendments or new protocols to the Framework Convention.[27]

With the exception of procedures for amendments or protocols, the parties have never developed particular voting rules for the COP. Accordingly, the COP generally acts on a consensus basis.

The COP convenes annually in numbered meetings; the inaugural meeting was "COP-1," held in Berlin. A professional staff supports the COP. Referred to as the Framework Convention "secretariat," this staff has its offices in Bonn, Germany.[28]

The COP has two subcommittees, the Subsidiary Body on Scientific and Technical Implementation (SBSTA) and the Subsidiary Body on Implementation.[29] The former has responsibility for providing the COP with information on scientific and technical matters related to the Framework Convention; the latter assists the COP with assessment and review of implementation of the Framework Convention. In addition to these COP-related institutions, the Convention designates a "financial mechanism" to assist in transfer of financial resources from developed to developing countries.[30]

To date, the Global Environment Facility—an agency managed jointly by the United Nations Environment Programme, the United Nations Development Programme, and the World Bank—has served as the Convention's financial mechanism.

III. The Kyoto Protocol

The Kyoto Protocol is the current apogee of international efforts to address global climate change and a significant milestone in the evolution of international environmental law generally.

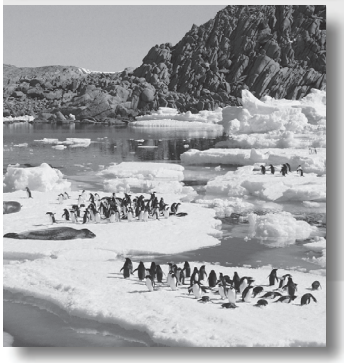
A. Negotiating History

The origins of the Kyoto Protocol can be found in COP-1 in Berlin in 1995. At that meeting, the parties to the Framework Convention collectively determined that a more forceful international response to the threat of climate change was needed.[31] This determination led to the "Berlin Mandate," a commitment to develop a protocol with binding emission limits.[32] Consistent with the principle of "common but differentiated responsibilities," it was agreed that such limits should apply only to the developed-country parties.

Subsequent negotiations resulted in the Kyoto Protocol, which was adopted by the parties at COP-3 at Kyoto in 1997. The Protocol outlined emission limits for the Convention's Annex I parties and described a series of "mechanisms" to promote compliance with those limits. However, it was also agreed that many key details about the Protocol had yet to be resolved. Accordingly, negotiations continued on a more elaborated "rulebook" for the Protocol. At COP-4, held in Buenos Aires, the parties adopted a "Plan of Action" to guide further discussions on the development of the Kyoto rulebook.

During this period of discussions, the United States government was negotiating under a cloud of uncertainty. Around the time of the Kyoto meetings in 1997, the U.S. Senate had passed a near-unanimous resolution directing the government not to enter into any protocols or other agreements under the Convention that would "mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period."[33]

Negotiations surrounding the Protocol reached a crisis point at COP-6, which was held in November 2000 in The Hague. After nearly reaching a compromise, the negotiations collapsed. A key point of division was the issue of how to account for emission removals resulting from forestry. The European Union opposed a formulation proposed by the United States and certain other countries. In the view of the European Union, the U.S. proposal allowed the United States and other countries with significant forestland to credit themselves too much for removals that would occur merely from natural growth—that is, without additional effort.



The collapse of negotiations in The Hague was followed by the election of George W. Bush. The Bush Administration quickly repudiated the Protocol, asserting that it "fails to establish a long-term goal based on science, poses serious and unnecessary risks to the United States and world economies, and is ineffective in addressing climate change because it excludes major parts of the world."[34]

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The exit of the United States from the Protocol created a crisis in the negotiations because the Protocol rules for entry into force were designed to privilege the position of the United States and Russia. Article 25 of the Protocol provides that the Protocol can enter into force only if it is ratified by not less than 55 parties to the Convention, incorporating Annex I parties accounting for at least 55 percent of the total carbon dioxide emissions in 1990 of Annex I parties. In effect, this formula allowed the Protocol to enter into force only if the United States or Russia (or both) ratified—and if practically all other Annex I countries ratified. The United States' repudiation (followed by Australia) meant that Russia became the keystone for the Protocol's entry into force.

In the end, continued negotiations through the restarted COP-6 in Bonn—referred to as "COP-6*bis*"—and COP-7 in Marrakesh allowed the Protocol to reach the finish line. Negotiations at COP-7 in 2001 produced the "Marrakesh Accords," the detailed rulebook that provides flesh to the skeletal structure of the Protocol. The Marrakesh Accords elaborated key procedures and rules for the trading mechanisms, the compliance systems, and other key elements of the Protocol, thereby setting the stage for ratifications.

The Protocol finally received a sufficient number of ratifications to enter into force in February 2005 after Russia ratified. November of that same year saw a parallel session of the COP (COP-11) and the first meeting of Parties to the Protocol (COP/MOP-1).

B. Overview of the Protocol's Structure

The Protocol sets forth binding emission limits for its developed-country parties for the period 2008–2012. Parties effectively have full discretion in developing national measures to meet their limits. Furthermore, they can take advantage of certain "flexible mechanisms," which offer market-based approaches for achieving emission reductions across borders. The Protocol is buttressed by a compliance system that combines facilitative systems with harder enforcement mechanisms.

In most instances, references to rules and guidelines under the "Protocol" should be read as references to a body of rules and guidelines that includes the Protocol and the Marrakesh Accords. A detailed rulebook, the Marrakesh Accords embodies the COP's further decisions and elaborations of the Protocol.

The Protocol also has added a new body to the institutional infrastructure of the climate change regime: the "Conference of the Parties serving as the meeting of Parties to the Protocol" or COP/MOP. Until the Protocol entered into force in 2005, the COP made critical binding decisions to elaborate the modalities of the Protocol; now the COP/MOP will serve as the supreme governing body for the Protocol.

As a non-party, the United States has no obligations under the Protocol, nor does it participate in the COP/MOP.

C. Emission Limits

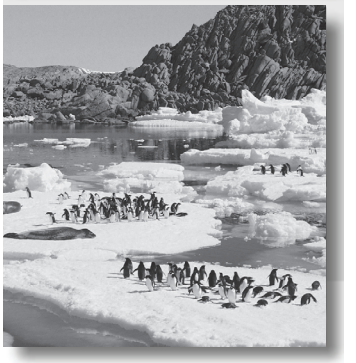
The central element of the Protocol is its binding quantified emission limitation and reduction commitments, which are established by Article 3 and inscribed in Annex B. These Article 3 commitments apply, for the most part, only to those parties to the Protocol that are Annex I parties under the Framework Convention.[35] The commitments vary on a party-by-party basis.

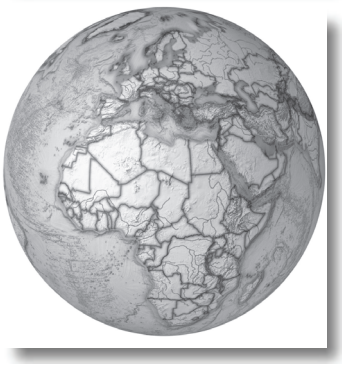
The commitments are calculated—with some variations—with reference to each party's 1990 emissions level. Each Annex I party must meet its commitment as an annual average during the period 2008–2012, which is referred to as the "first commitment period." For example, Japan agreed to limit its annual average emissions during 2008–2012 to a level that is 6% below its 1990 emissions. This corresponds to a certain amount of total allowable emissions for the first commitment period, which is referred to as Japan's "Assigned Amount." Collectively, the Assigned Amounts of the Annex I parties correspond to a 5.2% reduction below their 1990 emissions levels.

D. Basket of Greenhouse Gases

Each Annex I party's commitment applies on the basis of a "basket" of six GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).[36] The Intergovernmental Panel on Climate Change has determined the global warming potential of each of these types of GHGs relative to carbon dioxide.[37] Adopting this approach, the Protocol expresses each party's limit in the form of a certain amount of "carbon dioxide equivalent" tons of GHG emissions. In addition, for HFCs, PFCs, and SF_6, the Protocol allows the use of 1995 as a base year, which has the effect of easing the stringency of requirements for those GHGs because, for most countries, emissions of those GHGs were higher in 1995 than in 1990.[38]

As a whole, the "basket" approach allows each Annex I party a degree of flexibility in determining a cost-effective combination of reductions of different types of GHGs.





E. Consideration of Russia and Economies in Transition

The Protocol provides former Soviet-bloc countries, referred to in the treaty as parties "undergoing the process of transition to a market economy," with certain additional flexibility. Under certain circumstances, these parties may use a base period other than 1990 for their emission commitments.[39]

Russia also has a significant and somewhat controversial accommodation under the Protocol. Russia's Annex B commitment limits the country to its emissions level in 1990. However, because of the collapse of the Russian economy in the 1990s, the country's emissions are below its 1990 level and are projected to stay below that level through 2012. Accordingly, Russia has significant headroom between its projected emissions and its Assigned Amount. This headroom not only eases Russia's compliance burden, but also—because of the Protocol's emissions trading mechanisms—provides Russia with a potential surplus of credits it can trade to others and therefore a likely financial windfall. The Russian surplus, among other concessions, was critical to securing the country's participation in the Protocol. However, some critics refer to the surplus as "hot air," deriding the arrangement as effectively watering down the overall environmental effectiveness of the treaty. They note that Annex I countries can avoid implementing "real" emission reductions in their own countries by purchasing surplus credits from Russia, but because those credits would not result from "new" emission reductions, the net effect would be to reduce the amount of reductions that would occur otherwise.[40]

F. Commitment Period Approach

One of the elements of the treaty designed to provide for cost-effective compliance is the commitment period approach. Instead of a single fixed-year limit, the Protocol's emission commitments apply as an annual average to be achieved over a five-year period. This approach responds to the concern that a country's GHG emissions could rise or fall in any particular year because of difficult-to-control factors. Carbon dioxide emissions, for example, come from sources throughout a country's energy sector and therefore are sensitive to the level of overall economic activity and the vagaries of business cycle. Similarly, annual fluctuations in weather could affect the extent to which a country operates its power plants, with resulting fluctuations in emissions. The commitment period approach makes a government's efforts to mitigate its emissions less vulnerable to such factors.

G. European Union "Bubble"

Article 4 of the Protocol provides that two or more Annex I parties may agree to fulfill their Article 3 commitments jointly, in which case they become subject to a summed Assigned Amount, rather than their individual commitments. The European Union opted to take advantage of this provision, replacing each member state's Annex B commitment with a collective commitment. The European Union (EU) separately negotiated a burden-sharing agreement that re-distributes the emission commitments under the Protocol among the EU member states.[41]

Under the EU burden-sharing agreement, member states with relatively fast-growing economies have relatively more lenient emissions commitments. For example, Ireland and Spain are permitted to increase their emissions from 1990 levels by 15% and 27% respectively; by comparison, each is required under the Protocol to reduce its emissions 8% below 1990 levels.[42] Germany, on the other hand, has agreed to reduce its emissions 21% below 1990 levels under the burden-sharing agreement, as compared to 8% under the Protocol.

H. Accounting for Land Use, Land Use Change, and Forestry

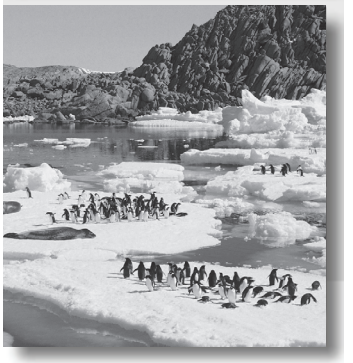
Forests store substantial amounts of carbon; they are significant "sinks." Activities that lead to deforestation, or even clearing of agricultural land and disturbance of soils, result in substantial releases of carbon dioxide. For these reasons, issues related to land use, land use change, and forestry—or "LULUCF" in the parlance of Protocol negotiators—have been a significant topic of discussion at the COPs.

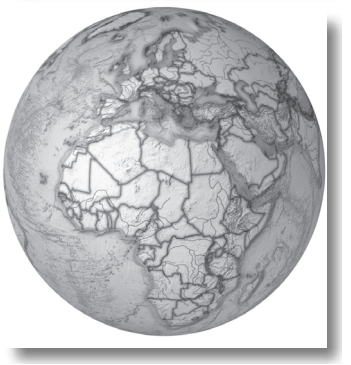
Notwithstanding the general benefits of focusing on LULUCF for purposes of climate change mitigation, LULUCF has been a controversial and complicated area for at least two reasons. First, data on emissions and removals associated with LULUCF activities—particularly forest conservation and agriculture-based activities—are less certain and reliable than the data associated with industrial and power generation activities.

Second, most LULUCF activities have a distinct characteristic of "non-permanence." While activities that reduce emissions in the energy sectors effectively reduce those emissions indefinitely, emissions reduced or sequestered through LULUCF activities are reversible; a planted forest can be cut or burned down. Policies addressing LULUCF activities necessarily must account for this reversibility risk.

Third, some governments and NGOs hold the view that LULUCF activities distract from the kinds of investments in cleaner energy technologies that ultimately will be needed to address climate change. The European Union, for example, opposed the efforts of Canada, Russia, Australia, and the United States (when it was an active participant in the negotiations) to rely on management of their substantial forestland—or merely the natural growth of those forests—to meet their commitments.

The Protocol and the Marrakesh Accords embody a complicated set of compromises on these issues. First, the Protocol provides that, in meeting their Article 3 commitments, Annex I countries may only take into account a finite set of relatively easily-





measured activities: "net changes in greenhouse gas emissions by sources and removals by sinks resulting from direct human-induced land-use change and forestry activities, limited to afforestation, reforestation, and deforestation since 1990."[43] The Protocol did not resolve whether forest management activities other than afforestation and reforestation could count. The Protocol also left open the treatment of agricultural activities, including revegetation, cropland management, and grazing-land management.

At COP-6*bis* in Bonn, the Kyoto parties further expanded, albeit subject to limits, the categories of LULUCF activities that could be used to fulfill an Annex I party's commitment. The Bonn decisions allowed an Annex I party, at its option, to take into account agricultural LULUCF activities, provided that the activities are "human-induced," were implemented after 1990, and achieve net sequestration benefits. An Annex I party also may opt to use forest management under similar limits, except that the Bonn agreement capped forest management at a level of approximately 83 million tons of carbon annually and established a formula for apportioning the rights to these tons to Annex I parties (other than the United States). During the negotiation of the Marrakesh Accords, Russia obtained a near doubling of its forest management apportionment, a concession that may have been needed to secure its ratification and the entry into force of the Protocol.[44]

Annex I parties that opt to use LULUCF activities to meet their commitments must issue certain credits for tons sequestered by these activities, referred to as Removal Units or RMUs. Annex I parties may add RMUs to their Assigned Amount or trade them through the Kyoto flexible mechanisms. However, the Marrakesh Accords prohibit the banking of surplus RMUs for future commitment periods.[45]

Finally, the parties established certain limits to LULUCF-related projects under the Clean Development Mechanism. These are outlined in greater detail in the discussion of the Clean Development Mechanism on page 44.

I. National Policies and Measures

Central to the Protocol's structure is an understanding that Annex I parties are free to determine what combination of policies and measures they will develop to meet their quantified commitments. During the negotiations surrounding the Protocol, the governments debated whether the treaty should prescribe particular national policies. The final document, however, leaves national policies largely to the discretion of the parties. Article 2.1 provides that each Annex I party, in meeting its Article 3 commitment,

shall "implement and/or further elaborate policies and measures in accordance with its national circumstances." It goes on to delineate a list of preferred examples of such policies, including enhancement of energy efficiency, enhancement of sinks and reservoirs of GHGs, and increased use of renewable energy. In all, however, Article 2 is more hortatory than obligatory in form.

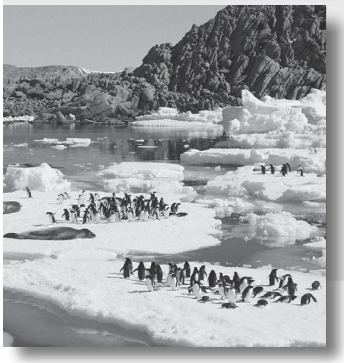
J. The Flexible Mechanisms[46]

Perhaps the most important international environmental law innovation of the Kyoto Protocol is its establishment and significant reliance on market-based instruments, often referred to as the "flexible mechanisms." These mechanisms are the Article 17 International Emissions Trading system, Article 6 Joint Implementation, and the Article 12 Clean Development Mechanism. Each provides a pathway through which an Annex I government, and entities regulated by that government, can meet the Article 3 commitments by investing in emission reduction or sequestration opportunities in other countries. As explained below, the accounting mechanisms of the Protocol allow Annex I parties to add credits acquired through the flexible mechanisms to their Assigned Amounts and thereby use them to offset their emissions. Detailed rules for the flexible mechanisms can be found in the Marrakesh Accords.

Perhaps the most important international environmental law innovation of the Kyoto Protocol is its establishment and significant reliance on market-based instruments, often referred to as the "flexible mechanisms."

The rationale for the flexible mechanisms is straightforward. All emissions of GHG have an identical impact on the atmosphere regardless of their source; in other words, a ton of carbon dioxide emitted from the clearing of a forest in Ghana has the same impact as a ton of carbon dioxide emitted from a power plant in Germany. On other hand, the cost of achieving emission reductions varies substantially from country to country. In particular, mitigation costs are in many instances lower in developing countries. The three flexible mechanisms exploit these characteristics of the climate change issue by providing what has been referred to as "where" flexibility. In theory, an environmental program with "where" flexibility can ensure that reductions will be implemented wherever they can be achieved at lowest cost, achieving an effect that approximates a situation in which the world were governed by a single omniscient policy maker.

It is important to recognize that, in addition to the flexible mechanisms, the Protocol has other features and mechanisms that promote other kinds of flexibility and cost-effectiveness. For example, the Protocol also provides "what" flexibility. As discussed above, it does not prescribe what types of measures Annex I governments must adopt to meet their commitments, but rather allows them to use their discretion. This "what" flexibility promotes cost-effectiveness in that different countries will find that different combinations of, for example, renewable energy programs or energy-efficiency measures will make more sense under their individual national circumstances. Similarly,



the "basket" approach for the various types of GHGs allows, for example, a country with a sizable industry in HFCs to focus a relatively greater portion of its mitigation efforts in that area.

The Protocol also provides for temporal or "when" flexibility, which also promotes cost-effectiveness. One element of the Protocol's "when" flexibility is the commitment period approach, which allows Annex I parties to manage the timing of their mitigation efforts. With the commitment period approach, for example, a party can adopt a compliance strategy in which it invests in emission reduction technologies and projects at the beginning of the period that pay off in lower emissions at the end of the period.

Another element of "when" flexibility embodied in the Protocol is the ability of Annex I parties to "bank" surplus Assigned Amount. Article 3.13 provides that if an Annex I party's Assigned Amount exceeds its emissions at the end of the first commitment period, it may carry over the additional Assigned Amount to a subsequent commitment period.[47]

1. Article 17 International Emissions Trading

As discussed above, each Annex I party's Article 3 commitment translates into an "Assigned Amount," an allowable amount of GHG emissions over the five-year commitment period. The Protocol further provides that a party's Assigned Amount can be subdivided into "Assigned Amount Units" or AAUs, with each AAU corresponding to the right to emit one carbon dioxide equivalent ton of GHG emissions. Article 17 directs the COP to develop rules under which parties with commitments under Annex B can trade AAUs with one another. The rules for Article 17 international emissions trading are elaborated in the Marrakesh Accords.[48]

The Article 17 trading system is very similar to the Sulfur Dioxide Emissions Program established under Title IV of the Clean Air Act.[49] Under each program, the regulated entities are required to hold certain permits to cover their emissions. Under the Protocol, the regulated entities are national governments, while the Title IV system regulates power plants. Under the Protocol, the permits are AAUs; the Title IV system uses "allowances." Each program allocates a certain amount of permits to its regulated entities and allows the entities to trade them freely.

The concept of emissions trading was controversial during the Protocol's negotiations. Some countries, particularly the member states of the European Union, viewed trading with skepticism. This skepticism is reflected in the provision in Article 17 that states that any trading "shall be supplemental to domestic actions" for the purpose of meeting Article 3 commitments. Elaborating this "supplementarity" requirement became a recurrent focus of post-Kyoto negotiations. For some time, the European Union

pushed for a quantitative limit on the extent to which a party could rely on trading. Ultimately, however, the parties to the Protocol rejected such an approach. Now, the supplementarity concept remains more as an exhortation not to rely exclusively on emissions trading, rather than an obligatory limit.[50]

Another concern identified during the Protocol negotiations was that the Article 17 system could create a risk of "overselling." Because Annex I parties would have their full allotment of AAUs from the very beginning of the commitment period, a party might sell off in the early years of the commitment period AAUs that it ultimately would need for compliance purposes at the end of the period. Such overselling could result from good-faith mismanagement or by bad-faith rent seeking. In any event, it was far from certain that the Protocol's compliance system could prevent such overselling, both because the mechanisms for gathering information on a party's emissions would lag behind selling activity and because the penalties for noncompliance might not be great enough to exceed the potential financial gains from overselling.[51]

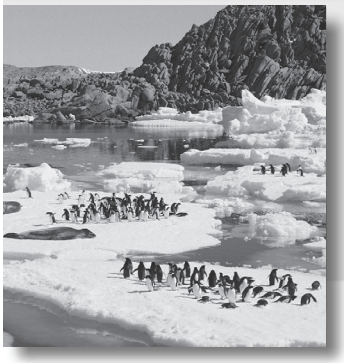
For these reasons, the Bonn agreements established a requirement that each Annex I party hold onto a portion of its AAUs in a "commitment period" reserve. The required portion is the lower of 90 percent of a party's Assigned Amount or the equivalent of five times its most recent annual emissions inventory (which reflects the view that the most recent inventory is a reasonable if conservative predictor of actual emissions during the commitment period).[52] The Marrakesh Accords provide that an Annex I party may not engage in trades that would bring its holdings of AAUs or other Kyoto credits below the level of the commitment period reserve. The result is that most countries cannot trade more than 10 percent of their Assigned Amounts. The commitment period reserve requirement also reduced the amount of "hot air" that Russia can sell; Russia can sell only the difference between its Assigned Amount and its actual recent emissions.

The decision of the United States not to become a party to the Kyoto Protocol removed a major source of projected demand for AAUs. As a result, concerns about overselling have diminished. Indeed, some economists now believe that the countries with potential "hot air" AAUs, principally Russia and the Ukraine, have greater incentives to limit their sales of AAUs in order to obtain a higher price.[53]

2. Article 6 Joint Implementation

The Protocol also establishes a form of emissions trading among Annex I countries that revolves around projects that reduce or remove emissions, referred to as "Joint Implementation" or JI.

In a JI transaction, an Annex I party enters into a transaction respecting an emissions abatement project in the country of another Annex I party, presumably because the abatement costs are lower in the host country than in the purchasing country. The host Annex I party then transfers a corresponding portion of its Assigned Amount to the purchasing Annex I party in the form of "Emission Reduction Units" or ERUs. The purchasing Annex I party can add these ERUs to its Assigned Amount.



Article 6 provides certain basic rules for JI transactions, including that the project must have the approval of the Annex I parties involved and the project must achieve emission reductions or removals "additional to any that would otherwise occur." Article 6 also allows an Annex I party to authorize "legal entities," *i.e.,* companies or other persons, to participate in JI projects.[54] ERUs may be earned only for reductions or removals occurring during the 2008–2012 commitment period.

The requirement that the project achieve mitigation results "additional to any that would otherwise occur" is a central, complicated, and controversial touchstone for project-based emissions trading—both for JI and for the Clean Development Mechanism. At the heart of the so-called "additionality" requirement is the view that credits should not go to reductions that would have occurred even without the intervention of an investing Annex I party or legal entity. After all, whenever an Annex I party can earn Emission Reduction Units, this absolves the party of achieving a corresponding amount of emission reductions through activities in its own country. Accordingly, if Emission Reduction Units were awarded for reductions that would have occurred anyway, then the ERUs would effectively "inflate" the Protocol's overall emissions cap.

In the first instance, the JI mechanism has a built-in incentive structure that avoids crediting non-additional projects; presumably, an Annex I government should be loathe to part with some of its Assigned Amount for a project that does not achieve additional reductions or removals. By doing so, it would increase the difficulty of complying with its Article 3 commitment. However, many of the parties to the Protocol believed that until Annex I governments have complied with certain compliance-related obligations, they should not be able to approve JI projects on their own. The relevant obligations are established by Articles 5 and 7 of the Protocol and include establishing a national system for calculating emissions by sources and removals by sinks, developing a national registry for tracking holdings of credits, and submitting an annual emissions inventory.

Accordingly, the COP decided on a two-track process for JI projects.[55] If an Annex I government has met its Article 5 and Article 7 requirements, it may proceed under Track 1, which allows the government to approve a JI project without external review. If an Annex I government has not yet met the Article 5 and Article 7 requirements, however, it must proceed under Track 2. Track 2 establishes a third-party international reviewer—the Joint Implementation Supervisory Committee—which has responsibility for determining whether proposed projects meet additionality requirements. The Committee consists of members from governments that are parties to the Protocol.

In addition, the Committee is expected to develop methodologies and other guidance to facilitate expedited project reviews, using modalities developed for the Clean Development Mechanism as appropriate (these modalities are discussed in greater detail in the section that follows).

Annex I governments that qualify for Track 1 status still may opt to use the Track 2 process. One rationale for using the Track 2 process instead of Track 1 is that it is a cost-saving alternative to establishing a separate national administrative apparatus for reviewing and verifying JI projects. A second rationale is to increase the credibility of the country's projects in the marketplace—because a project approved under Track 1 procedures can lose its ability to generate ERUs if the host country falls out of compliance with its Article 5 and Article 7 requirements.

3. Article 12 Clean Development Mechanism

a. Introduction

A significant innovation of the Kyoto Protocol is the establishment of the Clean Development Mechanism or CDM. Through the CDM, Annex I governments (and companies or other persons authorized by them) can purchase "Certified Emission Reductions" generated by emission reduction projects in non-Annex I countries.

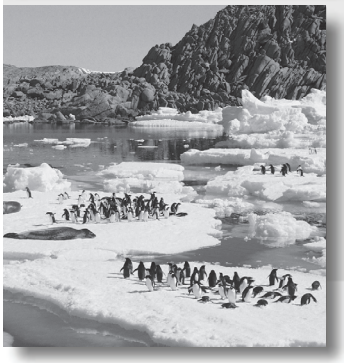
Like Joint Implementation, the CDM provides for project-based emissions trading. However, under the CDM, the host countries are non-Annex I parties. In this way, the CDM has been the primary mechanism for involvement of developing countries during the Kyoto Protocol's first commitment period. Because of a perceived abundance of low-cost mitigation project opportunities in developing countries, many experts believe that Annex I parties are likely to rely on CDM projects as a significant strategy for compliance with their Article 3 commitments.

The CDM brings into sharp relief the issue identified by the JI with respect to self-certification by host countries. Non-Annex I parties do not have Article 3 commitments. Accordingly, a non-Annex I government does not have any incentive to ensure that a project implemented in its country achieves reductions that are additional to those that would occur without "carbon finance." Therefore, all CDM projects are subject to a third-party verification process similar to the JI Track 2 process. This process is administered by the CDM Executive Board, a body of officials serving in their personal capacity, but who typically also hold environmental positions in government.

b. Basic Requirements

Article 12 of the Protocol outlines the fundamental elements and requirements for the CDM. As with other parts of the Protocol, these elements and requirements have received further elaboration in the Marrakesh Accords and subsequent decisions at the COP/MOP.

CDM projects, like JI projects, are required to achieve reductions in emissions that are "additional to any that would occur in the absence of the certified project activity."[56] In addition, participation in each project must be voluntary and approved by each Kyoto party involved.[57] Governments have established "Designated National



Authorities" to approve projects and project participants. Article 12 also provides that participation in CDM project activities may involve private or public entities.[58]

Unlike JI, Article 12 adds an overlying "purpose" for CDM projects that is additional to climate change mitigation: to assist non-Annex I parties in "achieving sustainable development."[59] The determination of whether a project contributes to achieving sustainable development has been left to host country Designated National Authorities.

Article 12 also directs the CDM to collect a "share of the proceeds" from each CDM project activity to cover the CDM's administrative expenses and to provide financial assistance to aid developing country parties that are particularly vulnerable to the adverse effects of climate change in meeting the costs of adaptation.[60] The "share of the proceeds" levy on a CDM project is proportional to its size.[61]

While the JI mechanism cannot generate ERUs until 2008, the CDM has a "prompt start" provision, which provides that the CDM may award CERs for reductions achieved from the year 2000.[62] The COP/MOP has decided that a project will be eligible to earn retroactive CERs for the years 2000–2006 if the project has been "registered" by the CDM Executive Board (a process discussed in greater detail below) and otherwise meets certain other conditions by no later than December 31, 2006.[63]

c. The CDM Project Cycle

At the heart of the Clean Development Mechanism is its project approval cycle.[64] The cycle is a process through which the CDM Executive Board approves a project and then issues CERs for that project.

Note that the CDM Executive Board has taken a number of steps to facilitate and expedite the project cycle—and, indeed, to avoid a full project-by-project review whenever possible. One of the steps taken by the Executive Board has been to accredit a number of private companies to serve as project reviewers; these accredited companies are known as "Designated Operational Entities" or DOEs. DOEs have the primary responsibility for (1) validating that a proposed CDM project meets all relevant requirements and (2) periodically verifying that a registered project has generated reductions. A second expediting strategy adopted by the Executive Board has been to build up a library of standard emissions baseline methodologies for certain types of commonly implemented projects. The Executive Board has encouraged project participants to use these pre-approved methodologies. New proposed methodologies go before a subcommittee of the Executive Board, referred to as the Methodology Panel.

With this overview, the discussion that follows outlines the various steps in the project cycle. The first step is for the project participant(s) to develop a Project Design Document, for which there is a specific template. The Project Design Document contains critical information about the project, including whether it has earned host country approval from the Designated National Authority (including the confirmation that the project contributes to sustainable development), information about environmental impacts and stakeholder comments, and plans for annual monitoring of the project's emission reduction results. The Project Design Document describes the project's baseline, including whether the project participant is using a standard methodology or proposing a new methodology, and sets forth the case for the project's additionality. In addition, the project participant uses the Project Design Document to request a crediting period for the project. The project participant has two choices for a crediting period: (1) a single ten-year period or (2) a seven-year period with the option of two renewals (for a total of up to 21 years.)

A DOE reviews the Project Design Document. If the DOE determines that the project meets the CDM rules and that the countries involved are parties to the Protocol and otherwise meet eligibility requirements, then the DOE transmits a "validation" report for the project to the Executive Board. If the Executive Board agrees with the recommendations of the DOE, it "registers" the project. A registered project is eligible to receive CERs.

The project participant must implement the monitoring systems set forth in the approved PDD. When the project participant seeks to receive CERs, it must prepare a monitoring report calculating the emission reductions achieved since the previous report. The participant must retain a second DOE, different from the one responsible for the validation of the project, to verify these results. The DOE delivers its verification report to the Executive Board.

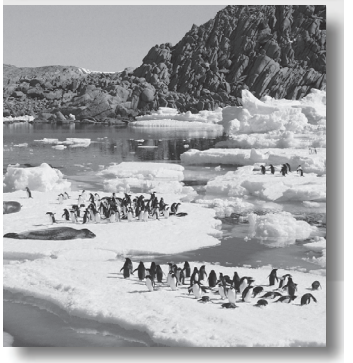
If the Executive Board concurs with the DOE's verification, it will issue CERs into specified accounts in the national registry or registries requested by the project participant. In other words, issuance of CERs is on a *post hoc* basis; it occurs only after a demonstration that the project has achieved reductions.

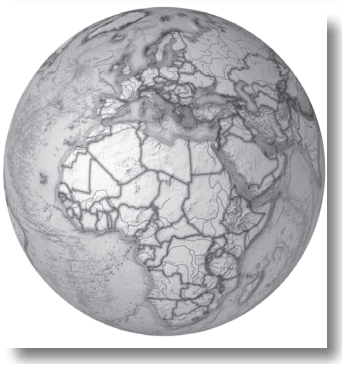
d. Non-Standard Projects

The CDM has special rules for certain categories of projects, including "small-scale" projects and LULUCF projects.

Recognizing that the burdens of the standard CDM project approval process might exceed the resources of the developers of small projects, the CDM Executive Board has developed a set of streamlined procedures for approval of "small-scale" projects.[65] Eligible project categories include certain types of renewable energy projects and certain types of energy efficiency projects.

Also, reflecting concerns about the environmental integrity of LULUCF activities, the COP has put in place for the first commitment period a variety of restrictions on forestry projects under the CDM.[66] First, only two types of forestry-related projects can





earn CERs: afforestation and reforestation projects. Second, forestry-related CDM projects have a different crediting period from other CDM projects; the project participant must choose either a single crediting period of 30 years or a series of three renewable crediting periods of 20 years each (for a total of up to 60 years). This longer crediting period reflects, among other things, the fact that the uptake of carbon resulting from a LULUCF project can take a long period of time.

The CDM Executive Board also issues unique CERs for forestry projects: either "tCERs" or "lCERs." These credits were developed in recognition of the fact that forestry-related projects have a unique "non-permanence" risk. Unlike other types of emission reduction projects, an LULUCF project can generate removals for several years, but then release all of its carbon into the atmosphere as a result of fire or disease, thereby effectively eliminating all of the climate-related benefits achieved in the prior years. The two types of LULUCF credits are designed to avoid awarding permanent credits for projects that are vulnerable to this kind of reversal. One option for a forestry project participant is to request tCERs, which expire at the end of the commitment period and therefore can be used only in the period in which they were issued. In the subsequent commitment period, the participant can request additional tCERs upon a demonstration that the project is still viable. The other option is to request lCERs. Unlike tCERs, lCERs do not expire at the end of the commitment period. However, the rules provide that if, in any year, the project has released carbon for which lCERs previously have been issued, then the project participant must replace the previously issued lCERs with AAUs, ERUs, CERs, or RMUs.

Finally, Annex I parties are subject to a first commitment period cap on their use of CERs from forestry projects; each party's cap equals 1% of its base-year emissions multiplied by five.

e. Criticisms of the CDM

Because of the prompt start provision, the CDM began operation in advance of other elements of the Protocol. The cumbersome performance of the CDM in its early years generated criticism.

To many observers, the project approval cycle proved lengthy and bureaucratic. The International Emissions Trading Association (IETA) has estimated that to meet expected demand, there will have to be upwards of 200 CDM projects registered each year and 300 baseline methodologies approved in total to cover the various types of projects.[67] Yet, as of late 2005, the Executive Board had registered only 13 projects and approved only 23 methodologies. IETA has put the blame on the CDM's cumbersome, multistep

bureaucratic processes. In addition, IETA and others have expressed frustrations with the Executive Board's implementation of the additionality test, asserting that the test is too stringent and turns away too many high-quality, environmentally sound projects.

COP/MOP-1 introduced a package of reforms for the CDM, including an increase in funding. It is hoped that this combination of reforms and funding, plus an increasing foundation of approved baseline methodologies, will open up clogged pipelines of proposed CDM projects and speed approvals.

K. Compliance

The Kyoto Protocol compliance system is more robust than that of any other international environmental agreement and has introduced a number of innovations to international law generally.[68] The participating governments generally have seen rigorous compliance enforcement as central to ensuring the viability of and confidence in the emissions trading market. The Protocol's compliance system includes mechanisms to generate information about performance, mechanisms to facilitate compliance, and mechanisms to deter noncompliance through penalties.

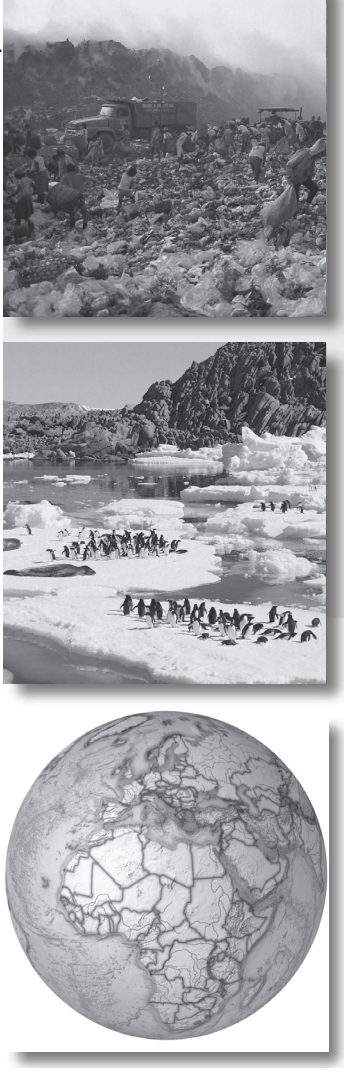
The fundamental measure of compliance under the Protocol is the obligation of each Annex I party to hold a sufficient combination of AAUs, ERUs, CERs, tCERs, lCERs, and RMUs at the end of the commitment period to cover its emissions. To this end, the Protocol establishes a number of mechanisms to generate information about holdings of credits and emissions. Article 5 of the Protocol requires Annex I parties to develop national systems for estimating emissions by sources and removals by sinks. Article 7 requires each Annex I party to submit an annual emissions inventory that provides information necessary to determine progress toward compliance with its Article 3 commitment.

The Kyoto Protocol compliance system is more robust than that of any other international environmental agreement and has introduced a number of innovations to international law generally.

The Marrakesh Accords include further guidelines on the development of systems and inventories required under Articles 5 and 7. In addition, the Marrakesh Accords add the further requirement that Annex I parties develop a national registry that can provide, at all times, an accounting of holdings of Kyoto credits and can also serve as a mechanism to record transactions of these credits. The parties may set up subaccounts within their national registries for companies and other private entities that are participating in the international emissions trading market. The national registries will link to an International Transactions Log. The International Transactions Log is intended to serve as the mechanism through which transactions occur; it is expected to become operational in mid-2007.

In acknowledgment of the importance of the Article 5 and 7 obligations to ensuring ultimate compliance with the Protocol, the parties have made fulfillment of these obligations a condition to an Annex I party's participation in the flexible mechanisms.[69]

To evaluate compliance, Article 8 of the Protocol calls for the establishment of



Expert Review Teams. These teams are empowered to audit information submitted by Annex I parties pursuant to Article 5 and Article 7.

Claims of noncompliance come before the Compliance Committee.[70] The Compliance Committee consists of two bodies: the Facilitative Branch and the Enforcement Branch, each consisting of delegates appointed by the parties. The Facilitative Branch, consistent with its name, has assistance and early warning functions and aims to prevent noncompliance before it occurs. It can direct financial and technical assistance to parties. The Enforcement Branch, by contrast, has quasi-judicial functions. It assesses compliance by Annex I parties with respect to reporting requirements and Article 3 emission-reduction commitments. The Enforcement Branch is empowered to determine that Annex I parties are ineligible to participate in the flexible mechanisms and can apply adjustments to emission inventories in response to information provided by Expert Review Teams. Under certain circumstances, a party may appeal a decision of the Enforcement Branch to the COP/MOP.

An Annex I party that fails to fulfill its Article 3 commitment—*i.e.,* because its emissions exceed its holdings of credits—is subject to a penalty. The violating party's second commitment period Assigned Amount will be reduced by a number of credits sufficient to restore it to compliance—plus a penalty interest rate of 30%. The hope is that this penalty will be sufficient to deter willful noncompliance. Yet, its deterrent effect will be diminished if the negotiation and adoption of Assigned Amounts for a second commitment period extends into the first commitment period.

L. National Programs for Meeting Kyoto Commitments

Annex I parties to the Kyoto Protocol have developed or are developing a variety of different national programs to meet their Article 3 commitments. A particularly noteworthy program is the cap-and-trade program established by the European Union member states to help contribute to compliance with their "bubble" commitment: the European Union Emissions Trading Scheme or EU ETS.

The 25 EU member states developed the EU ETS as a cap-and-trade program, which will operate over two phases.[71] The first phase runs from 2005 to 2007, and the second phase runs for the duration of the first commitment period, 2008 to 2012. During the first phase, each member state must include in the program all of its "installations" in the following sectors: (1) energy (electricity and refineries with direct emissions); (2) production and processing of iron and steel; (3) minerals (cement, glass, and ceramic production); and (4) pulp and paper. Approximately 12,000 installations

are covered in the first phase. In addition, Phase I will cover only emissions of carbon dioxide—the covered sectors represent 46 percent of the EU's carbon dioxide emissions. In Phase II, the EU might extend the ETS to cover other sectors and other greenhouse gases.

Before each phase, each member state must establish a "National Allocation Plan" (NAP). The NAP process involves two determinations. First, the government must determine what portion of its cap under the EU Kyoto burden-sharing agreement will be given to installations subject to the EU ETS and what portion will be reserved for uncovered sectors, such as transportation. Once a government has determined this "cap within the cap," it then must determine allocations of "EU Allowances" for each of its covered installations. NAPs are subject to review and approval by the European Commission.

Finally, entities regulated under the EU ETS may use CERs and ERUs for compliance, subject to certain restrictions.

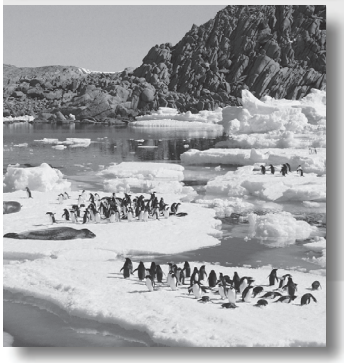
In the years before the onset of the first commitment period, the EU ETS has been a powerful engine for the development of a global emissions trading market, generating US$8.2 billion in transactions in 2005.[72]

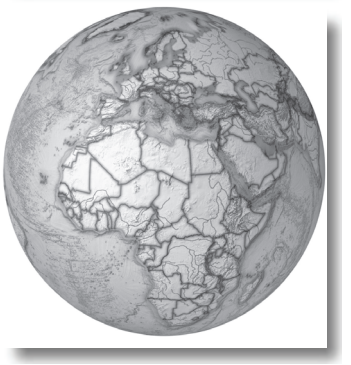
Furthermore, the EU ETS may continue on after the terminus of the Kyoto Protocol's 2008–2012 commitment period. EU officials have advocated a "unilateral" post-2012 cap for the European Union—in other words, a cap that would apply irrespective of the outcome of talks occurring under the aegis of the UNFCCC.[73]

IV. The Future of the International Climate Regime

Article 3.9 of the Protocol provides that the COP/MOP shall initiate no later than 2005 the consideration of commitments for subsequent commitment periods—but only with respect to Annex I countries. Article 9 provides that a broader review of the Protocol should take place starting at the second meeting of the COP/MOP; such a review presumably could include consideration of commitments for non-Annex I parties.

At the COP-11/MOP-1 meeting, the parties to the Protocol agreed to launch an *ad hoc* working group to consider post-2012 commitments for Annex I parties. The group is called the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol. They also consented to extending an invitation to all parties to submit their views on how an Article 9 review should proceed. At the same time, pressed by the United States and other large developing countries, the COP agreed on an initiative aimed at enhancing long-term cooperation on climate change through the Framework Convention, including cooperation with regard to technology.[74] This second process—referred to as the Dialogue on Long-Term Cooperation Action to Address Climate Change by Enhancing the Implementation of the Convention—is not taking the form of a negotiation. Instead, it is a two-year series of workshops, which will examine a range of issues and themes. Both groups met for the first time at the second meeting of the parties to the Kyoto Protocol (MOP-2) and the twelfth meeting of the





Conference of the Parties to the UNFCCC (COP-12), held in Nairobi from November 6 to November 17, 2006.

The launching of these parallel consultation processes reflects the wide differences of opinion on where the international climate change regime should go after 2012, and an acknowledgment that it will be difficult for Annex I parties to adopt further emission reduction commitments without corresponding commitments from the United States and major-emitting developing countries. At the Nairobi meetings, the ad hoc working group stated that stabilizing concentrations would require a reduction in global GHG emissions "well below half of levels in 2000," a target that likely would be impossible to achieve without significant effort from developing countries.[75]

A. Sources of Skepticism about the Kyoto Protocol

Negotiations on possible commitments after 2012 will need to contend with the range of criticisms that have emerged about the Kyoto Protocol's architecture. One criticism is that the Protocol's emission targets do not conform to the most cost-effective approach to addressing the problem. According to many experts, reducing the risk of global climate change ultimately will require very steep reductions in emissions, but the optimally cost-effective path to achieving these reductions involves starting with relatively modest commitments and then imposing more stringent commitments over time. In this light, the Protocol's model is "too much, too soon," imposing sharp, near-term reductions that force costly premature retirements of capital stock while leaving uncertain the long-term path of reductions.[76]

Indeed, critics of the Protocol often assert that few Annex I countries are on track to meet their Article 3 commitments and that for several countries, compliance appears increasingly out of reach.[77] In 2006, the government of Canada announced that it expected to miss its target.[78]

Another fundamental criticism of the Protocol is that it does not extend commitments to developing countries, including major emitters such as China and India, even though—as discussed above—the emissions from developing countries are expected to surpass those of industrialized countries in the next two decades.

To be sure, the Protocol's architects assert that its structure is consistent with the Framework Convention's principle of "common but differentiated responsibilities." According to this view, the first commitment period necessarily had to impose commitments only on Annex I parties in order to lay the foundation for key developing countries to adopt limits in the subsequent commitment period. The text of the Protocol, however, does not make any such bargain explicit, much less enforceable.

Moreover, there is some question as to whether the Protocol's initial architecture of absolute emissions caps can be feasibly extended to developing countries. One issue is political; developing countries are reluctant to accept fixed limits on their emissions, lest they effectively amount to limits on their economic growth. The second issue is administrative; many developing country governments lack the capacity to develop an economy-wide regulatory program that could achieve a precise numerical limit on emissions.

Indeed, the Bush Administration and like-minded critics of the Protocol argue that an emissions targets approach is fundamentally flawed. They assert that the key elements of the problem—the ultimate need for possibly substantial reductions in emissions and the imperative of involving developing countries—point away from an emissions targets approach toward a technology-based program. In their view, the aim should be to promote the development of a new generation of clean energy technologies and to ensure that such technologies can be transferred to fast-growing developing countries. They argue that the Protocol's near-term emissions targets are a costly and inequitable distraction from this technology-based path. Others, however, have made the point that technological development and deployment will not be possible without both the "push" of government promotion and the "pull" of a regulatory-based or tax-based price on emissions.[79]

. . . there is some question as to whether the Protocol's initial architecture of absolute emissions caps can be feasibly extended to developing countries.

B. Possible Future Paths

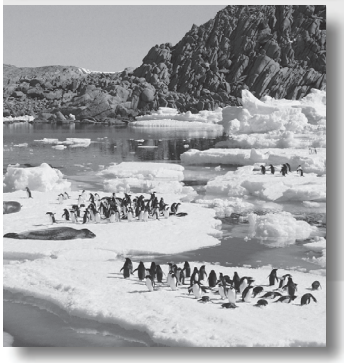
Proposals for future directions of international efforts on climate change are multiplying rapidly.

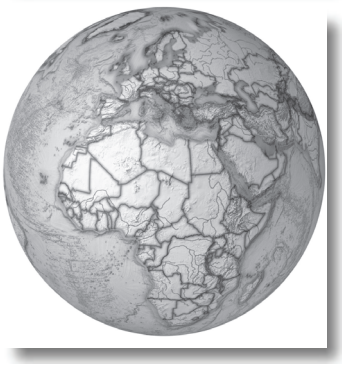
In 2004, the Pew Center on Global Climate Change published a report that reviewed over 40 different proposals.[80] The Pew Center report identifies several elements of climate policy design along which the proposals vary.

For example, while the majority of proposals assume the continued negotiation of commitments by governments under the auspices of the Framework Convention, a few would abandon the Framework Convention and the Protocol for some other form and forum. For instance, some proposals would bring together a more limited number of major-emitting and like-minded countries. Part of the theory behind the approaches that propose an alternative forum is the difficulty of making progress under the Framework Convention's United Nations "mega-conference" approach.

Similarly, there are different proposals as to how to develop commitments to mitigate GHG emissions. While some proposals would maintain the top-down approach of multilateral negotiation of national commitments, other proposals would encourage countries to make pledges of particular domestic measures.

In addition, experts have come forward with various approaches to the design of commitments. Some propose extending the Protocol's quantitative emission targets,





but with variations. For example, alternative emission targets could be indexed to economic growth, *e.g.,* "intensity" targets, which are expressed in terms of emissions per unit GDP. Such targets could be appropriate for developing countries because they would allow emissions to increase along with economic growth, albeit at a slower pace. Also possible are "action targets," in which a country would commit to achieve a certain percentage of reductions for each ton it emits. For example, a country could pledge to cut 5% of a ton of GHG emissions for each ton emitted. This approach also would allow for economic growth while ensuring continuous effort to mitigate emissions.[81]

Other designs would replace or supplement the emissions targets approach with harmonized domestic policies and measures, which could take the form of coordinated carbon taxes, energy-efficiency standards, or technology policies.

Many proposals address the question of how to share the burdens of climate change mitigation equitably among countries. These proposals accept the Framework Convention's principle of "common but differentiated responsibilities," but would replace the "Annex I" and "non-Annex I" categories. The proposals advance a broad variety of alternative criteria for differentiation among countries, including per capita GDP, per capita emissions, emissions per unit GDP, population, and historical emissions. The proposals also reflect various approaches to differentiating the form, stringency, and timing of commitments for different countries.

C. Asia-Pacific Partnership on Clean Development and Climate

The Asia-Pacific Partnership on Clean Development and Climate represents a possible alternative or parallel path for international cooperation to address global climate change.[82] An initiative of the Bush Administration, the Partnership includes the United States, South Korea, India, China, Australia, and New Zealand. Collectively, these countries account for approximately half of global GHG emissions, and the contribution of India and China is growing rapidly with each year.[83]

The non-legally-binding Charter for the Partnership provides that its purposes include creating a voluntary framework for international cooperation to facilitate the development and transfer of clean technologies and practices among the partner countries.[84] The Charter further provides that the purposes of the Partnership are to be consistent with the principles of the Framework Convention and "are intended to complement but not replace the Kyoto Protocol."[85] The Charter also declares, however, that while the Partners have come together to advance clean development and climate objectives, they recognize that "development and poverty eradication are urgent and overriding goals internationally."[86]

Structurally, the Partnership eschews the binding quantitative emissions targets approach of the Protocol in favor of a series of working groups that will explore opportunities related to transfer and deployment of advanced clean energy technologies. At its inaugural meeting in July 2005, the Partnership established eight public/private-sector "Task Forces" covering (1) cleaner fossil energy; (2) renewable energy and distributed generation; (3) power generation and transmission; (4) steel; (5) aluminum; (6) cement; (7) coal mining; and (8) buildings and appliances. The Partnership directed each Task Force to review the current status of its thematic area, share knowledge of experience and good practices, systematically roadmap existing and emerging technologies, and develop an action plan that identifies opportunities for cooperation and goals.[87]

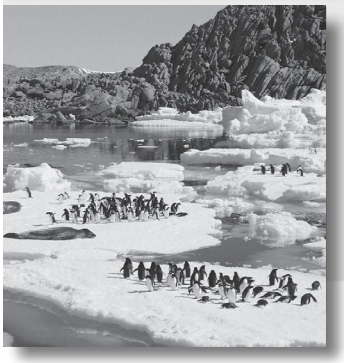
V. Conclusion

The international climate change regime is a multifaceted complex of institutions, legal rules, voluntary systems, and commercial transactions. At the core of the regime is the Kyoto Protocol, an innovative and complicated system of national obligations and market-based mechanisms. The Protocol has spawned the European Union Emissions Trading Scheme, which is itself an international climate change regime. Together, the Protocol and the EU ETS also have given rise to a multibillion-dollar global market in emission reduction credit transactions.

Yet, the half-life of both the Protocol and the EU ETS is uncertain. The international climate change regime faces an important benchmark in 2012, when the Protocol's first—or perhaps only—commitment period officially expires. Accordingly, the task of crafting an international climate change regime that equitably and efficiently meets the long-term challenge of global climate change will continue.

Endnotes

1. 31 I.L.M. (1998) (hereinafter "Kyoto Protocol" or the "Protocol").
2. Because of their multifaceted character, the various international laws and institutions addressing climate change aptly fit the definition of what international relations scholars refer to as a "regime," *i.e.,* a "persistent and connected set[s] of rules (formal and informal) that prescribe[s] behavioural roles, constrain activity, and shape expectations" in a particular issue area. Robert O. Keohane, International Institutions and State Power at 3. For an extensive and detailed analysis of the international climate change regime, *see* Farhana Yamin & Joanna Depledge, The International Climate Change Regime: a Guide to Rules, Institutions, and Procedures (2004).
3. 31 I.L.M. 849 (1992) (hereinafter the "Framework Convention" or the UNFCCC).
4. *See, e.g.,* Intergovernmental Panel on Climate Change, Special Report on Emissions Scenarios (Nakicenovic, Nebojsa & Rob Swart eds.) (2000).
5. The World Bank and the International Emissions Trading Association, State and Trends of the Carbon Market 2006 (May 2006).
6. Intergovernmental Panel on Climate Change, Scientific Assessment of Climate Change—Report of Working Group 1 (J.T. Houghton, G.J. Jenkins & J.J. Ephraums eds.) (1990).



7. For a listing of ratifications, *see* http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php (listing ratifications as of June 12, 2006).
8. For a scholarly discussion of how the UNFCCC establishes a regime framework for further action, *see* Daniel Bodansky, *The Emerging Climate Change Regime*, 20 ANN. REV. OF ENERGY AND ENV'T 425 (1995).
9. Framework Convention, art. 3.
10. *Id.*
11. *Id.*, art. 3.4.
12. *Id.*, art. 3.1.
13. *Id.*
14. *Id.*, art. 3.2.
15. The Framework Convention includes another categorization that recognizes those former Soviet bloc countries that, at the time of the treaty's entry into force, were considered "economies in transition." The Framework Convention establishes an Annex II, which includes all of the developed countries that are not economies in transition.
16. *Id.*, art. 4.1(a).
17. *Id.*, art. 4.1(b).
18. *Id.*, art. 4.1(c).
19. *Id.*, art. 4.1(g).
20. *Id.*, art. 12.
21. *Id.*, art. 4.2(a) and (b).
22. *Id.*, art. 4.7.
23. *Id.*, art. 4.3.
24. *Id.*, art. 4.4.
25. *Id.*, art. 4.5.
26. *Id.*, art. 7.
27. *See id.*, arts. 15-17.
28. *Id.*, art. 8.
29. *See id.*, arts. 9 and 10.
30. *Id.*, art. 11.
31. The Berlin meeting coincided with the publication of the Intergovernmental Panel on Climate Change's *Second Assessment Report*, which outlined a stronger basis for concern about the risks of human-induced climate change. *See generally* CLIMATE CHANGE 1995: THE SCIENCE OF CLIMATE CHANGE: CONTRIBUTION OF WORKING GROUP I TO THE SECOND ASSESSMENT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (J.T. Houghton, et al., eds.) (1995).
32. *See* Report of the Conference of the Parties on its First Session, Held at Berlin From 28 March to 7 April 1995, FCCC/CP/1995/7 Add. 1 (June 1995).
33. S. 98, 105th Cong. 1st Session, 143 CONG. REC. S8138 (1997). See Chapter 3 for a more detailed discussion.
34. ANALYSIS OF THE KYOTO PROTOCOL, U.S. GLOBAL CLIMATE CHANGE POLICY BOOK (February 2002), *available at* http://www.whitehouse.gov/news/releases/2002/02/climatechange.html.
35. There are some differences between the list of countries in Annex B and the original list of Annex I of the Framework Convention. The Czech Republic, the Slovak Republic, Slovenia and Croatia are all listed in Annex B but are not listed in Annex I of the Framework Convention. Conversely, Belarus and Turkey are listed in Annex I of the Framework Convention but not included in Annex B because they were not parties

to the UNFCCC when the Protocol was adopted. Kazakhstan has declared that it wishes to be bound by the commitments of Annex I Parties under the UNFCCC and has become an Annex I Party under the Protocol. However, it had not made this declaration when the Protocol was adopted, so Kazakhstan does not have an emissions target listed for it in Annex B.

36. *See* Protocol Annex A.

37. *See* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2001: THE SCIENTIFIC BASIS (2001), at 6.1.2.

38. Protocol, art. 3.8.

39. *Id.*, art. 3.5.

40. For a critical viewpoint on the "hot air" issue, *see, e.g.*, David M. Driesen, *Free Lunch or Cheap Fix?: the Emissions Trading Idea and the Climate Change Convention*, 26 B.C. ENVTL. AFF. L. REV. 1, 60-61 (1998).

41. Council Decision 2002/358/EC of 25 April 2002 concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder *OJ L 130, 15.5.2002 P. 0001-0003.*

42. *See* CLIMATE ACTION NETWORK EUROPE, BURDEN SHARING AGREEMENT OF THE EU, *available at* http://www.climnet.org/resources/euburden.htm.

43. Protocol, art. 3.3.

44. David A. Wirth, *Current Developments: The Sixth Session (Part Two) and Seventh Session of the Conference of the Parties to the Framework Convention on Climate Change*, 96 AJIL 648, 654 (2002).

45. Decision 19/CP.7, FCCC/CP/2001/13/Add.2, at par. 16. This constraint might not be particularly meaningful, since a party that holds both RMUs and AAUs can use its RMUs first and bank its AAUs. Personal communication with Erik Haites, Margaree Consultants (September 2006).

46. *See also* Chapter 18 of this volume for more detailed discussions of the Kyoto flexible mechanisms.

47. Note, however, that there are limits to banking of other types of Kyoto Protocol credits. An Annex I party may bank Certified Emission Reductions and Emission Reduction Units up to only 2.5 percent of its Assigned Amount. Parties may not bank Removal Units. However, as noted *supra*, these restrictions might be essentially symbolic because a Party with surplus Kyoto credits can submit its non-bankable credits first and bank its AAUs.

48. *See* Decision 18/CP.7, FCCC/CP/2001/13/Add.2.

49. 42 U.S.C. §§ 7401-7671q (1998).

50. *See* Decision 9/CMP.1, FCCC/FCCC/KP/CMP/2005/8/Add.2, at p. 65 (requiring each Annex I Party only to "provide information on how its use of the mechanisms is supplemental to domestic action," and "how its domestic action thus constitutes a significant element of the effort" to meet its Article 3 commitment).

51. Robert R. Nordhaus et al., *International Emissions Trading Rules as a Compliance Tool: What Is Necessary, Effective and Workable?* 30 ELR 10837, 10841-44 (2000).

52. Decision 11/CMP.1, FCCC/CMP/2005/8/Add.2, Annex.

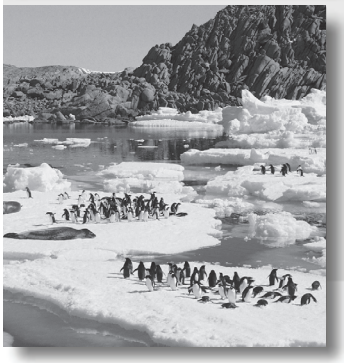
53. Personal communication with Erik Haites, Margaree Consultants (September 2006).

54. Protocol, art. 6.1(a)-(d).

55. *See* Decision 9/CMP.1 (Guidelines for Implementation of Article 6 of the Kyoto Protocol), FCCC/KP/CMP/2005/8/Add.2.

56. Protocol, art. 12.5(c).

57. *Id.*, art. 12.5(a).



58. *Id.*, art. 12.9.
59. *Id.*, art. 12.2.
60. *Id.*, art. 12.8.
61. For a discussion of how the "share of the proceeds" is calculated, *see* International Emissions Trading Association, *IETA's Guidance Note Through the CDM Project Approval Process* (v. 2.0, May 2006), *available at* www.ieta.org, at para. 2.6.8.
62. Protocol, art. 12.10.
63. *See* Decision 7/CMP.1, FCCC/KP/CMP/2005/8/Add.1, at p. 94.
64. *See generally* Decision 3/CMP.1, FCCC/KP/CMP/2005/8/Add.1, at pp. 14-20.
Decision 17/CP.7, Annex.
65. *See generally* Decision 4/CMP.1, FCCC/KP/CMP/2005/8/Add.1, Annex II.
66. *See generally* Decision 5/CMP.1. FCCC/KP/CMP/2005/8/Add.1.
67. International Emissions Trading Association, IETA Position on the CDM for COP 11 and COP/MOP (Sept. 19, 2005), *available at* www.ieta.org, at pp. 7-8.
68. Wirth, *Current Developments, supra* note 44, at 655.
69. Decision 2/CMP.1, FCCC/KP/CMP/2005/8/Add.1, at para. 5.
70. *See generally* Decision 25/CMP.1, FCCC/KP/CMP/2005/8/Add.3.
71. *See generally* Directive 2003/87/EC of the European Parliament and of the Council of Oct. 13, 2003, establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, *available at* http://europa.eu.int/comm/environment/climat/emission/implementation_en. htm.
72. State and Trends of the Carbon Market, *supra* note 5, at 1.
73. *See, e.g., Top EC Environmental Official Backs 'Unilateral' Post-2012 CO_2 Cap,* Platts Emissions Daily (Oct. 20, 2006).
74. *Summary of the Eleventh Conference of the Parties to the United Nations Framework Convention on Climate Change and the First Conference of the Parties Serving as the Meeting of Parties to the Kyoto Protocol, 28 November–10 December 2005,* Earth Negotiations Bull. Vol. 12 (Dec. 12, 2005), at p. 14.
75. Pew Center on Global Climate Change, *Summary of the Twelfth Session of the Conference of the Parties to the UN Framework Convention on Climate Change and Second Meeting of the Parties Serving to the Kyoto Protocol* (November 2006), *available at* http://www.pewclimate.org/what_s_being_done/in_the_world/cop12/index.cfm. Advanced unedited versions of the Nairobi decisions are available at http://unfccc.int/meetings/cop 12/items/3754.php.
76. *See, e.g.,* Robert Stavins, *Can an Effective Global Climate Treaty Be Based on Sound Science, Rational Economics, and Pragmatic Politics? Resources for the Future Discussion Paper 04-28* (May 2004), *available at* www.rff.org/Documents/RFF-DP-04-28.pdf, at pp. 8-9. Note, however, that the withdrawal of the United States—which was expected to be a major source of demand for Kyoto units—might reduce the price of "hot air" AAUs, CERs, and ERUs sufficiently to lower the overall compliance costs associated with the 2008-2012 commitment period.

77. *See, e.g., EU Way Off Course for Meeting Kyoto Targets: Latest Figures,* Agence France Press (June 22, 2006).
78. *Interpreting Smoke Signals: Canada,* The Economist (July 22, 2006)).
79. *See, e.g.,* Congressional Budget Office, *Evaluating the Role of R&D in Reducing Carbon Dioxide Emissions* (September 2006), *available at* http://www.cbo.gov.
80. Daniel Bodansky, International Climate Efforts Beyond 2012: A Survey of Approaches, Pew Center on Global Climate Change (Dec. 2004).
81. Donald Goldberg & Kevin Baumert, *Action Targets: A New Form of GHG Commitment*, 10 Joint Implementation Quarterly 8 (Oct. 2004).
82. *See Charter for the Asia-Pacific Partnership on Clean Development and Climate, agreed at the Inaugural Ministerial Meeting, Sydney, 11-12 January 2006, available at* www.asiapacificpartnership.org/charter.pdf (hereinafter the "Partnership").
83. "U.S. Agrees to Climate Deal with Asia," *BBC News* (July 28, 2005).
84. Charter, at par. 2.1.1.
85. *Id.*, preamble.
86. *Id.*, at par. 1.
87. Asia-Pacific Partnership on Clean Development and Climate, *Inaugural Ministerial Meeting Communiqué, available at* www.asiapacificpartnership.org/communique.pdf.