

As the World Burns: Negotiating the Framework Convention on Climate Change

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I. Introduction

Of all the items on the Earth Summit agenda, none has received more public attention than global warming. Many scientists and policymakers believe that, with the possible exception of loss of the ozone layer, no environmental threat has ever had such serious implications for our planet. The world community has responded to scientists' dire warnings by negotiating a Framework Convention on Climate Change in only fifteen months – lightning speed for international diplomacy. But in their haste to produce an agreement in time for the Earth Summit, negotiators left many gaps that will have to be filled as implementation and administration of the Convention gets underway. The Climate Convention is regarded by some as a success, because it is without question a stronger and more comprehensive agreement than earlier framework conventions, notably the Vienna Convention for the Protection of the Ozone Layer,¹ the original model for the Climate Convention. Others regard the agreement as a failure, since, it does not adequately address many of the most pressing issues of climate change, notably the need for reduction schedules of greenhouse gases in order to achieve the stated objective of the Convention.

The United States' insistence that the text not contain any binding commitments to reduce emissions of greenhouse gases ("targets and timetables") leaves many wondering whether the Climate Convention will be effective even as a first step in addressing global warming. A close inspection of the Convention, however, reveals a detailed and fairly comprehensive structure addressing a very wide range of issues related to global warming. Given the relatively short time in which the Convention was negotiated, as well as the extraordinarily complex nature of the climate change problem, it is not surprising that much of the agreement is only sketchily drawn, and many questions have been left for future negotiators to answer. Still, it is important to take note of the Convention's weaknesses, if for no other reason than to develop a roadmap for such future negotiators. For, in the end, the effectiveness of the Convention will largely be determined by the work of these individuals.

II. Science and Impacts of Global Warming

There is now a scientific consensus that the Earth will warm 1-3° Centigrade by the middle of the next century, with further warming assured, if human activities leading to the buildup in the atmosphere of certain trace greenhouse gases (GHGs) are not abated.¹ Warming of such magnitude exceeds that which has occurred on the earth in any comparable time period.² It is expected to have serious impacts, both on the human environment and on the global ecosystem.

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1 INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE: THE IPCC SCIENTIFIC ASSESSMENT 139 (1990)[hereinafter cited as IPCC SCIENCE ASSESSMENT]. See also *U.S. Views on Climate Change* (1992) at 1.

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Id. at xxviii.

Besides water vapor, the emission of which man does not control, the principle GHGs are carbon dioxide (CO₂), which accounts for 50-60% of global warming, methane, which accounts for about 20%, and nitrous oxide, carbon monoxide, nitrogen oxides, and tropospheric ozone, which together account for the rest.³ The atmospheric concentration of CO₂ has increase by about 25% since the beginning of the industrial revolution and continues to increase at a rate of about 0.5% per year.⁴ Methane has doubled in the atmosphere during the same period, and is increasing at a rate of about 0.9% per year,⁵ although some recent studies indicate that the rate of methane buildup is beginning to slow.⁶

The likely consequences of GHG induced warming include loss of forests and wetlands (and species residing there), shifts in agricultural zones – with particularly adverse impacts in developing countries – impaired water resources, storm surges, and flooding of low-lying coastal regions and islands.⁷ The most dramatic and immediate consequence of global warming is sea-level rise. Sea levels are expected to rise 30-110 cm by the year 2100,⁸ mainly as a result of thermal expansion, but also due to melting of mountain glaciers.⁹ While melting of the polar caps is not anticipated in the next century, the possibility cannot be entirely dismissed, in which case sea levels could rise as much as 6 meters.¹⁰ A one meter rise would destroy much of the world's cropland, damage many coastal cities, and turn thousands of residents of lowlying coastal and island states into environmental refugees.¹¹ Even the lowest estimated rise is likely to have severe impacts in the near future.¹²

³ U.S. EPA, POLICY OPTIONS FOR STABILIZING GLOBAL CLIMATE II-3 (1990)[hereinafter cited as EPA POLICY OPTIONS]. While CFCs, the ozone depleting gases, are known to be powerful GHGs, it is now believed that the cooling resulting from stratospheric ozone depletion approximately cancels the warming attributed to CFCs. MONTREAL PROTOCOL OZONE ASSESSMENT PANEL, 1992 PREPRINT AT 7-1.

⁴ IPCC SCIENCE ASSESSMENT, *supra* note 1, at 5.

⁵ *Id.*

⁶ *Methane Slowdown Is Greatest in the North*, 4 Global Env'tl. Change Rep. (Cutter July 24, 1992).

⁷ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE: THE IPCC IMPACTS ASSESSMENT 1-5 (1990)[hereinafter cited as IPCC IMPACTS ASSESSMENT].

⁸ IPCC SCIENCE ASSESSMENT, *supra* note 1, at 277.

⁹ *Id.* at 266-78.

¹⁰ Hekstra, *Sea-Level Rise: Regional Consequences and Responses*, in GREENHOUSE WARMING: ABATEMENT AND ADAPTATION 53, 55 (1989).

¹¹ See Goldberg, *Global Warming and Sea-Level Rise: An Overview* Center for International Environmental Law (1990) at 6-10.

Efforts to control GHG emissions have focused on limiting the buildup of atmospheric concentrations of CO₂ and, to a lesser extent, methane and nitrous oxide. Strategies that are presently being considered – or have already been adopted – generally aim for stabilization of CO₂ emissions levels, although some countries have adopted more stringent targets.¹³ But the strictest of these targets, even if they were adopted by all industrialized countries, would not prevent further buildup of CO₂ in the atmosphere. Indeed, cuts on the order of 60-80% would be required merely to stabilize atmospheric concentrations of CO₂.

Even cuts of this magnitude would probably not prevent some amount of warming. This is because the relatively long time it takes for the oceans to warm creates a lag in surface warming. Put another way, we have already "banked" a degree or two of warming, because CO₂ presently in the atmosphere will remain there for many decades, continuing to warm the global system until ocean and surface temperatures reach a new equilibrium (perhaps thirty to fifty years after GHG concentrations are stabilized).¹⁴

Global warming strategies have focussed on CO₂ for a number of reasons. First, as noted, it is the most important anthropogenic (human-induced) GHG, accounting for more than half of the expected warming.¹⁵ Second, many technical options exist for reducing CO₂ emissions. These include demand-oriented strategies for reducing energy use by making buildings, vehicles, electrical appliances, and industrial processes more energy efficient. Supply options include increasing efficiency through such new technologies as cogeneration and fuel cells, as well as switching to less carbon-intensive fuels (from coal to oil, or from oil to natural gas) and noncarbon-based "renewable" energy sources, including solar, wind, hydroelectric, geothermal and hydrogen. Biomass, though carbon based, also holds promise, since it does not produce a net increase in CO₂ concentrations. Carbon given off as one year's crop is burned – as wood, charcoal, or ethanol – is taken up again as the next year's crop grows. Another important – and very cost-effective – CO₂ reduction strategy is increasing net forest cover through reforestation and afforestation.¹⁶

A third reason for focussing on CO₂ is that energy use and per capita CO₂ emissions are generally much higher in industrialized countries than in developing countries. This is significant for reasons of practicality as well as equity. From a practical standpoint, only the industrialized countries have resources to devote to dealing with global warming. Even if developing countries had the money to invest in mitigation, however, global warming would not be high on their list of priorities. Indeed, developing countries tend to see global warming strategies as, in some respects, antithetical

¹² In a recently released study, the U.S. National Oceanic and Atmospheric Administration predicts that if global warming persists, the 45,000 residents of the Marshall Islands will have to be relocated to high rise apartment buildings in the highest parts of the islands within thirty years. Paul Lewis, *Danger of Floods Worries Islanders*, N.Y. TIMES, May 13, 1992 at A2.

¹³ KAREN SCHMIDT, INDUSTRIAL COUNTRIES' RESPONSES TO GLOBAL CLIMATE CHANGE, (Env't'l & Energy Study Institute July 1, 1991).

¹⁴ Another unrelated phenomena, discussed below, that could cause a lag in realized temperatures is the "masking" of global warming by atmospheric particulates resulting from forest fires and other sources of manmade pollution. See *infra* note xx and accompanying text.

¹⁵ *Id.*

¹⁶ . See generally, EPA POLICY OPTIONS, *supra* note 2.

to their own aims, and they have occasionally accused industrialized countries of sacrificing the potential prosperity developing country prosperity to achieve their climate protection aims.¹⁷ Moreover, they note that their own GHG emissions tend to result largely from such unavoidable activities as agriculture and essential energy use, in contrast to the "luxury" emissions of industrialized countries. This argument loses force, however, when some of the causes of tropical deforestation are examined.¹⁸

Much is known about the causes and effects of global warming — far more, in fact, than was known about ozone depletion when the Vienna Convention for the Protection of the Ozone Layer¹⁹ was signed in 1985. Still, there remains a good deal of uncertainty, especially as to the rate, magnitude, and impacts of global warming, particularly at the regional level. Much of the uncertainty has to do with "feedbacks" — secondary effects which may amplify or retard global warming. While it is known, for example, that cloud cover is likely to increase as a result of global warming, present day models cannot predict which type of cloud will predominate.²⁰ High cirrus clouds could increase warming by trapping additional heat, while lower cumulus clouds could reduce warming by reflecting sunlight back to space.²¹ Other examples of positive (greenhouse-enhancing) feedbacks include increases in atmospheric levels of water vapor due to higher rates of evaporation, reduced albedo (the earth's reflectivity) as snow and ice melt, and increases in atmospheric levels of carbon and methane as a result of forest die-back and melting permafrost.²² Negative feedbacks besides cloud cover have been postulated, but at present their existence is, at best, uncertain.²³

Uncertainty also arises from discrepancies between computer models and temperature records. Skeptics point to the fact that, to date, the earth has warmed less than computer models had

¹⁷ . Curtailing deforestation, important to a comprehensive strategy to deal with global warming, presents a particularly nettlesome problem for many developing countries. In response to suggestions that industrialized countries might limit their imports of tropical timber, Malaysian Prime Minister Mahatir Mohamad remarked "[t]here is no excuse for such negative actions as boycotts of tropical timber, forcing forest dwellers to remain primitive and keeping developing countries permanently poor in order to prevent deforestation." Jeff Franks, *G15 Heads Blast Rich Nations' Environment Policies*, (Reuters) Nov. 27, 1991.

¹⁸ These include large-scale cattle ranching and commercial logging. See WORLD RESOURCES INSTITUTE, *WORLD RESOURCES 1990-91* (1990) at 108.

¹⁹ . Vienna Convention for the Protection of the Ozone Layer, *adopted and opened for signature* Mar. 22, 1985, *entered into force* Sept. 22, 1988, 26 I.L.M. 1529 (1987).

²⁰ S. Schneider, *GLOBAL WARMING* 28, 97-98 (1989).

²¹ . Lashof, *The Dynamic Greenhouse: Feedback Processes That Can Influence Global Warming*, in *COPING WITH CLIMATE CHANGE* 102, 103 (Topping ed. 1989).

²² *Id.* at 102-108.

²³ . One such is the so-called "carbon dioxide fertilization" theory, which holds that higher concentrations of CO₂ in the atmosphere will stimulate higher plant growth rates. Recent evidence, however, suggests the opposite; high concentrations of CO₂ may, in fact, be harmful to plants. See *New Evidence Suggests High CO₂ May Harm Ecosystems*, 4 *GLOBAL ENVTL. CHANGE REP. (CUTTER)* No. 18, at 5 (Sept. 25, 1992); see also *Evidence Increases for Positive Water-Vapor Feedback*, 4 *GLOBAL ENVTL. CHANGE REP. (CUTTER)* No. 19, at 5 (Oct. 9, 1992).

predicted as evidence that the theory of global warming is, at best, incomplete.²⁴ But a number of recent studies have suggested that emissions of sulphates and other particulates — from urban pollution, burning of tropical forests, and volcanic eruptions — prevent enough sunlight from reaching the earth's surface to account for the difference.²⁵

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III. The International Response to Global Warming

A. The Intergovernmental Panel on Climate Change.

Much of the groundwork for the Framework Convention on Climate Change was laid by the United Nations Intergovernmental Panel on Climate Change (IPCC).²⁶ The IPCC was established by the U.N. General Assembly in November 1988 under the auspices of UNEP and WMO "to provide internationally co-ordinated scientific assessments of the magnitude, timing and potential impact of climate change."²⁷ The IPCC issued its three reports — on science,²⁸ impacts,²⁹ and response strategies³⁰ — in September 1990, in time to be reviewed by delegates to the Second World Climate Conference in November 1990.

The reports of the IPCC Science Working Group, Chaired by the United Kingdom, and of the Impacts Working Group, chaired by the Soviet Union, did not contain a great deal of groundbreaking material. Rather, they tended to confirm findings of earlier studies as to the expected rate of warming and sea-level rise, and the likely impacts on human habitats, biodiversity, forests, agriculture, etc. These reports were regarded by many as sufficiently clear and unvarnished to prompt international action and, hopefully, lead to a strong convention. On the other hand, The report of the Response Strategies Working Group, chaired by the U.S., was somewhat more

²⁴ . Newsweek (UNCED issue).

²⁵ . *Smoke From Biomass Burning May Offset Greenhouse Warming*, 4 GLOBAL ENVTL. CHANGE REP. (CUTTER) No. 12, at 5 (Jun. 26, 1992).

²⁶ . See generally, Durwood Zaelke and James Cameron, *Global Warming and Climate Change - An Overview of the International Legal Process*, 5 AM. U.J. INT'L L. & POL'Y 249, 272-76 (1990).

²⁷ . U.N. Resolution on the Protection of the Global Climate, G.A. Res. 43/53, A/RES/43/53 (Jan. 27, 1989) reprinted in SELECTED LEGAL MATERIALS 5 AM. U.J. INT'L L. & POL'Y 525, 526-7 (1990). This resolution recognized climate change as a "common concern of mankind." *Id.*

²⁸ IPCC SCIENCE ASSESSMENT, *supra* note 1.

²⁹ IPCC IMPACTS ASSESSMENT, *supra* note 2.

³⁰ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE: THE IPCC RESPONSE STRATEGIES (1990)[hereinafter cited as IPCC RESPONSE STRATEGIES].

circumspect, often merely listing options rather than making recommendations.³¹ Environmentalists – as well as a number of delegates – were particularly disturbed that it did not discuss specific targets and timetables for reducing emissions, which they took as a clear signal of the U.S. approach to impending treaty negotiations. Nevertheless, the report does reflect a substantial effort on the part of the members of the Working Group, and contains much information which should be useful to future negotiators and policymakers.

In particular, the report recommended a framework climate change convention following the format of the Vienna Convention, framed so as to gain the largest possible number of adherents, with provisions for separate annexes and protocols to deal with specific obligations.³² The Vienna Convention became the accepted model after the IPCC report, although it was not clear until the last round of negotiations whether the climate treaty, unlike the Vienna Convention, would contain specific binding obligations to reduce GHG emissions (it does not).

B. Other International Activities.

In addition to the work of the IPCC, a number of important international meetings and conferences have been held to discuss the problem of global warming. One of the first to recommend a global treaty to deal with climate change was held in Villach, Austria, in 1985.³³ Two years later, scientists again met in Villach and, some months later, in Bellagio, Italy, where they refined their estimates of the impacts of global warming and developed a set of predictions for global warming and sea-level rise; these predictions have changed remarkably little in subsequent years.³⁴

The concern raised by scientists was soon echoed in other fields. An important meeting attended by more than 300 of the world's experts in science, law, the environment, economics, government, and industry was held in Toronto, Canada in June 1988. The Toronto Meeting set a benchmark for emissions reduction targets that were later to be adopted by a number of European countries.³⁵ The Conference Statement called on countries to reduce annual global CO₂ emissions 20% by the year 2005.³⁶

³¹ . See, e.g., *id.* at 59.

³² . *Id.* at 261. A call for a framework convention with subsequent protocols had previously been made by the 1989 Economic Summit. ECONOMIC DECLARATION, SUMMIT OF THE ARCH, at para. 45 (July 16, 1989), *reprinted in* SELECTED LEGAL MATERIALS, 5 AM. U.J. INT'L L. & POL'Y 571, 574 (1990).

³³ . See TATA ENERGY RESEARCH INSTITUTE, INTERNATIONAL CONFERENCE ON GLOBAL WARMING AND CLIMATE CHANGE: PERSPECTIVES FROM DEVELOPING COUNTRIES 2 (1989).

³⁴ . Developing Policies for Responding to Climate Change: A Summary of the Discussions and Recommendations of the Workshops Held in Villach (28 September - 2 October 1987) and Bellagio (9-13 November 1987) Doc. WMO/TD-No.225 (1988).

³⁵ . Fourteen cities in Europe, North America, and the Middle East recently concluded an agreement to meet the Toronto goals. *Cities Reach Accord to Jointly Curb Emissions of CO₂ by 20 Percent by 2005*, 15 INT'L ENVTL. REP. (BNA) No. 12, at 420 (June 17, 1992).

³⁶ . THE CHANGING ATMOSPHERE: IMPLICATIONS FOR GLOBAL SECURITY (July 5, 1988), held in Toronto, Canada, June 27-30, 1988, at para. 22 *reprinted in* SELECTED LEGAL MATERIALS, 5 AM. U.J. INT'L L. & POL'Y 515, 521 (1990).

By 1989 governments were grappling with climate change in the IPCC, and global warming was becoming an issue of major concern for most of the highly industrialized countries. At the G-7 summit in Paris, in July 1989, (the "Summit of the Arch") members advocated common efforts to limit emissions of CO₂ and other GHGs, and called "urgently" for the conclusion of a framework climate convention.³⁷ A ministerial conference to specifically consider climate change, held in November 1989, in Noordwijk, the Netherlands, was attended by many of the world's environmental ministers.³⁸ Due largely to U.S. efforts, this conference did not endorse the Toronto goals, but called instead for actions aimed at:

reducing emissions and increasing sinks for greenhouse gases to a level consistent with the natural capacity of the planet . . . within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and permit economic activity to develop in a sustainable and environmentally sound manner.³⁹

This language is reflected in the objective of the climate treaty.⁴⁰ The Declaration did, however, *urge* industrialized countries to investigate, through the IPCC, the feasibility of achieving the Toronto targets.⁴¹

By this time, strain was beginning to show between the U.S and other industrialized countries over their diverging positions on climate change. Perhaps as a means of demonstrating that it was taking the problem seriously, the United States sponsored a "global change" conference in April 1990. The purpose of the conference was to give government officials from many countries an opportunity to review the latest information on the science and economics of climate change.⁴² However, the conference managed to shed little light on the subject of global warming. It served instead to focus attention on the widening gap between U.S. and European views on climate change and the policies each was willing to adopt to address the problem.

³⁷ . ECONOMIC DECLARATION, SUMMIT OF THE ARCH, *supra* note 31, at paras. 40 and 45.

³⁸ . NOORDWIJK DECLARATION ON ATMOSPHERIC POLLUTION AND CLIMATE CHANGE, para. 8 (Nov. 7, 1989), reprinted in SELECTED LEGAL MATERIALS, 5 AM. U.J. INT'L L. & POL'Y 592, 594 (1990) [HEREINAFTER NOORDWIJK DECLARATION]

³⁹ . *Id.* at para. 8.

⁴⁰ . U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, Art. 2, xxx I.L.M. 849 (1992). The objective of the Convention is "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system . . . within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner." *Id.*

⁴¹ . NOORDWIJK DECLARATION, *supra* note 39, para. 16, at 596.

⁴² White House Conference on Science and Economics Research Related to Global Change, Washington, D.C. (Apr. 17-18, 1990).

The last important meeting leading up to negotiation of the Framework Convention on Climate Change was the Second World Climate Conference, held in Geneva, November 1990. This conference reviewed and approved the IPCC reports and issued a Ministerial Declaration calling for negotiations to begin, with the goal of completing them in time for the convention to be signed at the Earth Summit in Rio.⁴³ The Ministerial Declaration did not, however, contain any reference to GHG targets or timetables, once again mainly the result of U.S. efforts.⁴⁴

C. Convention Negotiations.

Shortly after the Second World Climate Conference, the U.N. General Assembly established the Intergovernmental Negotiating Committee for a Framework Climate Convention (INC).⁴⁵ Charged by the General Assembly with producing an agreement to be signed at the Rio Earth Summit, in June 1992,⁴⁶ the INC began its deliberations in Chantilly, Virginia, in February 1990 — in the midst of a record heat wave.⁴⁷

By the time of this opening session, a number of countries had already committed to reducing GHG emissions. The European Community (EC) had stated it would return its joint CO₂ emissions to 1990 levels by the year 2000, and repeated its commitment in Chantilly. It also promised to provide financial assistance to help developing countries respond to climate change.⁴⁸ The EC position was based on individual country commitments by Germany, Denmark, Switzerland, Sweden, Australia, Austria, Norway, and Canada.⁴⁹ Many of these commitments went beyond stabilization at 1990 levels or promised deeper CO₂ cuts in later years.⁵⁰

Japan had previously stated that its "emissions of CO₂ should be stabilized on a per capita basis in the year 2000 and beyond at about the same level as in 1990," and "the emission of methane

43 . Second World Climate Conference Ministerial Declaration, Nov. 7 1991.

44 . *Marlise Simons, U.S. View Prevails at Climate Parley*, N.Y. TIMES, Nov. 8, 1990, at A9. By now, even Margaret Thatcher, the conservative British Prime Minister, was criticizing the Bush Administration's position. *Conference on Climate Singles Out U.S. as Wastrel of Energy*, N.Y. Times, Nov. 7, 1990.

45 . Protection of Global Climate for Present and Future Generations of Mankind, GA Res. 45/212, GAOR, 45th Sess., UN Doc. A/45/49 (1990)[hereinafter Protection of Global Climate].

46 . *Id.*

47 . *Climate Talks Start in Record Winter Heat Wave*, *Eco*, Feb. 5, 1991, at 1.

48 . *SEE INTERVENTION BY THE NETHERLANDS ON BEHALF OF THE EUROPEAN COMMUNITY AND ITS MEMBER STATES*, para. 6, first session of the INC, Feb. 4-14, 1991 (Nairobi, Sept. 19, 1991).

49 . See David Doniger, *Climate Negotiations: National Position Statements*, *Eco*, Feb. 7, 1991, at 2-5.

50 . *Id.*

should not exceed the present (Dec. 1990) level."⁵¹ In the opening round it called for negotiation first of a basic framework, but suggested the framework convention might also contain concrete measures to be taken by the parties.⁵²

The United States, as expected, rejected targets and timetables, instead advocating a "no regrets" policy of actions that could be taken for reasons having nothing to do with global warming.⁵³ For example, the U.S. might promote the use of a new energy technology that would have global warming benefits if it could be shown to be more cost-effective, or to reduce urban pollution, but not merely for the purpose of reducing GHG emissions. The U.S. also supported further research to resolve uncertainties and a "comprehensive approach" to reducing emissions, which would take into account not just CO₂, but all GHGs.⁵⁴

The Group of 77 developing countries (actually composed of 127 developing countries) made a point of the fact that 75% of energy-related CO₂ emissions are attributable to industrialized countries,⁵⁵ but acknowledged, nevertheless, that developing countries have a responsibility not to follow the same path. They called for industrialized countries to transfer environmentally sound technologies to developing countries on preferential and non-commercial terms to help them avoid the environmentally destructive aspects of development.⁵⁶ They also called for creating a differentiated regime under the climate convention for developing countries, along the lines of the Montreal Protocol.⁵⁷

The U.S. attempted to deflect some of the criticism aimed at it during the first negotiating round by releasing a White House "Action Agenda," intended to demonstrate that the U.S. was acting responsibly with regard to its GHG emissions. The Action Agenda purported to show that U.S. policies would result in GHG emissions in the year 2000 at or below 1987 levels.⁵⁸ Unlike the

⁵¹ . GOVT. OF JAPAN, ACTION PROGRAM TO ARREST GLOBAL WARMING: Decision of the Council of Ministers for Global Environmental Conservation, at 4 (Oct. 23, 1990).

⁵² . Statement by Ambassador Nobutoshi Akao, at the First Session of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, at 3.

⁵³ . Statement of E.U. Curtis Bohlen, Assistant Secretary of State for Oceans, International Environmental and Scientific Affairs, U.S. Dept. of State, before the Intergovernmental Negotiating Committee, Framework Convention on Climate Change, at 2.

⁵⁴ . *Id.* Many countries objected that, by linking reduction of gases with sources that are clearly understood and controllable – e.g. CO₂ and, to a lesser extent, methane – to reduction of gases that are less well understood, a comprehensive approach could delay implementation of commitments and make compliance extremely hard to verify.

⁵⁵ . *Climate Negotiations: National Positions Statements, Ghana, for Group of 77, Eco*, Feb. 7, 1991, at 2.

⁵⁶ . *Id.*

⁵⁷ . *Id.* The Montreal Protocol provides a ten year grace period for developing countries to phase out ozone depleting substances and provides financing of incremental costs incurred by developing countries in meeting their obligations. Montreal Protocol on Substances That Deplete the Ozone Layer, 16 Sept. 1987, 26 I.L.M. 1541.

⁵⁸ . AMERICA'S CLIMATE CHANGE STRATEGY (1991).

European plans, however, the U.S. approach contemplated significant increases in domestic CO₂ emissions.⁵⁹ To achieve its year 2000 target, the U.S. plan relied heavily on the phaseout of CFCs, then thought to account for approximately 11% of GHG atmospheric radiative forcing (contribution to global warming).⁶⁰ Both the Europeans and environmentalists objected that the U.S. plan was disingenuous, since CFCs were already scheduled to be phased out under the Montreal Protocol on Substances That Deplete the Ozone Layer,⁶¹ and were not included in other countries' emissions reduction plans.

Little progress was made on substantive issues at the first session. Delegates spent most of the two weeks setting up working groups and selecting their leadership. Two working groups were established. Working Group I, on Commitments, was given the task of preparing a text related to: commitments for limiting GHG emissions, protecting and enhancing sinks, and the adoption of measures to counter the adverse effects of climate change; commitments on the provision of financial assistance and technology to help developing countries fulfill their obligations under the Convention; and commitments that would address the particular concerns of areas especially threatened by flooding, erosion, desertification, and high urban atmospheric pollution.⁶²

Working Group II, on Mechanisms, was to prepare a text on legal and institutional mechanisms related to, *inter alia*, entry into force, withdrawal, compliance, assessment, scientific cooperation, monitoring, information, "adequate and additional" financial resources, technological needs and cooperation, and technology transfer to developing countries.⁶³

The first round ended with the U.S. and the EC deadlocked on the question of whether the agreement should include firm commitments to reduce GHGs. To break the deadlock, the UK Environment Secretary, Michael Heseltine, traveled to the U.S. shortly before the start of the second round with an offer of compromise. The EC would accept the U.S.'s comprehensive approach – excluding gases already controlled by the Montreal Protocol – if the U.S. would accept targets and timetables.⁶⁴ The U.S. declined, however, and little additional progress was made in the second round. In hopes of moving the process incrementally forward, Japan, with the support of the UK and France, floated an informal paper proposing a "pledge and review" approach, under which parties would pledge to undertake actions to reduce emissions, and an international body would review the

⁵⁹ . Ironically, the release of the U.S. Action Agenda coincided with the release of a report by the Congressional Office of Technology Assessment showing that the U.S. could reduce its CO₂ emissions 29-35% within twenty five years at minimal cost. OFFICE OF TECH. ASSESSMENT, U.S. CONGRESS, CHANGING BY DEGREES: STEPS TO REDUCE GREENHOUSE GASES (Feb., 1991).

⁶⁰ . AMERICA'S CLIMATE CHANGE STRATEGY, *supra* note 55, at 2.

⁶¹ . Montreal Protocol on Substances That Deplete the Ozone Layer, *supra* note 54, at xx.

⁶² . Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the Work of Its First Session, Held At Washington, D.C., from 4 to 14 February 1991 at 24. U.N. Doc. A/AC.237/6 (1991).

⁶³ . *Id.*

⁶⁴ . The Independent, July 9, 1991.

implementation of those pledges.⁶⁵ Environmentalists were quick to lampoon this approach as "hedge and retreat."

Supporters of pledge and review – stung by environmentalists' criticism – backed away from the proposal at the next negotiating round, in Nairobi in September, and reaffirmed their support for stabilization of CO₂ emissions at 1990 levels by 2000.⁶⁶ The EC also called for a treaty objective to stabilize GHGs at levels that would "prevent dangerous anthropogenic interference with climate" within a timeframe that would "allow ecosystems to adapt naturally."⁶⁷ The U.S. continued to resist any binding commitments on targets and timetables.

But cracks in the U.S. position were beginning to appear. In December, when White House Chief-of-Staff John Sununu – the Administration's strongest opponent of greenhouse gas controls – resigned, the White House began to review its position.⁶⁸ EPA Director William Reilly argued that stabilization tied to population growth was achievable, based on EPA's innovative "Green" Programs.⁶⁹ By the start of the last negotiating round, in February 1992, Administration officials were reporting that a change was in the works.

The first complete draft text was introduced at the fourth negotiation, held in Geneva in December.⁷⁰ It was over 110 pages long, and most of it was bracketed, meaning that it was controversial and had not yet been adopted by the full Committee. Nevertheless, its introduction signalled that the Committee might yet complete its work in time for the June Earth Summit.

The fifth round, in February, was scheduled to be the last. The EC reaffirmed its commitment to emissions stabilization, but the U.S. would not yield. The U.S. did, however, present a new action plan that, for the first time, included actual reductions from projected GHG emissions – over and above any possible gains from the phaseout of CFCs – and funding for developing countries.⁷¹

Meanwhile, it was becoming clear that negotiators would never resolve all the issues under discussion in time for Rio, and wholesale jettisoning of bracketed provisions began. As time grew short, negotiators agreed to return to the UN at the end of April, to try to finish their work. During

⁶⁵ . See *Climate Groups Attacks UK, Japan, France Policy*, *Eco*, June 25, 1991, at 1.

⁶⁶ . *Climate Change Negotiations- Nairobi*, *Eco*, Sept 11, 1991, at 1.

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. *Climate Change Negotiations- Nairobi*, *Eco*, Sept. 12, 1991, at 1.

⁶⁸ . Micheal Weisskopf, *Global Warming Pact Talks to Resume*, *Wash. Post* [check date], at xx.

⁶⁹ . *Id.* The Green Programs are voluntary industry energy efficiency programs sponsored by EPA. They include Green Lights, Energy Star Computers, Green Industrial Motors, Green Buildings, and Golden Carrot. *Cite.*

⁷⁰ . Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the Work of Its Fourth Session, Held at Geneva from 9 to 20 December 1991, Annex II, U.N. Doc. A/AC.237/15 (1992).

⁷¹ . U.S. VIEWS ON GLOBAL CLIMATE CHANGE (1992).

the interim the INC Chairman, in consultation with a number of countries, substantially revised the text, paring it down to a third its previous size. Also during the interim, the OECD countries met in Paris to try to find a formula that would be acceptable to the U.S. The meeting ended in failure.

The Chairman's text was in many respects a *fait accompli* – there was simply not enough time to make large-scale revisions. Ground-breaking approaches to dispute settlement, a financial mechanism, technology transfer, amendments, annexes, protocols, and entry into force contained in earlier drafts were dropped in favor of formulations that in some respects marked a retreat from previous international environmental agreements.⁷²

The commitment section of the Chairman's text acknowledged the fact that a legally binding commitment to reduce GHGs was beyond reach, if the U.S. was to be a signatory. It reflected a consensus of the other OECD countries that an agreement would not be meaningful without the participation of the U.S.⁷³ The EC and Japan mildly protested the weak commitment section, but made clear they would not hold out for stronger language.⁷⁴ The Chairman blamed the weak and ambiguous GHG commitment language squarely on the U.S.

Had the U.S. not taken such a hard line on commitments, the Convention would no doubt have been stronger. But the difference a more constructive U.S. approach might have made should not be overstated. Not every industrialized country, besides the U.S., was prepared to make commitments to deep cuts in CO₂ or other GHG emissions. Indeed, the best the EC could offer was to stabilize its emissions at 1990 levels by 2000. Japan's commitment was even weaker, though it probably would have accepted the EC target. Nevertheless, a firm commitment to any targets and timetables would have been a significant improvement, and may have accelerated the entire process of negotiating an effective global warming agreement by a year or more.

IV. The Convention

Although it is not the strong innovative treaty environmentalists had hoped for, the Framework Convention on Climate Change⁷⁵ need not be viewed as a total failure. As a framework convention, it goes considerably farther than its progenitor, the Vienna Convention for the Protection of the Ozone Layer. Unlike the Vienna Convention, it contains a clear objective, some substantive obligations, a financial mechanism, and a procedure - albeit rather weak - for resolving disputes. Perhaps most importantly, it contains procedures for its own review and strengthening.

A. Article 2 Objective

⁷² . See *Eco*, May 2, 1992, at 2.

⁷³ . This view may also have been prompted by a reluctance to embarrass the Bush Administration in an election year.

⁷⁴ . See *Eco*, May 4, 1992, at 1.

⁷⁵ . See Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the Work of the Second Part of Its Fifth Session, Held at New York from 30 April to 9 May 1992, Annex I, U.N. Doc. A/AC.237/18(Part II)/Add.1 (1992).

The Convention Objective provides a clear statement of purpose: "to achieve . . . stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system . . . within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."⁷⁶ This formulation provides a measure by which the Parties can assess the adequacy of their commitments – as Article 4.2(d) requires them to do – and to revise them if scientific information shows the objective will not be met.⁷⁷

The reference to stabilization of GHG *concentrations* – as opposed to mere stabilization of emissions – is an acknowledgement that to solve the problem of global warming it will eventually be necessary to make dramatic reductions from current levels of emissions; stabilization of CO₂ concentrations, for example, will require a greater than 60% cut in CO₂ emissions, according to the IPCC.⁷⁸ Furthermore, the Objective is premised on the notion of ecological limits to changes in atmosphere and climate and the rate at which ecosystems are able to adapt to changing climate. For example, under a business-as-usual scenario, climate is expected to change faster than tree species will be able to respond through migration.⁷⁹ As more is learned about these limits, it will be incumbent upon the parties to modify the Convention, and their emissions levels, accordingly.

B. Article 3 Principles

While the Principles section does not impose any legally binding obligations on the parties, it should guide the parties in their implementation of the Convention. The principles provide a set of standards by which the behavior of parties may be measured by other parties, non-governmental organizations, and the rest of the international community.

Article 3 refers to two important environmental principles. First, it adopts the precautionary principle, stating that the lack of full scientific certainty should not be used as a reason for postponing measures to anticipate, prevent, or minimize the causes of climate change or mitigate its effects.⁸⁰ The principle is weakened, however, by the suggestion that policies and measures to deal with climate change should be cost-effective, with no indication what types of costs may be considered and, in

⁷⁶ . U.N. Framework Convention on Climate Change, *opened for signature* June xx, 1992, Art. 2 [hereinafter the Framework Convention].

⁷⁷ . *Id.* at art. 4.2(d). An attempt by the U.S. delegation, late in the negotiations, to insert a reference to cost effectiveness into the Objective was rejected.

⁷⁸ . IPCC SCIENCE ASSESSMENT, *supra* note 1 at xviii, table 2. It should also be noted that the size of the reduction depends on the timeframe during which cuts are made. *See id.*, at xvii, fig. 4.

⁷⁹ . IPCC IMPACTS ASSESSMENT, *supra* note 2, at 2-26.

⁸⁰ . Framework Convention, art. 3, para. 3.

particular, no stipulation that all external costs must be accounted for.⁸¹ Article 3 also refers to sustainable development, but this reference is immediately followed by a paragraph that emphasizes sustainable economic growth, a very different, and often antithetical, concept.⁸² A third important environmental principle, the "polluter pays" principle, is conspicuously absent, despite attempts by a number of countries to include it.⁸³ This is obviously a sensitive issue for industrial countries with high emissions levels, since the future costs of global warming are unknown and might be extremely high.⁸⁴

A number of principles deal with issues of importance to developing countries. For example, the acknowledgment that parties have "common but differentiated responsibilities," implies that industrial countries must take the lead in protecting the climate system.⁸⁵ Similarly, recognition is given to the "special circumstances" of developing countries, which would include oil exporting countries that might be hurt by reduced reliance on fossil fuels.⁸⁶ The priority that developing countries believe should be given to development is acknowledged,⁸⁷ as is their insistence on free and open international trade and prohibition of trade barriers disguised as policies to address global warming.⁸⁸

A few of the principles address developed country concerns: "[p]olicies and measures to deal with climate change should be cost-effective"⁸⁹; they should be "comprehensive" (reflecting the U.S. call for a "comprehensive approach" that could, for example, permit trading between gases)⁹⁰; they should include sinks as well as sources (giving rise to many of the problems associated with the

⁸¹ . *Id.* To achieve cost-effectiveness, "policies and measures should take into account different socio-economic contexts, be comprehensive [i.e., include all GHGs], cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors." *Id.*

⁸² . Framework Convention, art. 3, para. 4 and para. 5.

⁸³ . *See e.g.*, Compilation of Possible Elements for a Framework Convention on Climate Change Submitted by Delegations, U.N. Doc. A/AC.237/Misc.5/Add.3 at 16.

⁸⁴ . W. CLINE, GLOBAL WARMING: THE ECONOMIC STAKES (1992)

⁸⁵ Framework Convention, art. 3, para. 1.

⁸⁶ *Id.* at para. 2.

⁸⁷ *Id.* at para. 4.

⁸⁸ *Id.* at para. 5. Developing countries with large areas of forest are particularly concerned that developed countries might restrict imports of timber and timber products, to preserve forests as carbon sinks. [cite]

⁸⁹ . *Id.* at para. 3.

⁹⁰ . *Id.*

comprehensive approach);⁹¹ and perhaps most importantly, "they may be carried out cooperatively."⁹² This means that countries may receive credit for actions taken by, in, or in conjunction with other countries. Thus, industrial countries may aggregate their emissions reductions to reach a joint target, as the EC has promised to do.⁹³ Or, industrial countries may finance source reducing or sink enhancing projects in developing countries to offset their own emissions.⁹⁴

C. Article 4 Commitments

1. General Commitments

For the purposes of undertaking the commitments contained in Article 4, the Convention divides the parties into three groups: (1) the 25 developed country parties listed in annexes I and II;⁹⁵ (2) the 11 parties with "economies in transition" (the ex-Soviet bloc countries) listed in annex I only;⁹⁶ and (3) all other parties.

The general commitments, which all parties are required to fulfill, are contained in Article 4, paragraph 1. In fulfilling these commitments, the parties may take into account their "common but differentiated responsibilities and their specific national and regional development priorities."⁹⁷ The Convention does not specify what these differentiated responsibilities and development priorities are, or how they affect the parties' obligations, but the language was nevertheless insisted upon by developing countries to buttress their view that global warming concerns should not interfere with their economic development.

Of the lengthy list of commitments contained in paragraph 1, only a few could be termed legally binding. Most are more in the nature of exhortations, containing such nebulous and difficult to enforce phrases as "[shall] promote," "[shall] cooperate," "[shall] take into consideration," "to the

91 . *Id.*

92 . *Id.* Cooperative measures (joint implementation) are discussed *infra*, notes __ and accompanying text.

93 . Protection of Global Climate, *supra* note 45.

94 . *See infra* notes 132-34 and accompanying text on joint implementation.

95 The parties listed in annex II are Australia, Austria, Belgium, Canada, Denmark, European Community, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom of Great Britain and Northern Ireland, United States of America. Framework Convention, art. 4, Annex II.

96 The parties listed in annex I, but not annex II, are Belarus, Bulgaria, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, Ukraine. *Id.* at Annex I.

97 *Id.* at art. 4, para. 1.

extent feasible," and so on.⁹⁸ Of all the commitments, it is likely that only the requirement to develop and publish national reports will be enforceable, in the sense that failure to provide the required information could give rise to a dispute between one party and another which could trigger the dispute settlement procedure laid out in Article 14.

a. National programs and reports. Article 4, paragraph 1(a) requires all parties to develop, publish, and regularly update country reports containing national inventories of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.⁹⁹ To ensure uniformity and comparability, these inventories are to be developed in accordance with standard methodologies, which are to be formulated by the Conference of the Parties (the "CoP").¹⁰⁰

Paragraph 1(b) requires all parties to "[f]ormulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change."¹⁰¹ No particular measures or emissions reductions targets or timetables are specified, and it is questionable whether parties could be held legally accountable for failing to implement paragraph 1(b).

The phrase "measures to facilitate adequate adaptation to climate change" in paragraph 1(b) was carefully chosen. Developed countries have agreed to finance the "agreed full incremental costs" to developing countries of meeting their obligations under article 4.1. Had the paragraph instead said "measures to *adapt* to climate change," developed countries would be obligated to pay at least the "agreed" incremental costs of adaptation, which conceivably could be astronomical. But developed countries interpret the word "facilitate" to mean "prepare for," a much less costly undertaking.

The content of the national reports required by paragraphs 1(a) and (b) is spelled out in Article 12. In addition to the inventory of sources and sinks called for in paragraph 1(a), they must contain "a general description of steps taken or envisaged by the Party to implement the Convention [and] any other information that the Party considers relevant to the achievement of the objective of the Convention and suitable for inclusion in its communication."¹⁰² If "feasible," the party is also to include material relevant for calculations of global emissions trends.¹⁰³

98

Id.

99

Id. at art. 4.1(a).

100

Id.

101

Id. at art. 4, para. 1(b).

102

Id. at art. 12, para. 1(b) and (c).

103

Art. 12, para. 1(c).

It should be stressed that the Convention contains no independent means for verifying the inventories provided by the parties in their reports. While gross cheating does not appear likely – fossil fuel emissions are already well documented, at least, in the industrialized world – countries that have pledged to reduce emissions may be tempted to "fudge" their reporting.¹⁰⁴ Perhaps more important, for the present, is the need to develop universally accepted inventory procedures. While this task has been assigned to the Conference of the Parties, to be taken up at its first session,¹⁰⁵ the IPCC and the Organization for Economic Cooperation and Development (OECD) have already begun work on a set of guidelines for national inventories of GHG emissions and sinks.¹⁰⁶

b. Other general commitments. In addition to developing plans and programs, parties must promote and cooperate in the development and diffusion of greenhouse-friendly technologies;¹⁰⁷ promote sustainable management, conservation, and enhancement of sinks and reservoirs, including biomass, forests, and oceans and other marine ecosystems;¹⁰⁸ cooperate in efforts to adapt to climate change, manage coastal zones, water resources, and agriculture, and protect and rehabilitate areas affected by drought, desertification, and floods;¹⁰⁹ promote and cooperate in climate change research, observation, and data gathering;¹¹⁰ promote and cooperate in the full, open, and prompt exchange of relevant information;¹¹¹ promote and cooperate in education, training, and public awareness;¹¹² and communicate to the Conference of the Parties information related to implementation, in accordance with Article 12.¹¹³

104 A study examining nine international environmental regimes that rely on self-reporting found that none has a perfect record. "Often countries do not report, falsify reports, or submit incomplete or poor-quality reports," note the authors. *Truth in Reporting: Verifying Compliance With the Climate Convention*, 4 GLOBAL ENVTL. CHANGE REP. (CUTTER) No. 18, at 1 (Sept. 25, 1992).

105 Framework Convention, art. 7, para. 2(d).

106 *Truth in Reporting: Verifying Compliance With the Climate Convention*, *supra* note 94, at 2. The IPCC and OECD plan to release a step-by-step workbook, reference manual, and software on standardizing inventories. *Id.*

107 Framework Convention, art. 4, para. 1(c).

108 *Id.* at para. 1(d).

109 *Id.* at para. 1(e).

110 *Id.* at para. 1(g).

111 *Id.* at para. 1(h).

112 *Id.* at para. 1(i).

113 *Id.* at para. 1(j).

Parties are to "[t]ake climate change considerations into account, to the extent feasible, in their relevant social, economic, and environmental policies and actions."¹¹⁴ They are also to employ "appropriate methods," including impact assessments, to "minimiz[e] adverse effects on the economy, on public health, and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change."¹¹⁵ Unfortunately, this provision may fail to do the obvious: require countries to perform impact assessments to determine the effects of their actions on climate change.

Paragraph 1 recognizes that there are "common but differentiated responsibilities" among the Parties, implying that developed countries have a heavier burden in meeting paragraph 1 commitments than developing countries.¹¹⁶ Similarly, it acknowledges that a country's obligations under paragraph 1 may be affected by its "national and regional development priorities,"¹¹⁷ and implementation by developing countries will take into account that economic and social development is their "first and overriding priorit[y]."¹¹⁸ Developing country implementation is further conditioned on "effective" implementation by developed country parties of their commitments, under paragraph 2, to provide financial assistance and transfer of technology.¹¹⁹

2. *Specific Commitments for Developed Countries*

Article 4, paragraph 2 contains commitments that apply only to parties listed in annex I, i.e., developed countries and countries with economies in transition.¹²⁰ It was this section that proved to be the most controversial. The Europeans were determined to get a binding commitment to, at a minimum, return CO₂ emissions to their 1990 levels by 2000; indeed, many had already adopted unilateral commitments to reduce their emissions even further.¹²¹ But the U.S. was adamant; the text must not contain legally binding targets and timetables. In the end, the U.S. view seems to have prevailed, for, though a reasonable argument can be made that article 4 requires industrial countries

114 *Id.* at para. 1(f).

115 *Id.* Some countries, including the U.S., sought to extend the requirement for impact assessments to cover national economic policies, this was strongly resisted by India, China, and a number of other developing countries.

116 *Id.* at para. 1.

117 *Id.*

118 *Id.* at para. 7.

119 *Id.*

120 *Id.* at para. 2. Parties "undergoing the process of transition to a market economy" are to be given a certain degree of flexibility in their implementation of these commitments, including with regard to selection of an emissions baseline. *Id.* at para. 6.

121 . See Schmidt, *supra*, note xx and accompanying text.

to return their emissions to 1990 levels by 2000, the tortured text of paragraph 2 is so purposefully unclear that it probably does not have the force of law. The U.S. strategy was to decouple the target from the timetable. Thus, paragraph 2(a) refers to actions to be taken by the end of the decade, while paragraph 2(b) discusses a return to 1990 levels. Nevertheless, a careful reading of paragraph 2(b) leads to the conclusion that, indeed, industrial countries are to return their emissions to 1990 levels by 2000.

a. Commitment to reduce emissions. Article 4, paragraph 2(a) requires each annex I party to "adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs."¹²² It goes on to say that "return by the end of the present decade to earlier levels of anthropogenic emissions . . . would contribute to [modifying longer-term trends in emissions]."¹²³

In meeting their commitment to reduce emissions and enhance sinks, parties may make allowances for their "different starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances."¹²⁴ They are also to take into account the need for "equitable and appropriate contributions" by each of the annex I parties to the global effort to accomplish the Convention's objective.¹²⁵ Finally, annex I parties "may implement such policies and measures jointly with other Parties and may assist other Parties in contributing to the achievement of the objective of the Convention and, in particular, that of this subparagraph."¹²⁶

b. Commitment to develop national plans. Paragraph 2(b) requires annex I parties to provide detailed information on their GHG policies and projected emissions by sources and removals by sinks of GHGs within six months of entry into force of the Convention.¹²⁷ They are to provide this information "with the aim of returning individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol."¹²⁸ Certainly there is a strong argument that this provision requires industrialized countries to develop plans that return their emissions to 1990 levels at some time in the future. But

122 . Framework Convention, art. 4, para 2(a).

123 . *Id.*

124 . *Id.* at para 2(a).

125 . *Id.*

126 . *Id.* Joint implementation is discussed *infra*, notes 132-34 and accompanying text.

127 . Framework Convention, art. 4, para. 2(b). Contrast this commitment with the commitment to develop and publish country reports in paragraph 1.

128 . *Id.*

it can also be argued that paragraph 2(b) requires them to develop plans that return their emissions to 1990 levels by 2000.¹²⁹ While this is not a reading to which the U.S. administration would have subscribed,¹³⁰ it is a plausible interpretation that could be adopted by other Parties during the implementation phase, or perhaps put forward by them as an understanding in their instruments of ratification.¹³¹

The Convention says nothing about emissions levels beyond the year 2000, so it is possible that parties plans might call for a return to 1990 or other earlier levels at some point, but for an increase in emissions thereafter. Unless further scientific research indicates that higher levels of emissions are consistent with the Convention objective, failure to stabilize emissions at or below 1990 levels would violate the spirit and probably the intent of the Convention and probably would be challenged.

c. Joint implementation. Paragraph 2 permits annex I parties to implement their policies and measures to mitigate climate change "jointly" with other parties,¹³² based on criteria to be developed by the COP at its first session.¹³³ Many non-governmental organizations (NGOs) strongly object to "joint implementation," viewing it as a loophole that would permit industrial countries to continue to increase their emissions by offsetting their increases with hard to verify emissions reductions in developing countries (or ex-Soviet Bloc economies in transition).¹³⁴ Another concern is that the cheapest mitigation strategies to be had in those countries could be used

¹²⁹ . The argument is that the phrase "these [GHG emissions]," refers to the one which precedes it, "resulting projected anthropogenic emissions . . . for the [remainder of the present decade]." Thus, developed country Parties must have plans that aim at returning GHG emissions during the remainder of present decade to their 1990 levels. This argument is bolstered by the fact that in all the preceding negotiations and draft texts, all references to a timetable for stabilization had as the target date the year 2000. See previous draft texts of the Framework Convention. Note: is this cite OK?

¹³⁰ . Such a reading is not explicitly contradicted by the U.S. State Department's analysis of the Convention, although, in the documentation transmitted to the President prior to ratification the State Department notes that Article 4, paragraph 2(b) "does not create a legally binding target." ARTICLE-BY-ARTICLE ANALYSIS OF THE FRAMEWORK CONVENTION ON CLIMATE CHANGE, *issuing body*, at xx (1992).

¹³¹ . The international legal effect of such an understanding is set out in the Vienna Convention on the Law of Treaties, Art. 31, para.2(b).

¹³² . Framework Convention, art. 4, paras. 2(a) and (b).

¹³³ . *Id.* at para. 2(d). Norway submitted a proposal to the INC for a joint implementation scheme involving a climate fund to cover incremental costs of commitments taken on by developing countries; a clearinghouse to receive, evaluate, and find partners for project proposals; and a mechanism for identifying and transferring technology. T. HANISCH, JOINT IMPLEMENTATION OF COMMITMENTS TO CURB CLIMATE CHANGE, Policy Note 1991:2 (1991). See also Statement by Prof. Dr. Amsgar O. Vogel to the 4th Session of the INC, Geneva, Dec. 9-20, (1991).

¹³⁴ . See, e.g., D. Goldberg, Joint Implementation Concerns, Center for International Environmental Law (Feb. 12, 1992); No Joint Implementation and Emissions Trading, paper distributed at 5th meeting of the INC by 17 NGOs (Feb. 26, 1992).

by their developed country "partners," leaving developing countries with much costlier strategies for achieving the additional future emissions reductions that almost certainly will be required. Some NGOs, however, view joint implementation as a trial run for a global system of marketable emissions permits, an approach to limiting GHGs advocated by a number of economists and policy analysts. Since the criticisms mentioned above would not seem to apply to cooperative efforts within the European Community, which has committed to stabilize EC-wide emissions at 1990 levels by 2000, the EC might be an ideal testing ground for both joint implementation and marketable emissions permits.¹³⁵

d. Review of commitments. An interesting and important feature of paragraph 2 is that it provides for its own review. The Conference of the Parties, at its first session, is to review the adequacy of subparagraphs (a) and (b) in light of the best available scientific, technical social, and economic information.¹³⁶ If it finds that the commitments contained in these subparagraphs are inadequate, the Conference of the Parties is authorized to take the necessary actions, which may include amending the Convention.¹³⁷

e. Other Specific Developed Country Commitments. Other provisions of paragraph 2 require developed country Parties to develop methodologies to take into account the best available scientific knowledge in calculating emissions of GHGs by sources and removals by sinks;¹³⁸ coordinate economic and administrative instruments developed to meet their commitments under the Convention;¹³⁹ identify policies and practices that encourage or increase GHG emissions;¹⁴⁰

3. *Financial Assistance*

¹³⁵ . See, e.g., A. LEBLANC, JOINT IMPLEMENTATION AND THE DEVELOPMENT OF AN EMISSIONS TRADING SYSTEM FOR GREENHOUSE GASES, Environmental Defense Fund (1991). Marketable emissions permits would "cap" emissions at a selected level and allocate permits to emit the chosen level of emissions among potential polluters, who would then be free to trade or sell permits among themselves. In theory, this would result in the lowest overall cost of achieving the selected level of emissions reduction. Tietenberg, *Economic Instruments for Environmental Regulation*, 6 OXFORD REV. ECON. POL'Y 17 (1990). For a description of a particular scheme to limit GHG emissions utilizing marketable permits in conjunction with other regulatory mechanisms, see D. GOLDBERG, REDUCING GREENHOUSE GAS EMISSIONS: A COMBINED STRATEGY USING PERMITS, FEES, AND COUNTRY COMMITMENTS, Center for International Environmental Law (1992).

¹³⁶ . Framework Convention, art. 4, para. 2(d). The Conference of the Parties is to review subparagraphs (a) and (b) for a second time not later than Dec. 31, 1998, and thereafter at regular intervals "until the objective of the Convention is met." *Id.*

¹³⁷ . *Id.* Of course, it might be argued that this provision adds nothing to the Convention, since the Conference of the Parties has authority to amend the Convention anyway. See Art. 15. Article 4 might be read to permit dispensing with the six month notification requirement, however. See *Id.* at para. 2(d).

¹³⁸ . *Id.* at para. 2(c).

¹³⁹ . *Id.* at para. 2(e)(i).

¹⁴⁰ . *Id.* at para. (2)(e)(ii).

The developed country parties listed in annex II undertake two financial commitments in Article 4, paragraph 3. First, they must finance the "agreed full costs" of developing country parties' national reports. Second, they must pay the "agreed full incremental costs" to developing countries of implementing the other provisions of Article 4, paragraph 1,¹⁴¹ with the proviso that these costs must be agreed to by the "operating entity" of the financial mechanism. Incremental costs, according to one formulation, are costs of fulfilling an obligation arising under the Convention in excess of those costs that would have been incurred otherwise. A different formulation characterizes incremental costs as the costs of achieving some "global benefit" less the value of any national benefit. The operative definition of incremental costs remains to be elaborated by the CoP.

Developing countries insisted that financing provided by annex II parties to cover incremental costs be "new and additional" (meaning it should not divert funds from established flows of development assistance). Taken to the extreme, this would mean that developed countries may never reduce development assistance, since, to meet their commitment under the Convention, they would continually be required to provide funds in excess of past levels.

In implementing paragraph 3, annex II parties are to ensure "adequacy and predictability in the flow of funds" and "appropriate burden sharing among developed country Parties."¹⁴² They are to take "full account of the specific needs and special situation" of the least developed countries,¹⁴³ and assist developing country parties "that are particularly vulnerable to the adverse effects of climate change" in meeting the costs of adapting to those effects.¹⁴⁴ Funding of adaptation is bound to be a source of future conflict, for developing countries would like the "full incremental costs" of adaptation to be paid by the financial mechanism. Developed countries argue that reference to the financial mechanism (article 11) is made only in paragraph 4.3, and covers only commitments referenced in that paragraph. Adaptation is discussed in paragraph 4.4, hence it is not covered by the financial mechanism. Furthermore, they argue, adaptation has no incremental costs, since global benefits of adaptation are no greater than local benefits, incremental costs being the difference between the two.

While developed countries acknowledge that they have an obligation to pay some costs related to adaptation, these may be limited to the preparation costs contained in subparagraph 4.1(b).

Developed countries are also to give "full consideration" to the possible need for other actions, including funding, insurance, and technology transfer, "to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change."¹⁴⁵ There is no reason, however, to think these costs will receive any more favorable consideration than the costs of adaptation referred to in paragraph 4.4.

141. [cite]

142. . *Id.*

143. *Id.* at para. 9.

144. . *Id.* at para. 4.

145. . *Id.* at para. 8 (emphasis added). Insurance has been a particular concern of the small island states. An earlier draft text contained an elaborate mechanism to provide insurance against the consequences of sea-level rise. Revised Consolidated Text Under Negotiation, U.N. Doc. A/AC.237/Misc.20 at 62. While the mechanism did not survive the final round of negotiations, it is likely to receive further consideration in the future.

4. *Technology Transfer*

Annex II parties are required 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 country Parties, to enable them to implement the provisions of the Convention."¹⁴⁶ Annex II parties are also required to support the "development and enhancement of endogenous capacities and technologies of developing country Parties."¹⁴⁷ Other parties and organizations are invited to contribute to this effort.¹⁴⁸

The developing countries generally sought to establish a mechanism for the transfer of technology on a "preferential and non-commercial basis."¹⁴⁹ The U.S. and a few other industrial countries responded that, since governments of countries with market economies do not own technology, they are unable to transfer it non-commercially. Some delegates found this argument unconvincing, and thought that industrial countries should be able to purchase needed technology and transfer it to developing countries for free or on favorable terms. In fact, however, since the financial mechanism is to pay the agreed full incremental costs of technology transfer, it is not clear that providing for preferential or non-commercial transfer would have made a significant difference.

D. *Articles 5 and 6 Research, Education, and Training*

In Articles 5 and 6 the Parties agree to support international data collection and observation¹⁵⁰ and to promote endogenous research capabilities in developing countries.¹⁵¹ They also agree to provide scientific and technical information to which countries might otherwise not have

146 . Framework Convention, art. 4, para. 5.

147 . *Id.*

148 . *Id.*

149 . IPCC Response Strategies 226, Malaysian Positions on Climate Change (paper distributed at FCCC negotiations, not dated).

150 . Framework Convention, art. 5, subpara. (a).

151 . *Id.* at subpara. (c).

access,¹⁵² and to promote public awareness and education,¹⁵³ public access to information,¹⁵⁴ public participation,¹⁵⁵ and training of scientific, technical, and managerial personnel.¹⁵⁶

E. *Articles 7 through 11 Institutional Mechanisms*

Articles 7 through 11 describe the Convention's institutional structure.

1. *Conference of the Parties (Article 7).*

Like a number of other international environmental agreements, the Convention establishes a Conference of the Parties (CoP). The CoP is the governing body of the Convention, and it is composed of all the parties.¹⁵⁷ The CoP meets at least once a year, beginning within a year after entry into force of the Convention,¹⁵⁸ to review the operation and implementation of the Convention and consider the need for modifications by way of decisions, amendments or the adoption of protocols and other related legal instruments.¹⁵⁹ Meetings of the CoP may be attended by observers, including the UN, its specialized agencies, and the IAEA, as well as UN member states and observers.¹⁶⁰ National, international, governmental, and non-governmental organizations may also attend as observers, unless one-third of the parties in attendance object.¹⁶¹

As more is learned about global warming, the CoP must continually assess the Convention to ensure that it is meeting its objective. In particular, it must assess the adequacy of the specific commitments contained in article 4, subparagraphs 2(a) and (b). If it finds that, in light of the best

152 . *Id.* at subpara. (b).

153 . *Framework Convnetion*, art. 6, subpara. (a)(i).

154 . *Id.* at subpara. (a)(ii).

155 . *Id.* at subpara. (a)(iii).

156 . *Id.* at subpara. (a)(iv).

157 . *Framework Convention*, art. 7, para. 2.

158 . *Id.* at para. 4.

159 . *Id.*

160 . *Id.* at para. 6.

161 . *Id.*

available scientific information, these provisions require strengthening, the CoP may amend them.¹⁶² An initial review of these provisions must take place at the first meeting of the CoP, with a second review by the end of 1998.¹⁶³

Negotiators left a number of other important issues for the CoP to resolve at its first session and beyond. It must develop criteria for joint implementation of annex I parties' obligations under article 4,¹⁶⁴ decide on the structure of the financial mechanism,¹⁶⁵ and consider the establishment of a multilateral consultative process for resolving questions concerning implementation of the Convention,¹⁶⁶ Also at its first session, and periodically thereafter, the CoP must review the plans submitted by countries for meeting their Convention commitments.¹⁶⁷ Much of the groundwork for these decisions will probably be done even before the Convention enters into force, by working groups established by the INC.¹⁶⁸

2. *The Secretariat (Article 8).*

The secretariat houses the Convention's operational staff made up of professional civil servants with no official ties to the parties.¹⁶⁹ The Secretariat will be responsible for arranging for meetings of the CoP, assisting in the development of country reports, and liaising with other international bodies to promote the effective operation of the Convention.¹⁷⁰

3. *Subsidiary Body for Scientific and Technical Advice (Article 9).*

162 . *Id.* at Art. 4, para. 2(d).

163 *Id.*

164 *Id.*

165 *Id.* at Art. 11, para. 4.

166 . *Id.* at art. 13.

167 . *Id.* at art. 4, para. 2(b).

168 . **Cite to UNGA decision to continue mandate of INC (Oct.-Nov. 1992?)**

169 . The secretariat activities will be carried out on an interim basis by the INC secretariat. Art. 21, para. 1. Correspondence should be addressed to Climate Change Secretariat, 16, Avenue Jean Trembley, 1209 Genève, Switzerland.

170 . Framework Convnetion, art. 8, para. 2.

The Subsidiary Body for Scientific and Technical Advice is a multidisciplinary body comprised of government representative experts.¹⁷¹ It is to provide the CoP and its subsidiary bodies with timely information and advice on scientific and technological matters.¹⁷² While it was considered for a possible role in conducting research into global warming, perhaps replacing the IPCC, negotiators decided instead to continue the activities of the IPCC as the world's principal body on climate change research.¹⁷³ The Subsidiary Body for Scientific and Technical Advice will be the IPCC's link to the Convention.¹⁷⁴ Its specific duties include: assessing the state of scientific knowledge on climate change;¹⁷⁵ assessing the effects of measures taken under the convention;¹⁷⁶ providing advice on state-of-the-art technologies and their development and transfer;¹⁷⁷ providing advice on scientific programs, research and development, and capacity building in developing countries;¹⁷⁸ and responding to questions from the CoP and its subsidiary bodies on science, technology, and methodology.¹⁷⁹

4. *Subsidiary Body for Implementation (Article 10).*

The Subsidiary Body for Implementation is to assist the CoP in the assessment and review of implementation of the Convention.¹⁸⁰ It is to be comprised of government representatives who are experts on matters related to climate change, and is open to participation by all parties.¹⁸¹

171 *Id.* at art. 9, para. 1.

172 . *Id.*

173 *See id.* at art. 21, para. 2.

174 . *Id.* at para. 2.

175 . *Id.* at art. 9, para. 2(a).

176 . *Id.* at para. 2(b).

177 . *Id.* at para. 2(c).

178 . *Id.* at para. 2(d).

179 . *Id.* at para. 2(e).

180 . *Id.* at art. 10, para. 1.

181 . *Id.*

Under the guidance of the CoP, its duties include: considering country reports, to assess the "overall aggregated effect of the steps taken by the Parties in the light of the latest scientific assessments concerning climate change";¹⁸² assisting the CoP in its review of those reports;¹⁸³ assisting the CoP, "as appropriate," in the preparation and implementation of its decisions.¹⁸⁴

In considering the implementation of the Convention by the parties, the Subsidiary Body for Implementation is to take into consideration "the situation of Parties, particularly developing country Parties, with economies that are vulnerable to the adverse effects of the implementation of measures to respond to climate change," notably countries dependent on income from production, processing, export, or consumption of fossil fuels and energy-intensive products or countries with serious difficulties switching to fossil fuel alternatives.¹⁸⁵ During the negotiations, a number of fossil fuel producing countries expressed concern that they could be severely hurt by measures to restrict the use of fossil fuels. This issue has yet to be addressed in any serious fashion by negotiators, and it is certain to be highly charged when it is taken up by the Subsidiary Body for Implementation.

5. *The Role of Non-Governmental Organizations*

Non-governmental organizations (NGOs) have an important role to play in the monitoring, implementation, and administration of the Convention. This role is acknowledged in Article 7, which requires the CoP to "seek and utilize, where appropriate, the services and cooperation of, and information provided by, competent international organizations and intergovernmental and *non-governmental* bodies."¹⁸⁶ Article 7 also stipulates that NGOs "qualified in matters covered by the Convention" may attend meetings of the CoP as observers, unless one-third of the parties present object.¹⁸⁷

NGOs have been involved in the climate negotiations from the start.¹⁸⁸ They lobbied delegates, addressed them on the floor at plenary sessions, and kept them informed with daily publications of *Eco*, a newsletter put out by the Climate Action Network, a coalition of

182 . *Id.* at para. 2(a).

183 . *Id.* at para. 2(b).

184 . *Id.* at para. 2(c).

185 . *Id.* at art. 4, para. 10 (emphasis added).

186 . *Id.* at art. 7, para. 2(1)(emphasis added).

187 . *Id.* at para. 6.

188 . Indeed, NGOs are largely responsible for spotlighting the problem of global warming, and the author has noted their attendance at all the major meetings and conferences leading up to the negotiations of the Convention.

environmental NGOs working on climate issues.¹⁸⁹ As NGOs now turn their attention to implementation and monitoring, they will focus, first, on the national reports, second, on the laws and policies that parties adopt to carry out their obligations under the Convention, and third, on the effectiveness with which parties implement their laws and policies. The Center for International Environmental Law, for example, as part of its State of Environmental Law program, will assess the laws of parties to determine how they should be revised to meet the objectives of the Convention.

F. Article 11 Financial Mechanism

Article 11 "defines" a financial mechanism for providing financial assistance and transferring environmentally sound technology, on a grant or concessional basis, to developing country parties, as required by Article 4. The financial mechanism is to "function under the guidance of and be accountable to the Conference of the Parties, which shall decide on its policies, programme priorities and eligibility criteria."¹⁹⁰

Despite this language, developed countries have made clear that they do not want the CoP to exercise unfettered control over the financial mechanism, or its "operating entity." Thus the word "defined" was chosen to distinguish the financial mechanism from subsidiary bodies, which must be "established," and which are under the control of the CoP, the "supreme body of Convention."

Article 11 stipulates that the operation of the financial mechanism "shall be entrusted to one or more *existing* international entities,"¹⁹¹ The clear intent of the developed countries was that this "operating entity" would be the Global Environment Facility (GEF), an international funding institution implemented jointly by the World Bank, the United Nations Environmental Programme, and The United Nations Development Programme.¹⁹² Indeed, Article 21, on Interim Arrangements, provides for operation of the financial mechanism by the GEF on an interim basis.¹⁹³

Such a role for the GEF was resisted by a number of developing countries and environmental NGOs in part because they found the GEF to be undemocratic, with the donors and the sponsoring institutions having the strongest voice in its governance. Environmentalists have also criticized the GEF for failing to provide for public consultation and public access to information and for serving

189 Without Eco, this article would have been considerably shorter.

190 . Framework Convention, art. 11, para. 1.

191 . *Id.* at para. 1.

192 . See DONALD M. . GOLDBERG, TECHNOLOGICAL COOPERATION AND THE GLOBAL ENVIRONMENTAL FACILITY: A BRIEF DESCRIPTION (Center for Int'l Env't L. 1992).

193 . Framework Convention, art. 21. For this purpose, the GEF should be "appropriately restructured and its membership made universal to enable it to fulfill the requirements of Article 11." *Id.* Article 11 stipulates that the financial mechanism is to have an "equitable and balanced representation of all Parties within a transparent system of governance." *Id.* at art. 11, para. 2,

as "green" window dressing for World Bank projects that otherwise fail to meet criteria for sound environmental investment.¹⁹⁴

Developed countries, many of which are also donors to the GEF, want the GEF to be the operational entity of the financial mechanism largely because of the central role in project selection and approval played by the World Bank, over which they exercise control. As members of the COP, the industrialized countries are likely to be in the minority, whereas in the GEF they constitute a majority.¹⁹⁵ Similarly, in the World Bank, where voting by the Executive Directors is weighted in proportion to contributions, they control a majority of the votes.¹⁹⁶

Article 11 attempts to resolve the tension between these opposing views by giving operational functions to the GEF (or other existing international entity or entities) and oversight functions to the COP. The precise relationship between these two bodies is left for future negotiations, and will be taken up at the first meeting of the COP.¹⁹⁷ Article 11 does place some limits on the role of the operating entity, however. As noted, the financial mechanism (OE?) is to function under the guidance of and be accountable to the COP.¹⁹⁸ Funded projects must conform with the policies, program priorities, and eligibility criteria established by the COP,¹⁹⁹ and decisions on funding may be reconsidered if these policies, priorities, and criteria are not met.²⁰⁰ The operational entity must report regularly to the COP on its funding operations,²⁰¹ and must reach agreement with the COP on the amounts of funding to be made available through the financial mechanism.²⁰²

The governance of the financial mechanism is as yet unresolved. A central question is what body shall have authority to approve projects? Most developed countries favor the GEF approach,

¹⁹⁴ . See Procedures to Ensure Public Accountability in the Global Environmental Facility: an NGO Proposal to the GEF Participants, April 28, 1992. See also K. HORTA AND S. HAJOST, G-7 NATIONS NEED TO PURSUE RESTRUCTURING OF GLOBAL ENVIRONMENTAL FACILITY BEFORE COMMITTING NEW FUNDS (Env'tl Defense Fund 1992).

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. For a list of World Bank Executive Directors and their voting power, see WORLD BANK, THE WORLD BANK ANNUAL REPORT 225 (1990).

¹⁹⁷ . Framework Convnetion, art. 11, para. 4. At this meeting the COP is to review the GEF's interim operation of the mechanism and decide whether the interim arrangement should continue. *Id.* The COP is required to again review the financial mechanism within four years of its first meeting. *Id.*

¹⁹⁸ . *Id.* at para. 1.

¹⁹⁹ . *Id.* at para. 3(a).

²⁰⁰ . *Id.* at para. 3(b).

²⁰¹ . *Id.* at para. 3(c).

²⁰² . *Id.* at art. 12, para. 3(d).

with project approval authority residing primarily with the World Bank. Developing countries prefer the approach taken by the Montreal Protocol on Substances That Deplete the Ozone Layer,²⁰³ which has a subsidiary body called the Executive Committee that approves all projects over \$500,000.²⁰⁴

The developed country preference for the GEF structure may not be consistent with the language of article 11. While paragraph 11.2 says that the financial mechanism is to have an "equitable and balanced representation of all Parties within a transparent system of governance,"²⁰⁵ paragraph 11.1 speaks only of entrusting the mechanism's *operation* to one or more existing international entities.²⁰⁶ Thus, the Convention seems to contemplate a governance structure other than the operating entity.

Moreover, as presently structured, the GEF does not meet the requirements of paragraph 11.2. Although it is presently undergoing restructuring in an effort to conform to the Convention,²⁰⁷ its links to the World Bank make it unlikely the GEF will ever meet the Convention's demand for transparency.²⁰⁸

The United States has interpreted the provisions of Article 11 in a way that further weakens the role of the COP.²⁰⁹ It asserts that the term "eligibility criteria" – which are to be decided on by the COP – refers to eligibility of countries, not programs. This would, of course, limit the role of the COP role in determining the types of projects to be funded.²¹⁰ Such a definition does not seem consistent with the requirement in Article 11 that modalities be created to ensure that *projects* conform to eligibility criteria,²¹¹ or for reconsideration of projects that fail to conform. Similarly, the U.S. is of the view that the COP can only *request* the operating entity reconsider a particular

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205 . *Id.* at art. 11, para. 2.

206 . *Id.* at para. 1.

²⁰⁷Article 21 calls for the GEF to be "appropriately restructured and its membership made universal to enable it to fulfil the requirements of Article 11."

²⁰⁸*See* World Bank Information Disclosure Policy (1992).

²⁰⁹ . U.S. DEPARTMENT OF STATE, ARTICLE-BY-ARTICLE ANALYSIS OF THE FRAMEWORK CONVENTION ON CLIMATE CHANGE (1992)(transmitted to the President with the Convention for his review and ratification) [hereinafter DOS Analysis].

210 . *Id.* at 10.

211 . *See* Framework Convention, art. 11, para. 3(a).

funding decision,²¹² whereas Article 11 leaves it to the entity and the COP to agree upon modalities by which a particular funding decision may be reconsidered.²¹³ The U.S. also asserts that the requirement in paragraph 3(b) that the COP and the operating entity determine the level of funding needed means only that the COP may "help" the operating entity determine the amount of funding required.²¹⁴

The details of the financial mechanism will likely be worked out only after the Convention enters into force. The U.S. statement on the financial mechanism reflects the views of many of the developed countries — indeed, some appear to go even further in their attempt to shift authority away from the CoP and to the operating entity, which they presume will be the GEF. Whether their views will prevail in light of strong opposition from developing countries and NGOs remains to be seen.

G. Article 12 Communication of Information

The reporting requirements of Article 4²¹⁵ are fleshed out in Article 12. Each party must "to the extent its capacities permit" provide the secretariat with a national inventory of its emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.²¹⁶ These inventories are to be compiled using standardized methodologies to be developed by the COP.²¹⁷ Each party is also to provide the secretariat with a general description of steps it has taken, or expects to take, to implement the Convention and any other information it considers relevant to the achievement of the objective of the Convention.²¹⁸

Each party listed in Annex I must, in addition, provide the secretariat with a detailed description of the policies and measures it has adopted to implement its commitments under Article 4, paragraphs 2(a) and 2(b).²¹⁹ Furthermore, it must estimate the effects of these policies and measures on emissions by sources and removals by sinks up to the end of the decade.²²⁰

²¹² . DOS ANALYSIS, *supra* note 211, at 10.

²¹³ . Framework Convnetion, art. 11, para. 3(b).

²¹⁴. [CITE]

²¹⁵ . Framework Convention, art. 4, paras. 1(a), (b), and 2(b); *see supra* notes xx and accompanying text.

²¹⁶ . *Id.* at art. 12, para. 1(a).

²¹⁷ . *Id.*

²¹⁸ *Id.* at art. 12, paras. 1(b) and (c).

²¹⁹ . *Id.* at para. 2(a); *see supra* note xx and accompanying text.

²²⁰ . *Id.* at para. 2(b).

Subject to guidelines to be adopted by the COP, any group of parties may submit joint reports, provided that the report includes sufficient information on the fulfillment of each parties individual obligation under the Convention.²²¹

Annex I parties must transmit their initial reports to the secretariat within six months of the date the Convention enters into force for them. Other parties — with the exception of least developed countries — must transmit their initial reports within three years either of entry into force for them, or of the time financial resources for compiling their reports, as provided by Article 4, paragraph 3, are made available.²²² Least developed country parties are permitted to make their initial report at their own discretion.²²³ The frequency and timing of subsequent reports for all parties is to be decided on by the COP.²²⁴

Upon receipt of the country reports, the secretariat is to transmit them as soon as possible to the COP and any subsidiary bodies concerned.²²⁵ Information that parties designate as confidential, in accordance with criteria to be established by the COP, is to be aggregated by the secretariat before being transmitted to the COP or others.²²⁶ At the same time the secretariat transmits the reports to the COP, it is to make the reports available to the public, subject, of course, to the confidentiality requirements.²²⁷

Under Article 12, developing country parties may also submit to the secretariat proposals for projects under Article 4 for which they seek financial or technical assistance.²²⁸ If possible, such proposals are to include an estimate of incremental costs, expected reductions in emissions or uptake by sinks, and an estimate of resulting benefits.²²⁹ The COP is to arrange for the provision to these

221 . *Id.* at para. 8.

222 . *Id.* at para. 5. The COP is to arrange for the provision of such financial and technical assistance on request. Art. 12, para. 7.

223 . *Id.*

224 . *Id.*

225 . *Id.* at para. 6.

226 . *Id.* at para. 9.

227 . *Id.* at para. 10.

228 . *Id.* at para. 4.

229 . *Id.*

parties of technical and financial support to help them identify the technical and financial assistance they will require to implement their proposals.²³⁰

H. *Articles 13 and 14 Dispute Resolution*²³¹

If a dispute arises between two or more parties concerning the interpretation or application of the Convention, they must attempt to settle it by any peaceful means of their choice.²³² Two options for resolving the dispute are submission to the International Court of Justice (ICJ) or to arbitration in accordance with procedures to be adopted by the COP.²³³ Parties may declare in their instrument of ratification, acceptance, approval, or accession that they accept compulsory submission of all their disputes to the ICJ and/or the arbitration procedures developed by the COP, provided the other parties to the dispute accept the same obligation.²³⁴ Regional economic integration organizations may make such a declaration only with respect to the arbitration procedures.²³⁵

If, twelve months after one party has notified another that a dispute exists between them, the dispute has not been resolved by the procedures entioned above, any party to the dispute may submit the dispute to a conciliation commission.²³⁶ The commission is composed of an equal number of members appointed by each party to the dispute and a chairman chosen jointly by all of them.²³⁷ The commission is empowered only to render a recommendatory award, which must be considered in good faith by the parties.²³⁸

An earlier draft of the Convention text contained a provision which allowed parties to refer questions about another party's implementation - or its own capacity to implement its obligations - directly to the CoP, which would have the option of resolving the dispute itself or referring it to an

²³⁰ . *Id.* at para. 7.

²³¹ . **May want to look at INC Doc. 237/Misc.20 at 44 (INC V file) and 237/15 at Annex IV (INC IV file).**

²³² . Framework Convention, art. 14, para. 1.

²³³ . *Id.* at para. 2.

²³⁴ . *Id.*

²³⁵ . *Id.*

²³⁶ . *Id.* at art. 14, para. 5.

²³⁷ . *Id.* at para. 6.

²³⁸ . *Id.*

ad hoc panel of CoP members.²³⁹ Another option contained in the draft text was to establish an Implementation Committee to hear such questions and report on its findings and recommendations to the CoP, which could make a final determination by a two-thirds majority vote of parties present and voting.²⁴⁰ However, negotiators were unable to complete work on this provision, and article 13 states simply that "[t]he Conference of the Parties shall, at its first session, consider the establishment of a multilateral consultative process, available to Parties on their request, for the resolution of questions regarding the implementation of the Convention."²⁴¹ As soon as practicable, the CoP is also to adopt additional procedures for conciliation.²⁴²

I. *Articles 15 through 26 Final Clauses*

The final clauses covering amendments, annexes, protocols, right to vote, entry into force, and so on are fairly standard. One exception is Article 21 on interim arrangements, which establishes procedures for the secretariat, the financial mechanism, and for consultation with scientific bodies, particularly the IPCC.²⁴³ As noted, the GEF is to serve as the operational entity of the financial mechanism until the COP takes up the matter at its first meeting.²⁴⁴

An amendment proposed by a party may be adopted by a three-fourths majority vote at any ordinary session of the COP, provided six months have passed since the proposal was communicated to the parties by the secretariat.²⁴⁵ An adopted amendment enters into force for the parties that have accepted it ninety days after receipt by the Depository of instruments of acceptance from three-fourths of the parties to the Convention.²⁴⁶

Annexes, which are restricted to "lists, forms and any other scientific material of a descriptive nature that is of a scientific, technical, procedural or administrative character," are adopted and amended by the same procedures as for amendments to the Convention.²⁴⁷ A noteworthy

239 . Revised Consolidated Text Under Negotiation, at 42, U.N. Doc. A/AC.237/Misc.20 (yr.).

240 . *Id.*

241 . Framework Convention, art. 13.

242 . *Id.* at art. 14, para. 7.

243 . *Id.* at art. 21.

244 . *Id.* at para. 3; *see supra* notes ___ and accompanying text.

245 . *Id.* at art. 15, paras. 1-3.

246 . *Id.* at para. 4.

247 . *Id.* at art. 16, para. 1, 2, and 4.

distinction, however, is that annexes enter into force for all parties to the Convention that have not notified the Depositary, in writing, of their non-acceptance.²⁴⁸

Protocols may be adopted by the COP at any ordinary session, provided the text was communicated to the parties at least six months prior.²⁴⁹ Only parties to the Convention may become parties to a protocol.²⁵⁰

The Convention is subject to ratification, acceptance, approval, or accession,²⁵¹ and will enter into force on the ninetieth day after the date of deposit of the fiftieth instrument of ratification, acceptance, approval, or accession.²⁵² No reservations may be made to the Convention,²⁵³ and parties may withdraw only after three years from the date of entry into force for that party.²⁵⁴ Withdrawals become effective one year after notification.²⁵⁵

V. Conclusion

²⁴⁸ . *Id.* at para. 3. This distinction is a carryover from the Vienna Convention and Montreal Protocol. See Vienna Convention for the Protection of the Ozone Layer, *supra* note 18, at Article 10. It was not used, however, when a second annex containing additional controlled substances was added to the Protocol in 1990. See Amendment to the Montreal Protocol on Substances That Deplete the Ozone Layer at 25, U.N. Doc. UNEP/OzL.Pro.2/3 . Instead, the annex was incorporated into a regular amendment of the Protocol. *Id.* at 37. A more important feature of the Montreal Protocol was its allowance for "adjustments" to the phaseout schedules of the controlled substances. Upon a two-thirds vote of parties representing at least fifty percent of the total consumption of controlled substances phaseout schedules could be accelerated, and new substances could be added to annexes. Montreal Protocol on Substances That Deplete the Ozone Layer, Article 2, para. 9. The adjustment was binding on all parties. *Id.* This provision has since been amended to require a two-thirds majority of parties representing a majority of developed country parties and a majority of developing country parties. Amendment to the Montreal Protocol on Substances That Deplete the Ozone Layer at 27, U.N. Doc. UNEP/OzL.Pro.2/3.

²⁴⁹ . Framework Convention, art. 17, paras. 1 and 2.

²⁵⁰ . *Id.* at para. 4.

²⁵¹ . *Id.* at art. 22.

²⁵² . *Id.* at Art. 23.

²⁵³ . *Id.* at Art 24.

²⁵⁴ . *Id.* at Art. 25, para. 1.

²⁵⁵ . *Id.* at para. 2.

It is likely that the Framework Convention on Climate Change will come to be regarded as a necessary first step on the long road to solving the problems of global warming. The process will inevitably be incremental, and it cannot be predicted how quickly or even in what directions it will evolve. It is probably self-defeating to brand the Convention a failure so early in the process, especially as it contains numerous provisions for its own improvement. These provisions are crucial, as much improvement is clearly needed.

Most important, of course, is the need for the parties to agree on GHG emissions reduction targets and timetables. Targets and timetables could be included either in a protocol, or in an annex or an amendment to the Convention itself, although Article 16's restriction of annexes to "material of a descriptive nature that is of a scientific, technical, procedural or administrative character" might bar their use for this purpose. The COP must consider the need for targets and timetables at its first meeting, but there is no reason why negotiators could not begin work on such a provision before the COP meets, or even before the Convention enters into force. At the very least, the language of Article 4 should quickly be clarified to require parties to stabilize emissions at 1990 levels by the year 2000.

Once developed countries make their mitigation commitments firm, it should be possible to address with specificity the actions developing countries should take to help avert global warming. These include bringing a halt to deforestation and utilizing the most energy efficient, non-polluting, and otherwise environmentally sustainable technologies in their quest for economic parity with the North. In this regard, it is crucial that the developed countries quickly implement the financial mechanism, a necessary precondition to developing country actions.

Many terms, procedures, and institutions require further elaboration. The COP must decide what is permitted by the term "joint implementation," and what measures parties may take to meet their obligations through sink enhancement.²⁵⁶ It must develop procedures for the financial mechanism and, in particular, define the role of, and its relationship to, the operating entity of the mechanism. Finally, the COP must nail down the dispute resolution and enforcement procedures, which are almost completely lacking in the present Convention.

In short, the Convention requires a great deal of elaboration and expansion.²⁵⁷ But the focus of future work should not be entirely on improving the text of the Convention. Indeed, it is crucial that countries that intend to become parties immediately begin work on implementation. GHG inventories and national plans will require considerable time and attention, and countries should promptly begin work on them. They then must implement those plans by putting in place the requisite laws, regulations, and policies. Delay could be costly, for by the time we are sure that we are experiencing global warming, it will be too late to prevent its most serious impacts.

Note: Change COP to CoP throughout.

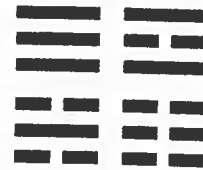
²⁵⁶ . A major concern is that parties may promote conversion of scrub forest, grasslands, or agricultural areas to tree farms for carbon storage, or that they might promote scientifically and environmentally questionable projects for fixing GHGs, such as fertilization of ocean algae with iron filings.

²⁵⁷ . Recognizing this, the INC has requested the Secretary-General of the U.N. to recommend to the General Assembly at its forty-seventh session that the INC secretariat continue to operate and the INC itself continue to hold negotiating sessions up to the entry into force of the Convention. Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the Work of Its Fifth Session, New York, April 30 - 9 May 9, 1992, U.N. Doc. A/AC.237/18(Part II)/Add.1. The first of these sessions is scheduled for Dec. 7-10, 1992 in Geneva. Provisional Agenda and Annotations, Including Suggestions for the Organization of Work.

Write article __, not Article __ (at least, be consistent).



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AS THE WORLD BURNS: NEGOTIATING THE
FRAMEWORK CONVENTION ON CLIMATE CHANGE

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As the World Burns: Negotiating the Framework Convention on Climate Change

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I. INTRODUCTION*

Of all the items on the agenda of the 1992 Rio Earth Summit, none has received more public attention than global warming. Many scientists and policymakers believe that, with the possible exception of loss of the ozone layer, no environmental threat has ever had such serious implications for our planet. The world community has responded to scientists' dire warnings by negotiating a Framework Convention on Climate Change (Climate Convention)¹ in only fifteen months — lightning speed for international diplomacy. But in their haste to produce an agreement in time for the Earth Summit, negotiators left many gaps that will have to be filled as implementation and administration of the Convention gets underway, making the Climate Convention very difficult to assess. Some regard it as a success, because it is without question a stronger and more comprehensive agreement than previous "framework" conventions, most notably the Vienna Convention for the Protection of the Ozone Layer.² Others regard the agreement as a failure, as it does not adequately address many of the most pressing issues of climate change, such as schedules for reduction of greenhouse gases.

The United States' insistence that the text not contain any binding commitments to reduce emissions of greenhouse gases received a lot of public attention during the negotiations and left many wondering whether the Climate Convention would be effective even as a first step in addressing global

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1. United Nations Framework Convention on Climate Change, *opened for signature*, June 1992, at Art. 2, 31 I.L.M. 849 (1992) [hereinafter Climate Convention].

2. Vienna Convention for the Protection of the Ozone Layer, *adopted and opened for signature* Mar. 22, 1985, *entered into force* Sept. 22, 1988, 26 I.L.M. 1529 (1987) [hereinafter Vienna Convention]. The Vienna Convention was the original model for the Climate Convention.

warming. A close inspection of the Convention, however, reveals a detailed and fairly comprehensive structure addressing a wide range of issues. Due to the relatively short time in which the Convention was negotiated, the widely disparate interests of the parties, and the extraordinarily complex nature of the problem of climate change, much of the agreement is only sketchily drawn, and many questions have been left for future negotiators to answer. It is therefore probably too soon to say whether the Convention is a success or failure. Indeed, the efforts of future negotiators in filling in the gaps may be more important to its overall success than the text of the Convention as signed. It is important, however, to take note of the Convention's strengths and weaknesses and the process of negotiation from which they resulted, if for no other reason than to develop a roadmap for such future negotiators.

This article will first outline the current state of scientific knowledge with respect to the suspected causes and projected effects of global warming. Such scientific knowledge informs and defines the parameters of the debate over how the international community should address the problem of global warming. The article will next examine the process of negotiation that culminated in the present Climate Convention, and the roles of the various players in shaping the final product. Particular attention will be given to the tension between developed and developing country parties. Finally, the article will review and assess the specific provisions of the Convention itself, with an emphasis on the more controversial provisions — how they came to be included, and how they will likely be implemented.

II. SCIENCE AND IMPACTS OF GLOBAL WARMING

Scientific consensus holds that the Earth will warm 1-3 degrees Centigrade by the middle of the next century. Further warming is assured, if human activities leading to the atmospheric buildup of certain trace greenhouse gases (GHGs) are not abated.³ Warming of such magnitude exceeds any that has occurred in a comparable time period.⁴ It will have serious impacts both on the human environment and on the global ecosystem.

Besides water vapor, the atmospheric concentrations of which man does not control, the principle GHGs are carbon dioxide (CO₂), which accounts for 50-60% of global warming; methane, which accounts for about 20%; and nitrous oxide, carbon monoxide, nitrogen oxides, and tropospheric

3. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE: THE IPCC SCIENTIFIC ASSESSMENT 139 (1990) [hereinafter, IPCC SCIENTIFIC ASSESSMENT]; see also U.S. VIEWS ON CLIMATE CHANGE I (1992) (on file with author) [hereinafter U.S. VIEWS].

4. IPCC SCIENTIFIC ASSESSMENT, *supra* note 3, at xviii.

ozone, which account for the rest.⁵ The atmospheric concentration of CO₂ has increased by about 25% since the beginning of the industrial revolution, and continues to increase at a rate of about 0.5% per year.⁶ Methane concentrations doubled during the same period, and are now increasing at a rate of about 0.9% per year.⁷

The likely consequences of GHG-induced warming include loss of forests and wetlands (and the species residing therein); shifts in agricultural zones (with particularly adverse impacts in developing countries); impaired water resources; storm surges; and flooding of low-lying coastal regions and islands.⁸

The most dramatic and immediate consequence of global warming is sea-level rise. Sea levels are expected to rise 30-110 cm by the year 2100,⁹ as a result of thermal expansion and the melting of mountain glaciers.¹⁰ While unlikely, the possibility that the polar caps will begin to melt some time in the next century cannot be entirely dismissed, in which case sea levels could rise as much as 6 meters.¹¹ A one meter rise would destroy much of the world's cropland, damage many coastal cities, and turn thousands of residents of low-lying coastal and island states into environmental refugees.¹² Even the lowest estimated rise is likely to have severe impacts in the near future.¹³

Much is now known about the causes and effects of global warming — far more, in fact, than was known about ozone depletion when the Vienna Convention for the Protection of the Ozone Layer¹⁴ was signed in 1985. Still, a good deal of uncertainty persists, especially as to the rate, magnitude, and impacts of global warming, particularly at the regional level.

5. U.S. ENVIRONMENTAL PROTECTION AGENCY, POLICY OPTIONS FOR STABILIZING GLOBAL CLIMATE II-3 (1990) [hereinafter, EPA POLICY OPTIONS]. While CFCs, the ozone depleting gases, are known to be powerful GHGs, it is now believed that the cooling which results from stratospheric ozone depletion approximately cancels the warming attributed to CFCs. MONTREAL PROTOCOL, OZONE ASSESSMENT PANEL, 1992 PREPRINT, at 7-1 (1992) (on file with author).

6. IPCC SCIENTIFIC ASSESSMENT, *supra* note 3, at 5.

7. *Id.* Some recent studies indicate that the rate of methane buildup is beginning to slow. *Methane Slowdown is Greater in the North*, 4 Global Environ. Change Rep. (Cutter) (July 24, 1992).

8. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE: THE IPCC IMPACTS ASSESSMENT 1-5 (1990) [hereinafter IPCC IMPACTS ASSESSMENT].

9. IPCC SCIENTIFIC ASSESSMENT, *supra* note 3, at 277.

10. *Id.* at 266-78.

11. Gianni P. Heikkin, *Sea-Level Rise: Regional Consequences and Responses*, in GREENHOUSE WARMING: ABATEMENT AND ADAPTATION 53, 55 (1989).

12. See DONALD M. GOLDBERG, CENTER FOR INTERNATIONAL ENVIRONMENTAL LAW, GLOBAL WARMING AND SEA-LEVEL RISE: AN OVERVIEW 6-10 (1990).

13. In a recently released study, the U.S. National Oceanic and Atmospheric Administration predicts that if global warming persists, the 45,000 residents of the Marshall Islands will have to be relocated to high rise apartment buildings in the highest parts of the islands within thirty years. Paul Lewis, *Danger of Floods Worries Islanders*, N.Y. Times, May 13, 1992, at A2.

14. Vienna Convention, *supra* note 2.

Much of the uncertainty has to do with "feedbacks" — secondary effects which may amplify or retard global warming. While it is known, for example, that cloud cover is likely to increase as a result of global warming, present day models cannot predict which type of cloud will predominate.¹⁵ High cirrus clouds could increase warming by trapping additional heat, while lower cumulus clouds could reduce warming by reflecting sunlight back to space.¹⁶ Other examples of positive (greenhouse-enhancing) feedbacks include increases in atmospheric levels of water vapor due to higher rates of evaporation, reduced albedo (the earth's reflectivity) as snow and ice melt, and increases in atmospheric levels of carbon and methane as a result of forest die-back and melting permafrost.¹⁷ Significant negative feedbacks besides cloud cover have been postulated, but at present their existence is uncertain.¹⁸

Uncertainty also arises from discrepancies between computer models and temperature records. Skeptics point to the fact that, to date, the earth has warmed less than computer models had predicted as evidence that the theory of global warming is, at best, incomplete.¹⁹ But recent studies have suggested that emissions of sulphates and other particulates — from urban pollution, burning of tropical forests, and volcanic eruptions — may prevent enough sunlight from reaching the earth's surface to account for the difference.²⁰

Efforts to prevent global warming have focused on limiting the buildup of atmospheric concentrations of CO₂ and, to a lesser extent, methane and nitrous oxide. Although it is generally acknowledged that ultimately atmospheric concentrations of CO₂ will have to be stabilized, strategies that are presently being considered — or have already been adopted — generally aim for stabilization of CO₂ emissions levels. Some countries have adopted more stringent targets,²¹ but the strictest of these would not prevent further

15. S. SCHNEIDER, *GLOBAL WARMING* 28, 97-98 (1989).

16. Lashof, *The Dynamic Greenhouse: Feedback Processes That Can Influence Global Warming*, in *COPIING WITH CLIMATE CHANGE* 102, 103 (Topping ed., 1989).

17. *Id.* at 102-108.

18. One such negative feedback is the so-called "carbon dioxide fertilization" theory, which holds that higher concentrations of CO₂ in the atmosphere will stimulate higher plant growth rates. Recent evidence, however, suggests the opposite: high concentrations of CO₂ may, in fact, be harmful to plants. See *New Evidence Suggests High CO₂ May Harm Ecosystems*, 4 *Global Envtl. Change Rep.* (Cutter) No. 18, at 5 (Sept. 25, 1992); see also *Evidence Increases for Positive Water-Vapor Feedback*, 4 *Global Envtl. Change Rep.* (Cutter) No. 19, at 5 (Oct. 9, 1992).

19. Gregg Easterbrook, *A House of Cards*, *NEWSWEEK*, June 1, 1992, at 24, 29.

20. *Smoke From Biomass Burning May Offset Greenhouse Warming*, 4 *Global Envtl. Change Rep.* (Cutter) No. 12, at 5 (June 26, 1992).

21. See KAREN SCHMIDT, ENVTL. & ENERGY STUDY INST., *INDUSTRIAL COUNTRIES' RESPONSES TO GLOBAL CLIMATE CHANGE* (July 1, 1991).

buildup of CO₂ in the atmosphere, even if they were adopted by all industrialized countries. Indeed, cuts on the order of 60-80% would be required to stabilize atmospheric concentrations of CO₂, and even cuts of this magnitude would probably not prevent some amount of warming. This is due to the relatively long time it takes for the oceans to warm, which creates a lag in surface warming. In effect, we have already "banked" a degree or two of warming, because CO₂ presently in the atmosphere will remain there for many decades. This CO₂ will continue to warm the global system until ocean and surface temperatures reach a new equilibrium roughly thirty to fifty years after GHG concentrations are stabilized.²²

Response strategies have focused on CO₂ for a number of reasons. First, as noted, it is the most important anthropogenic (human-induced) GHG, and will account for more than half the expected warming.²³ Second, there are numerous technical options for reducing CO₂ emissions, such as demand-oriented strategies, supply options, biomass, and net forest cover increase. Demand-oriented strategies seek to reduce energy use by making buildings, vehicles, electrical appliances, and industrial processes more energy efficient. Supply options include increasing efficiency through new technologies such as cogeneration and fuel cells, and switching to less carbon-intensive fuels (from coal to oil, or oil to natural gas) or noncarbon-based "renewable" energy sources (solar, wind, hydroelectric, geothermal and hydrogen power). Biomass, though carbon-based, also holds promise, as it does not produce a net increase in CO₂ concentrations. Carbon given off when one year's crop is burned — as wood, charcoal, or ethanol — is taken up again as the next year's crop grows. Another important — and cost-effective — CO₂ reduction strategy is to increase net forest cover through reforestation and afforestation.²⁴

The final reason for focusing on CO₂ is that energy use and per capita CO₂ emissions are generally much higher in industrialized countries than in developing countries. This is significant for reasons of practicality as well as equity. From a practical standpoint, only the industrialized countries have the resources to devote to dealing with global warming. Even if developing countries had the money to invest in mitigation, global warming would not be high on their list of priorities. Indeed, developing countries tend to see global warming strategies as antithetical to their own aims, and they have occasionally accused industrialized countries of sacrificing the

22. Another unrelated phenomenon that could cause a lag in realized temperatures is the "masking" of global warming by atmospheric particulates resulting from forest fires and other sources of manmade pollution. See *supra* note 20 and accompanying text.

23. EPA Policy Options, *supra* note 5, at II-3.

24. See generally, EPA Policy Options, *supra* note 5.

potential prosperity of developing countries to achieve their climate protection aims.²⁵ Moreover, they note that their own GHG emissions tend to result largely from such unavoidable activities as agriculture and essential energy use, in contrast to the "luxury" emissions of industrialized countries.²⁶ It is interesting that such political concerns should play a role in determining the focus of scientific strategies at their inception, for those very strategies will in turn determine the responses of the international community to the problem of global warming.

III. THE ROAD TO THE CLIMATE CONVENTION: THE INTERNATIONAL RESPONSE TO GLOBAL WARMING

A. THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

The United Nations Intergovernmental Panel on Climate Change (IPCC) laid much of the groundwork for the Framework Convention on Climate Change.²⁷ The IPCC was established by the U.N. General Assembly in November 1988 "to provide internationally co-ordinated scientific assessments of the magnitude, timing and potential impact of climate change."²⁸ The IPCC issued its three reports — on science,²⁹ impacts,³⁰ and response strategies³¹ — in September 1990, in time to be reviewed by delegates to the Second World Climate Conference in November 1990.

The reports of the IPCC Science Working Group, chaired by the United Kingdom, and of the Impacts Working Group, chaired by the Soviet Union, did not contain a great deal of groundbreaking material. Rather, they tended to confirm findings of earlier studies as to the expected rate of warming and sea-level rise, and the likely impacts on human habitats, biodiversity, forests, agriculture, and the like. These reports were regarded

25. Curtailing deforestation, important to a comprehensive strategy to deal with global warming, presents a particularly nettlesome problem for many developing countries. In response to suggestions that industrialized countries might limit their imports of tropical timber, Malaysian Prime Minister Mahatir Mohamad remarked "[t]here is no excuse for such negative actions as boycotts of tropical timber, forcing forest dwellers to remain primitive and keeping developing countries permanently poor in order to prevent deforestation." Jeff Franks, *GIS Heads Blast Rich Nations' Environment Policies*, Reuters, Nov. 27, 1991, available in LEXIS, Nexis Library, Reuters File.

26. This argument loses force, however, when some of the causes of tropical deforestation are examined. These include large-scale cattle ranching and commercial logging. See WORLD RESOURCES INSTITUTE, *WORLD RESOURCES 1990-91*, at 108 (1990).

27. See generally, Durwood Zelle & James Cameron, *Global Warming and Climate Change — An Overview of the International Legal Process*, 5 AM. U. J. INT'L L. & POL'Y 249, 272-76 (1990).
28. *Resolution on the Protection of the Global Climate*, G.A. Res. 43/53, A/RES/43/53 (Jan. 27, 1989) reprinted in *Selected Legal Materials 5* AM. U. J. INT'L L. & POL'Y 525, 526-27 (1990). This resolution recognized climate change as a "common concern of mankind." *Id.*

29. IPCC SCIENTIFIC ASSESSMENT, *supra* note 3.

30. IPCC IMPACTS ASSESSMENT, *supra* note 8.

31. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *CLIMATE CHANGE: THE IPCC RESPONSE STRATEGIES* (1990) [hereinafter IPCC RESPONSE STRATEGIES].

by many as sufficiently clear and unvarnished to prompt international action and lead to a strong convention. On the other hand, the report of the Response Strategies Working Group, chaired by the U.S., was more circumspect, often merely listing options rather than making recommendations.³² Environmentalists — as well as a number of IPCC delegates — were particularly disturbed that the report did not discuss specific targets and timetables for reducing emissions. This seemed a clear signal of what the U.S. approach to impending treaty negotiations would be. Nevertheless, the report does reflect a substantial effort on the part of the members of the Working Group, and contains much information which should be useful to future negotiators and policymakers.

In particular, the report recommended a framework climate change convention following the format of the Vienna Convention, framed so as to gain the largest possible number of adherents, with provisions for separate annexes and protocols to deal with specific obligations.³³ The Vienna Convention became the accepted model after the IPCC report, although it was not clear until the last round of negotiations whether the climate treaty, unlike the Vienna Convention, would contain specific binding obligations to reduce GHG emissions (it does not).

B. OTHER INTERNATIONAL ACTIVITIES

In addition to the work of the IPCC, a number of important international meetings and conferences have discussed the problem of global warming. One of the first to recommend a global treaty to deal with climate change was held in Villach, Austria, in 1985.³⁴ Two years later, scientists again met in Villach, and then again some months later in Bellagio, Italy. In Bellagio, the scientists refined their estimates of the impacts of global warming and developed a set of predictions for global warming and sea-level rise; predictions have changed remarkably little in subsequent years.³⁵

The concerns raised by these scientists was soon echoed in other fields. In Toronto, Canada, in June 1988, more than 300 of the world's experts in

32. See, e.g., *id.* at 59.

33. *Id.* at 261. A call for a framework convention with subsequent protocols had previously been made by the 1989 Economic Summit, Economic Declaration, Summit of the Arch, July 16, 1989, para. 45, reprinted in 5 AM. U. J. INT'L L. & POL'Y 571, 574 (1990) [hereinafter Economic Declaration, Summit of the Arch].

34. Philip Shabbooff, *Scientists Warn of Earlier Rise in Sea Levels*, N.Y. TIMES, Nov. 3, 1985, at A23; see TATA ENERGY RESEARCH INST., INTERNATIONAL CONFERENCE ON GLOBAL WARMING AND CLIMATE CHANGE: PERSPECTIVES FROM DEVELOPING COUNTRIES 2 (1989).

35. Developing Policies for Responding to Climate Change: A Summary of the Discussions and Recommendations of the Workshops Held in Villach (28 September - 2 October 1987) and Bellagio (9-13 November 1987), Doc. WMO/TD-No.225 (1988).

science, law, the environment, economics, government, and industry attended an important meeting that was to set a benchmark for emissions reduction targets. The Conference Statement called on countries to reduce annual global CO₂ emissions 20% by the year 2005.³⁶ The targets set at the Toronto Meeting have been adopted by a number of European countries.³⁷

By 1989 governments were grappling with climate change through the IPCC, and global warming was becoming an issue of major concern for most highly industrialized countries. At the G-7 summit in Paris, in July 1989, members advocated common efforts to limit emissions of CO₂ and other GHGs, and called "urgently" for the conclusion of a framework climate convention.³⁸ Many of the world's national environmental ministers attended a ministerial conference held November 1989 in Noordwijk, the Netherlands to specifically consider the issue of climate change.³⁹ However, due largely to U.S. efforts, this conference did not endorse the Toronto goals, but issued a Declaration that called instead for actions aimed at:

reducing emissions and increasing sinks for greenhouse-gases to a level consistent with the natural capacity of the planet . . . within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and permit economic activity to develop in a sustainable and environmentally sound manner.⁴⁰

This language was ultimately reflected in the Objective of the Climate Convention.⁴¹ The Declaration did, however, urge industrialized countries to investigate, through the IPCC, the feasibility of achieving the Toronto targets.⁴²

By this time, strain was beginning to show between the U.S. and other industrialized countries over their diverging positions on climate change.

36. The Changing Atmosphere: Implications for Global Security, July 5, 1988, para. 22, reprinted in 5 Am. U. J. Int'l L. & Pol'y 515, 521 (1990).

37. SCHMIDT, *supra* note 21. Fourteen cities in Europe, North America, and the Middle East recently concluded an agreement to meet the Toronto goal. *Cites Reach Accord to Jointly Curb Emissions of CO₂ by 20 Percent by 2005*, 15 Int'l Env't Rep. (BNA) No. 12, at 420 (June 17, 1992).

38. ECONOMIC DECLARATION, SUMMIT OF THE ARCH, *supra* note 33, at para. 40 and 45.

39. Noordwijk Declaration on Atmospheric Pollution and Climate Change, para. 8 (Nov. 7, 1989), reprinted in *Selected Legal Materials*, 5 Am. U. J. Int'l L. & Pol'y 592, 594 (1990) [hereinafter Noordwijk Declaration].

40. *Id.*

41. U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, Art. 2, 31 I.L.M. 849 (1992). The Objective of the Convention is "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system . . . within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner." *Id.*

42. Noordwijk Declaration, *supra* note 39, para. 16, at 596.

Perhaps as a means of demonstrating that it was taking the problem seriously, the United States sponsored a "global change" conference in April 1990. The purpose of this conference was to give government officials from many countries an opportunity to review the latest information on the science and economics of climate change.⁴³ However, the conference managed to shed little light on the subject of global warming. It served instead to focus attention on the widening gap between U.S. and European views on climate change and the policies each was willing to adopt to address the problem.

The last important meeting leading up to negotiation of the Framework Convention on Climate Change was the Second World Climate Conference, held in Geneva in November 1990. This conference reviewed and approved the IPCC reports and issued a Ministerial Declaration calling for negotiations to begin, with the goal of completing them in time for the Earth Summit in Rio.⁴⁴ Once again, however, U.S. efforts resulted in the exclusion of any explicit reference to GHG targets or timetables.⁴⁵

Shortly after the Second World Climate Conference, the U.N. General Assembly established the Intergovernmental Negotiating Committee for a Framework Climate Convention (INC).⁴⁶ Charged by the General Assembly with producing an agreement to be signed at the Rio Earth Summit in June 1992,⁴⁷ the INC began its deliberations in Chantilly, Virginia, in February 1991, in the midst of a record heat wave.⁴⁸

C. CONVENTION NEGOTIATIONS

By the time of the opening session of the Climate Convention negotiations, a number of countries had already committed to reducing GHG emissions. The European Community (EC) had committed to returning its joint CO₂ emissions to 1990 levels by the year 2000. The EC reaffirmed this commitment in Chantilly and also promised to provide financial assistance to help developing countries respond to climate change.⁴⁹ Its position

43. White House Conference on Science and Economics Research Related to Global Change, Washington, D.C. (Apr. 17-18, 1990).

44. Second World Climate Conference Ministerial Declaration, Nov. 7, 1991.

45. Marilee Simons, *U.S. View Prevails at Climate Parley*, N.Y. TIMES, Nov. 8, 1990, at A9. By now, even Margaret Thatcher, the conservative British Prime Minister, was criticizing the Bush Administration's position. Marilee Simons, *Conference on Climate Singles Out U.S. as Worst of Energy*, N.Y. TIMES, Nov. 7, 1990, at A14.

46. Protection of Global Climate for Present and Future Generations of Mankind, GA Res. 45/212, GAOR, 45th Sess., UN Doc. A/45/49 (1990) [hereinafter Protection of Global Climate Resolution].

47. *Id.*

48. *Climate Talks Start in Record Winter Heat Wave*, Eco (Climate Action Network), Feb. 5, 1991, at 1.

49. See Intervention by the Netherlands on Behalf of the European Community and its Member States, First Session of the INC, Feb. 4-14, 1991, para. 6.

was based on individual country commitments by Germany, Denmark, Switzerland, Sweden, Austria, Norway, and Canada.⁵⁰ Many of these commitments went beyond stabilization at 1990 levels or promised deeper CO₂ cuts in later years.⁵¹

Japan had previously stated that its "emissions of CO₂ should be stabilized on a per capita basis in the year 2000 and beyond at about the same level as in 1990," and "the emission of methane should not exceed the present [1990] level."⁵² In the opening round, Japan called for negotiation first of a basic framework, but suggested the convention might also contain concrete measures to be taken by the parties.⁵³

The Group of 77 developing countries (actually composed of 127 developing countries) made a point of the fact that 75% of energy-related CO₂ emissions are attributable to industrialized countries,⁵⁴ but acknowledged, nevertheless, that developing countries have a responsibility not to follow the same path. They called for industrialized countries to transfer environmentally sound technologies to developing countries on preferential and non-commercial terms to help developing countries avoid the environmentally destructive aspects of development.⁵⁵ They also called for the creation of a differentiated regime under the climate convention for developing countries, along the lines of the Montreal Protocol.⁵⁶

The United States, as expected, rejected targets and timetables, instead advocating a "no regrets" policy of actions that would be taken only insofar as they produced benefits having nothing to do with global warming.⁵⁷ For example, the U.S. might promote the use of a new energy technology that would have global warming benefits if it could be shown to be more cost-effective, or to reduce urban pollution, but not merely for the purpose of reducing GHG emissions. The U.S. also supported further research to

resolve uncertainties and a "comprehensive approach" to reducing emissions, which would take into account not just CO₂, but all GHGs.⁵⁸

The U.S. attempted to deflect some of the criticism aimed at it during the first negotiating round by releasing a White House "Action Agenda," intended to demonstrate that the U.S. was acting responsibly with regard to its GHG emissions. The Action Agenda purported to show that U.S. policies would result in GHG emissions in the year 2000 at or below 1987 levels.⁵⁹ Unlike the European plan, however, the U.S. approach contemplated significant increases in domestic CO₂ emissions.⁶⁰ To achieve its year 2000 target, the U.S. plan relied heavily on the phaseout of CFCs, then thought to account for approximately 11% of radiative forcing.⁶¹ Both the Europeans and environmentalists objected that the U.S. plan was disingenuous, since CFCs were already scheduled to be phased out under the Montreal Protocol on Substances That Deplete the Ozone Layer,⁶² and were not included in other countries' emissions reduction plans.⁶³

Little progress was made on substantive issues at the first session. Delegates spent most of the two weeks setting up working groups and selecting their leadership. Two such groups were established. Working Group I, on Commitments, was given the task of preparing a text related to commitments: for limiting GHG emissions, protecting and enhancing sinks, and adopting measures to counter the adverse effects of climate change; for the provision of financial assistance and technology to help developing countries fulfill their obligations under the Convention; and addressing the concerns of areas especially threatened by flooding, erosion, desertification, and high urban atmospheric pollution.⁶⁴ Working Group II, on Mechanisms, was to prepare a text on legal and institutional mechanisms related to, *inter alia*, entry into force, withdrawal, compliance, assessment, scientific cooperation, monitoring, information, "adequate and additional" financial resources, technological needs and cooperation, and technology transfer

50. See David Doniger, *Climate Negotiations: National Position Statements*, Eco (Climate Action Network), Feb. 7, 1991, at 2-5.

51. *Id.*

52. Government of Japan, Action Program to Arrest Global Warming: Decision of the Council of Ministers for Global Environmental Conservation, Oct. 23, 1990, at 4.

53. Statement by Ambassador Nobutoshi Akao, at the First Session of the INC, Feb. 4-14, 1991, at 3.

54. *Climate Negotiations: National Position Statements, Ghana, for Group of 77*, Eco (Climate Action Network), Feb. 7, 1991, at 2.

55. *Id.*

56. *Id.* The Montreal Protocol provides a ten year grace period for developing countries to phase out ozone depleting substances and provides financing of incremental costs incurred by developing countries in meeting their obligations. Montreal Protocol on Substances That Deplete the Ozone Layer, Sept. 16, 1987, 26 I.L.M. 1541.

57. Statement of E.U. Curtis Bohlen, Asst. Sec'y of State for Oceans, Int'l Envtl. & Scientific Aff., U.S. Dep't of State, before the First Session of the INC, Feb. 4-14, 1991, at 2.

58. *Id.* Many countries objected that, by linking reduction of gases with sources that are clearly understood and controllable — e.g. CO₂ and, to a lesser extent, methane — to reduction of gases that are less well understood, a comprehensive approach could delay implementation of commitments and make compliance extremely hard to verify.

59. AMERICA'S CLIMATE CHANGE STRATEGY (1991) (on file with author).

60. Ironically, the release of the U.S. Action Agenda coincided with the release of a report by the Congressional Office of Technology Assessment showing that the U.S. could reduce its CO₂ emissions 29-35% within twenty-five years at minimal cost. OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, CHANGING BY DEGREES: STEPS TO REDUCE GREENHOUSE GASES (Feb. 1991).

61. AMERICA'S CLIMATE CHANGE STRATEGY, *supra* note 59, at 2. The process by which GHGs contribute to global warming is known as radiative forcing. See *id.*

62. Montreal Protocol, *supra* note 56.

63. Subsequently, CFCs were proved not to contribute to global warming. See MONTREAL PROTOCOL OZONE ASSESSMENT PANEL, *supra* note 5.

64. Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, 1st Sess., at 24, U.N. Doc. A/AC.237 (1991).

to developing countries.⁶⁶

The first round ended with the U.S. and the EC deadlocked on the question of whether the agreement should include firm commitments to reduce GHGs. To break the deadlock, the U.K. Environment Secretary, Michael Heseltine, traveled to the United States shortly before the start of the second round with an offer of compromise.⁶⁷ The EC would accept the U.S.'s comprehensive approach — excluding gases already controlled by the Montreal Protocol — if the U.S. would accept targets and timetables. The U.S. declined, and little additional progress was made in the second round. In hopes of moving the process incrementally forward, Japan, with the support of the U.K. and France, floated an informal paper proposing a "pledge and review" approach, under which parties would pledge to undertake actions to reduce emissions, and an international body would review the implementation of those pledges.⁶⁸ Environmentalists were quick to lampoon this approach as "hedge and retreat."⁶⁹

Supporters of pledge and review — stung by environmentalists' criticism — backed away from the proposal at the next negotiating round, in Nairobi in September 1991, and reaffirmed their support for stabilization of CO₂ emissions at 1990 levels by 2000.⁷⁰ The EC also called for a treaty objective to stabilize GHGs at levels that would "prevent dangerous anthropogenic interference with climate" within a timeframe that would "allow ecosystems to adapt naturally."⁷¹ The U.S. continued to resist any binding commitments on targets and timetables.

But cracks in the U.S. position were beginning to appear. In December 1991, when White House Chief-of-Staff John Sununu — the Administration's strongest opponent of greenhouse gas controls — resigned, the White House began to review its position.⁷² EPA Director William Reilly argued that stabilization tied to population growth was achievable, based on EPA's innovative "Green" Programs.⁷³ By the start of the last negotiating round, in February 1992, Administration officials were reporting that a change in U.S. policy was in the making.

The first complete draft text was introduced at the fourth negotiation,

66. *Id.*

67. Nicholas Schoon, *Major Attacks U.S. over Global Warming*, THE INDEPENDENT, July 9, 1991, at 3.

68. *See Climate Groups Attack U.K. Japan, France Policy*, Eco (Climate Action Network), June 25, 1991, at 1.

69. *Climate Change Negotiations — Nairobi*, Eco (Climate Action Network), Sept. 11, 1991, at 1.

70. *Climate Change Negotiations — Nairobi*, Eco (Climate Action Network), Sept. 12, 1991, at 1.

71. Michael Weiskopf, *Global Warming Pact Talks to Resume: "No Appreciable Change"*, *Seen in U.S. Since Algeria Binding Goals*, WASH. POST, Feb. 18, 1992, at A3.

72. *Id.* The Green Programs are voluntary industry energy efficiency programs sponsored by EPA.

held in Geneva in December 1991.⁷⁴ The draft was over 110 pages long, and most of the text was bracketed, indicating that the text was controversial and had not yet been approved by the full Committee. Nevertheless, its introduction signalled that the Committee might yet complete its work in time for the Rio Earth Summit in June.

The fifth round, in February 1992, was scheduled to be the last. The EC reaffirmed its commitment to emissions stabilization, but the United States would not yield. The U.S. did, however, present a new action plan that, for the first time, included actual reductions from projected GHG emissions and funding for developing countries.⁷⁵

Meanwhile, it was becoming clear that negotiators would never resolve all the issues under discussion in time for Rio, and a wholesale jettisoning of bracketed provisions began. As time grew short, negotiators agreed to return to the UN at the end of April, to try to finish their work. During the interim the INC Chairman, in consultation with a number of countries, substantially revised the text, paring it down to a third of its previous size.

The Chairman's text was in many respects a *fait accompli* — there was simply not enough time to make large-scale revisions. Ground-breaking approaches to dispute settlement, a financial mechanism, technology transfer, amendments, annexes, protocols, and entry into force provisions contained in earlier drafts were dropped in favor of formulations that in some respects actually marked a retreat from previous international environmental agreements.⁷⁶

The commitment section of the Chairman's text acknowledged the fact that a legally binding commitment to reduce GHGs was beyond reach, if the U.S. was to be a signatory. It reflected a consensus of the other industrial countries that an agreement would not be meaningful without the participation of the U.S.⁷⁷ The EC and Japan mildly protested the weak commitment section, but made clear they would not hold out for stronger language.⁷⁸ The Chairman blamed the weak and ambiguous GHG commitment language squarely on the U.S.

Had the U.S. not taken such a hard line on commitments, the Convention would no doubt have been stronger. But the difference a more constructive U.S. approach might have made should not be overstated. Not every industrialized country other than the U.S. was prepared to make commitments to deep cuts in CO₂ or other GHG emissions. Indeed, the

72. *Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change*, 4th Sess., Annex II, U.N. Doc. A/AC.237/15 (1992).

73. U.S. Views, *supra* note 3.

74. *See Eco* (Climate Action Network), May 2, 1992, at 2.

75. This view may also have been prompted by a reluctance to embarrass the Bush Administration in an election year.

76. *See Eco* (Climate Action Network), May 4, 1992, at 1.

best the EC could offer was to stabilize its emissions at 1990 levels by the year 2000. Japan's commitment was even weaker, though it probably would have accepted the EC target. Nevertheless, a firm commitment to any targets and timetables would have been a significant improvement, and might have accelerated the entire process of negotiating an effective global warming agreement by a year or more.

IV. THE CONVENTION

Although it is not the strong, innovative treaty environmentalists had hoped for, the Framework Convention on Climate Change⁷⁷ need not be viewed as a total failure. As a framework convention, it goes considerably farther than its progenitor, the Vienna Convention for the Protection of the Ozone Layer. Unlike the Vienna Convention, it contains a clear objective, some substantive obligations, a financial mechanism, and a procedure — albeit rather weak — for resolving disputes. Perhaps most importantly, it contains procedures for its own review and strengthening.

A. ARTICLE 2: OBJECTIVE

The Convention Objective provides a clear statement of purpose:

to achieve . . . stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system . . . within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.⁷⁸

This formulation provides a measure by which the Parties can assess the adequacy of their commitments — as Article 4.2(d) requires them to do — and to revise them if scientific information shows the Objective will not be met.⁷⁹

The reference to stabilization of GHG concentrations — as opposed to mere stabilization of emissions — is an acknowledgement that to solve the problem of global warming, it will eventually be necessary to make dramatic reductions from current levels of emissions. Stabilization of CO₂ concentrations, for example, will require a greater than 60% cut in CO₂ emissions, according to the IPCC.⁸⁰ Furthermore, the Objective is premised on

77. See *Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change*, 5th Sess., Annex I, U.N. Doc. A/AC.237/18(Part II)/Add.1 (1992).

78. Climate Convention, *supra* note 1, at Art. 2.

79. *Id.* at Art. 4.2(d). An attempt by the U.S. delegation, late in the negotiations, to insert a reference to cost effectiveness into the Objective was rejected.

80. IPCC SCIENTIFIC ASSESSMENT, *supra* note 3, at xviii, table 2. It should also be noted that the size of the reduction depends on the timeframe during which cuts are made. See *id.* at xvii, fig. 4.

the notion of ecological limits to changes in atmosphere and climate and the rate at which ecosystems are able to adapt. For example, under a business-as-usual scenario, climate is expected to change faster than tree species will be able to respond through migration.⁸¹ As more is learned about these limits, it will be incumbent upon the parties to modify the Convention, and their emissions levels, accordingly.

B. ARTICLE 3: PRINCIPLES

While the Principles section does not impose any legally binding obligations on the parties, it should guide the parties in their implementation of the Convention. The Principles provide a set of standards by which the behavior of parties may be measured by other parties, non-governmental organizations (NGOs), and the rest of the international community.

Article 3 refers to two important environmental principles. First, it adopts the "precautionary principle," stating that the lack of full scientific certainty should not be used as a reason for postponing measures to anticipate, prevent, or minimize the causes of climate change or mitigate its effects.⁸² The force of this principle is weakened, however, by the suggestion that policies and measures to deal with climate change should be cost-effective, with no indication of what types of costs may be considered and no stipulation that all external costs must be accounted for.⁸³ Article 3 also refers to sustainable development, but this reference is immediately followed by a paragraph that emphasizes sustainable economic growth, a very different — and often antithetical — concept.⁸⁴ A third important environmental principle, the "polluter pays" principle, is conspicuously absent, despite attempts by a number of countries to have it included.⁸⁵ This is clearly a sensitive issue for industrial countries with high emissions levels, since the future costs of global warming are unknown and are potentially extremely high.⁸⁶

A number of Principles deal with issues of importance to developing countries. For example, the acknowledgment that parties have "common but differentiated responsibilities" implies that industrial countries must take the lead in protecting the climate system.⁸⁷ Recognition is given to the

81. IPCC IMPACTS ASSESSMENT, *supra* note 8, at 2-26.

82. Climate Convention, *supra* note 1, at Art. 3.3.

83. *Id.* To achieve cost-effectiveness, "policies and measures should take into account different socio-economic contexts, be comprehensive [i.e., include all GHGs], cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors." *Id.*

84. Climate Convention, *supra* note 1, at Art. 3.4 and 3.5.

85. See, e.g., Compilation of Possible Elements for a Framework Convention on Climate Change Submitted by Delegations, U.N. Doc. A/AC.237/Misc.5/Add.3 at 16 (1991).

86. W. CLIVE GLOBAL WARMING: THE ECONOMIC STAKES (1992).

87. Climate Convention, *supra* note 1, at Art. 3.1.

"special circumstances" of developing countries, which would include the potential adverse effects that reduced reliance on fossil fuels might have on oil exporting countries.⁸⁸ The priority that developing countries believe should be given to development is acknowledged,⁸⁹ as is their insistence on free and open international trade, and the prohibition of trade barriers disguised as policies to address global warming.⁹⁰

A few of the Principles address developed country concerns: "[p]olicies and measures to deal with climate change should be cost-effective";⁹¹ they should be "comprehensive" (reflecting the U.S. call for a "comprehensive approach" that could, for example, permit trading between gases);⁹² they should include sinks as well as sources (giving rise to many of the problems associated with the comprehensive approach);⁹³ and perhaps most importantly, "they may be carried out cooperatively."⁹⁴ This means that countries may receive credit for actions taken by, in, or in conjunction with other countries. Thus, industrial countries may aggregate their emissions reductions to reach a joint target, as the EC has promised to do.⁹⁵ Or, industrial countries may finance source reducing or sink enhancing projects in developing countries to offset their own emissions.⁹⁶

C. ARTICLE 4: COMMITMENTS

For the purposes of undertaking the commitments contained in Article 4, the Convention divides the parties into three groups: (1) the 25 developed country parties listed in annexes I and II;⁹⁷ (2) the 11 parties with "economies in transition" listed in annex I only (the ex-Soviet bloc countries);⁹⁸ and (3) all other parties.

88. *Id.* at Art. 3.2.

89. *Id.* at Art. 3.4.

90. *Id.* at Art. 3.5. Developing countries with large areas of forest are particularly concerned that developed countries might restrict imports of timber and timber products, to preserve forests as carbon sinks. See Franks, *supra* note 25.

91. *Id.* at Art. 3.3.

92. *Id.*

93. *Id.*

94. *Id.*

95. Protection of Global Climate Resolution, *supra* note 46.

96. For a discussion of joint implementation, see *infra* notes 132-36 and accompanying text.

97. The parties listed in annex II are Australia, Austria, Belgium, Canada, Denmark, European Community, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom of Great Britain and Northern Ireland, United States of America. Climate Convention, *supra* note 1, at Annex II.

98. The parties listed in annex I, but not annex II, are Belarus, Bulgaria, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, Ukraine. *Id.* at Annex I.

1. General Commitments

The general commitments, which all parties are required to fulfill, are contained in Article 4.1. In fulfilling these commitments, the parties may take into account their "common but differentiated responsibilities and their specific national and regional development priorities."⁹⁹ The Convention does not specify what these differentiated responsibilities and development priorities are, or how they affect the parties' obligations, but the language was nevertheless demanded by developing countries as a means of buttressing their position that global warming concerns should not interfere with their economic development.

Of the lengthy list of commitments contained in Article 4.1, only a few could be termed legally binding. Most are more in the nature of exhortations, containing such nebulous and difficult to enforce phrases as "shall . . . promote," "shall . . . cooperate," "shall . . . take into consideration," "to the extent feasible," and so on.¹⁰⁰ Of all the commitments, it is likely that only the requirement to develop and publish national reports will be enforceable, because failure to provide the required information could give rise to a dispute between one party and another and trigger the dispute settlement procedure laid out in Article 14.

a. National programs and reports

Article 4.1(a) requires all parties to develop, publish, and regularly update country reports containing national inventories of anthropogenic emissions by sources, and removals by sinks, of all GHGs not controlled by the Montreal Protocol.¹⁰¹ To ensure uniformity and comparability, these inventories are to be developed in accordance with standard methodologies, which are to be formulated by the Conference of the Parties (the COP),¹⁰² which Article 4.1(b) requires all parties to "[f]ormulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change."¹⁰³ No particular measures or emissions reductions targets or timeframes are specified, and it is questionable whether parties could be held legally accountable for failing to implement Article 4.1(b).

99. *Id.* at Art. 4.1.

100. *Id.*

101. *Id.* at Art. 4.1(a).

102. *Id.*

103. *Id.* at Art. 4.1(b).

The phrase "measures to facilitate adequate adaptation to climate change" in Article 4.1(b) was carefully chosen. Developed countries have agreed to finance the "agreed full incremental costs" that developing countries incur in meeting their obligations under Article 4.1. Had the paragraph instead said "measures to adapt to climate change," developed countries would be obligated to pay at least the "agreed" incremental costs of such adaptation, which could be astronomical. But developed countries interpret the word "facilitate" to mean "prepare for," a far less costly undertaking.

The content of the reports required by Article 4.1(a) and (b) is spelled out in Article 12. In addition to the inventory of sources and sinks called for in Article 4.1(a), reports must contain "a general description of steps taken or envisaged by the Party to implement the Convention [and] any other information that the Party considers relevant to the achievement of the Objective of the Convention and suitable for inclusion in its communication."¹⁰⁴ If "feasible," the party is also to include material relevant for calculations of global emissions trends.¹⁰⁵

It should be stressed that the Convention contains no independent means for verifying the inventories provided by the parties in their reports. While gross cheating does not appear likely — fossil fuel emissions are already well documented, at least in the industrialized world — countries that have pledged to reduce emissions may be tempted to "fudge" their reporting.¹⁰⁶ Perhaps more important for the present is the need to develop universally accepted inventory procedures. While this task has been assigned to the CoP, to be taken up at its first session,¹⁰⁷ the IPCC and the Organization for Economic Cooperation and Development (OECD) have already begun work on a set of guidelines for national inventories of GHG emissions and sinks.¹⁰⁸

b. Other general commitments

In addition to developing plans and programs, parties must promote and cooperate in the development and diffusion of greenhouse-friendly technologies,¹⁰⁹ promote sustainable management, conservation, and enhancement

104. *Id.* at Art. 12.1(b) and (c).

105. *Id.* at Art. 12.1(c).

106. A study examining nine international environmental regimes that rely on self-reporting found that none has a perfect record. "Often countries do not report, falsify reports, or submit incomplete or poor-quality reports," note the authors. *Truth in Reporting: Verifying Compliance With the Climate Convention*, 4 Global Envtl. Change Rep. (Cultus), No. 18, at 1 (Sept. 25, 1992).

107. Climate Convention, *supra* note 1, at Art. 7.2(d).

108. *Truth in Reporting*, *supra* note 106, at 2. The IPCC and OECD plan to release a step-by-step workbook, reference manual, and software on standardizing inventories. *Id.*

109. Climate Convention, *supra* note 1, at Art. 4.1(c).

of sinks and reservoirs (including biomass, forests, and oceans and other marine ecosystems);¹¹⁰ cooperate in efforts to adapt to climate change, manage coastal zones, water resources, and agriculture, and protect and rehabilitate areas affected by drought, desertification, and floods;¹¹¹ promote and cooperate in climate change research, observation, and data gathering;¹¹² promote and cooperate in the full, open, and prompt exchange of relevant information;¹¹³ promote and cooperate in education, training, and public awareness;¹¹⁴ and communicate to the CoP information related to implementation, in accordance with Article 12.¹¹⁵

Parties are to "[t]ake climate change considerations into account, to the extent feasible, in their relevant social, economic, and environmental policies and actions."¹¹⁶ They are also to employ "appropriate methods," including impact assessments, to "minimiz[e] adverse effects on the economy, on public health, and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change."¹¹⁷ Unfortunately, this provision may fail to do the obvious: require countries to perform impact assessments to determine the effects of their actions on climate change.

Article 4.1 recognizes that there are "common but differentiated responsibilities" among the Parties, implying that developed countries have a heavier burden in meeting Article 4.1 commitments than developing countries.¹¹⁸ Similarly, it acknowledges that a country's obligations under Article 4.1 may be affected by its "national and regional development priorities,"¹¹⁹ and implementation by developing countries will take into account the fact that economic and social development is their "first and overriding priority[.]"¹²⁰ Developing country implementation is further conditioned on "effective" implementation by developed country parties of their commitments, under Article 4.2, to provide financial assistance and transfer of technology.¹²¹

110. *Id.* at Art. 4.1(d).

111. *Id.* at Art. 4.1(e).

112. *Id.* at Art. 4.1(f).

113. *Id.* at Art. 4.1(g).

114. *Id.* at Art. 4.1(h).

115. *Id.* at Art. 4.1(i).

116. *Id.* at Art. 4.1(j).

117. *Id.* at Art. 4.1(k).

118. *Id.* at Art. 4.1. Some countries, including the U.S., sought to extend the requirement for impact assessments to cover national economic policies. This was strongly resisted by India, China, and a number of other developing countries.

119. *Id.*

120. *Id.* at Art. 4.7.

121. *Id.*

2. Specific Commitments for Developed Countries

Article 4.2 contains commitments that apply only to parties listed in annex I, *i.e.*, developed countries and countries with economies in transition.¹²² It was this section that proved to be the most controversial. The Europeans were determined to get, at a minimum, a binding commitment to return CO₂ emissions to their 1990 levels by the year 2000. Indeed, many had already adopted unilateral commitments to reduce their emissions even further.¹²³ But the U.S. was adamant; the text must not contain legally binding targets and timetables. In the end, the U.S. view seems to have prevailed, for, though a reasonable argument can be made that Article 4. requires industrial countries to return their emissions to 1990 levels by the year 2000, the tortured text of Article 4.2 is so purposefully unclear that it probably does not have the force of law. The U.S. strategy was to decouple the target from the timetable. Thus, Article 4.2(a) refers to actions to be taken by the end of the decade, while Article 4.2(b) discusses a return to 1990 levels. Nevertheless, a careful reading of Article 4.2(b) leads to the conclusion that, indeed, industrial countries are to return their emissions to 1990 levels by the year 2000.

a. Commitment to reduce emissions

Article 4.2(a) requires each annex I party to "adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs."¹²⁴ It goes on to say that "return by the end of the present decade to earlier levels of anthropogenic emissions . . . would contribute" to modifying longer-term trends in emissions.¹²⁵

In meeting their commitment to reduce emissions and enhance sinks, parties may make allowances for their "different starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances."¹²⁶ They are also to take into account the need

for "equitable and appropriate contributions" by each of the annex I parties to the global effort to accomplish the Convention's Objective.¹²⁷ Finally, annex I parties "may implement such policies and measures jointly with other Parties and may assist other Parties in contributing to the achievement of the Objective of the Convention and, in particular, that of this subparagraph."¹²⁸

b. Commitment to develop national plans

Article 4.2(b) requires annex I parties to provide detailed information on their GHG policies and projected emissions by sources and removals by sinks of GHGs within six months of entry into force of the Convention.¹²⁹ They are to provide this information "with the aim of returning individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol."¹³⁰

Certainly there is a strong argument that this provision requires industrialized countries to develop plans that return their emissions to 1990 levels at some indeterminate time in the future. But it can also be argued that Article 4.2(b) requires them to develop plans that return their emissions to 1990 levels *by the year 2000*.¹³¹ While this is not a reading to which the U.S. administration would have subscribed,¹³² it is a plausible interpretation that could be adopted by other Parties during the implementation phase, or perhaps put forward by them as an understanding in their instruments of ratification.

The Convention says nothing about emissions levels beyond the year 2000, so it is possible that parties' national plans might call for a return to 1990 or other earlier levels at some point, but for an increase in emissions thereafter. Unless further scientific research indicates that higher levels of

127. *Id.*

128. *Id.*

129. *Id.* at Art. 4.2(b).

130. *Id.*

131. *Id.*

132. *Id.*

Contrast this commitment with the commitment to develop and publish country reports in Article 4.1.

131. The argument is that the phrase "these [GHG emissions]" refers to the phrase which precedes it, "resulting projected anthropogenic emissions" for the remainder of the present decade. Thus, developed country Parties must have plans that aim at returning GHG emissions during the remainder of the present decade to their 1990 levels. This argument is bolstered by the fact that in all the preceding negotiations and draft texts, all references to a timetable for stabilization had as the target date the year 2000.

132. Such a reading is not explicitly contradicted by the U.S. State Department's analysis of the Convention, although in the documentation transmitted to the President prior to ratification, the State Department notes that Article 4.2(b) "does not create a legally binding target." U.S. DEPARTMENT OF STATE, ARTICLE-BY-ARTICLE ANALYSIS OF THE FRAMEWORK CONVENTION ON CLIMATE CHANGE (1992) (transmitted to the President with the Convention for his review and ratification) [hereinafter DEPT OF STATE ANALYSIS].

122. *Id.* at Art. 4.2. Parties "undergoing the process of transition to a market economy" are to be given a certain degree of flexibility in their implementation of these commitments, including with regard to selection of an emissions baseline. *Id.* at Art. 4.6.

123. See SCHMIDT, *supra* note 21, and accompanying text.

124. Climate Convention, *supra* note 1, at Art. 4.2(a).

125. *Id.*

126. *Id.*

emissions are consistent with the Convention Objective, however, failure to stabilize emissions at or below 1990 levels would violate the spirit and probably the intent of the Convention, and likely would be challenged.

c. Joint implementation

Article 4.2 permits annex I parties to implement their policies and measures to mitigate climate change "jointly" with other parties,¹³³ based on criteria to be developed by the CoP at its first session.¹³⁴ Many NGOs strongly object to "joint implementation," viewing it as a loophole that would permit industrial countries to continue to increase their emissions by offsetting their increases with hard-to-verify emissions reductions in developing countries (or countries with economies in transition).¹³⁵ Another concern is that the cheapest mitigation strategies to be had in those countries could be used by their developed country "partners," forcing developing countries to use much costlier strategies for achieving the additional future emissions reductions that almost certainly will be required. Some, however, view joint implementation as a trial run for a global system of marketable emissions permits, an approach to limiting GHGs advocated by a number of economists and policy analysts.¹³⁶ Since the criticisms mentioned above would not seem to apply to cooperative efforts within the European Community, which has committed to stabilize EC-wide emissions at 1990 levels by the year 2000, the EC might be an ideal testing ground for both joint implementation and marketable emissions permits.

133. Climate Convention, *supra* note 1, at Art. 4.2(a) and (b).

134. *Id.* at Art. 4.2(d). Norway submitted a proposal to the INC for a joint implementation scheme involving a climate fund to cover incremental costs of commitments taken on by developing countries: a clearinghouse to receive, evaluate, and find partners for project proposals; and a mechanism for identifying and transferring technology. T. HANISCH, JOINT IMPLEMENTATION OF COMMITMENTS TO CLIMATE CHANGE, Policy Note 1991.2 (1991). See also Statement by Dr. Amsgar O. Vogel to the Fourth Session of the INC (Dec. 9-20, 1991).

135. See, e.g., DONALD GOLDBERG, CENTER FOR INTERNATIONAL ENVIRONMENTAL LAW, JOINT IMPLEMENTATION CONCERNS (Feb. 12, 1992); No Joint Implementation and Emissions Trading (Feb. 26, 1992) (unpublished paper, distributed at 5th meeting of the INC by 17 NGOs).

136. See, e.g., A. LEBLANC, ENVIRONMENTAL DEFENSE FUND, JOINT IMPLEMENTATION AND THE DEVELOPMENT OF AN EMISSIONS TRADING SYSTEM FOR GREENHOUSE GASES (1991). Marketable emissions permits would "cap" emissions at a selected level and allocate permits to emit the chosen level of emissions among potential polluters, who would then be free to trade or sell permits among themselves. In theory, this would result in the lowest overall cost of achieving the selected level of emissions reduction. Tietenberg, *Economic Instruments for Environmental Regulation*, 6 OXFORD REV. ECON. POL'Y 17 (1990). For a description of a particular scheme to limit GHG emissions utilizing marketable permits in conjunction with other regulatory mechanisms, see Donald Goldberg, *Reducing Greenhouse Gas Emissions: A Combined Strategy Using Permits, Fees, and Country Commitments*, DUKES ENVTL. L. & POL'Y F. (forthcoming 1993).

d. Review of commitments

An interesting and important feature of Article 4.2 is that it provides for its own review. The CoP, at its first session, is to review the adequacy of Article 4.2(a) and (b) in light of the best available scientific, technical, social, and economic information.¹³⁷ If the CoP finds that the commitments contained in Article 4.2(a) and (b) are inadequate, it is authorized to take the necessary actions, which may include amending the Convention.¹³⁸

e. Other specific developed country commitments

Other provisions of Article 4.2 require developed country parties to develop methodologies to take into account the best available scientific knowledge in calculating emissions of GHGs by sources and removals by sinks,¹³⁹ coordinate economic and administrative instruments developed to meet their commitments under the Convention,¹⁴⁰ and identify policies and practices that encourage or increase GHG emissions.¹⁴¹

3. Financial Assistance

Developed country parties listed in annex II undertake two financial commitments in Article 4.3. First, they must finance the "agreed full costs" that developing country parties incur in preparing the national reports required by Article 4.1. Second, they must pay the "agreed full incremental costs" to developing countries of implementing the other provisions of Article 4.1, with the proviso that these costs must be agreed to by the "operating entity" of the financial mechanism.¹⁴² Incremental costs, according to one formulation, are costs of fulfilling an obligation arising under the Convention in excess of those costs that would have been incurred otherwise. A different formulation characterizes incremental costs as the costs of achieving some "global benefit," minus the value of any resulting national benefit. The operative definition of incremental costs remains to be elaborated by the CoP.

Developing countries insisted that financing provided by annex II parties

137. Climate Convention, *supra* note 1, at Art. 4.2(d). The Conference of the Parties is to review Article 4.2(c) and (b) for a second time not later than Dec. 31, 1998, and thereafter at regular intervals "until the objective of the Convention is met." *Id.*

138. *Id.* Of course, it might be argued that this provision adds nothing to the Convention, since the Conference of the Parties has authority to amend the Convention anyway. See *id.* at Art. 15. Article 4 might be read to permit dispensing with the six month notification requirement, however. See *id.* at Art. 4.2(c).

139. *Id.* at Art. 4.2(c).

140. *Id.* at Art. 4.2(e)(i).

141. *Id.* at Art. 4.2(e)(ii).

142. *Id.* at Art. 4.3.

to cover incremental costs be "new and additional" (meaning it should not divert funds from established flows of development assistance). Taken to the extreme, this would mean that developed countries may never reduce development assistance from current levels, since such a reduction could always be viewed as a diversion of funds from development assistance to incremental cost payments.

In implementing Article 4.3, annex II parties are to ensure "adequacy and predictability in the flow of funds" and "appropriate burden sharing among developed country Parties."¹⁴³ They are to take "full account of the specific needs and special situation" of the least developed countries,¹⁴⁴ and assist developing country parties "that are particularly vulnerable to the adverse effects of climate change" in meeting the costs of adapting to those effects.¹⁴⁵

Funding of adaptation is bound to be a source of future conflict, for developing countries would like the "full incremental costs" of adaptation to be paid by the financial mechanism. Developed countries argue that reference to the financial mechanism (Article 11) is made only in Article 4.3, and is intended to cover only commitments referenced in that paragraph. Adaptation is discussed in Article 4.4, hence it is not covered by the financial mechanism. Furthermore, they argue, adaptation has no incremental costs, since the global benefits of adaptation are no greater than national benefits, the incremental costs being the difference between the two. While developed countries acknowledge that they have an obligation to pay some costs related to adaptation, these may be limited to the preparation costs contained in Article 4.1(b).

Developed countries are also to give "full consideration" to the possible need for other actions, including funding, insurance, and technology transfer, "to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change."¹⁴⁶ There is no reason, however, to think these costs will receive any more favorable consideration than the costs of adaptation referred to in Article 4.4.

4. Technology Transfer

Annex II parties are required to take "all practicable steps to promote,

143. *Id.*

144. *Id.* at Art. 4.9.

145. *Id.* at Art. 4.4.

146. *Id.* at Art. 4.8 (emphasis added). Insurance has been a particular concern of the small island states. An earlier draft text contained an elaborate mechanism to provide insurance against the consequences of sea-level rise. Revised Consolidated Text Under Negotiation, U.N. Doc. A/AC.237/Misc.20 at 62 (1991). While the mechanism did not survive the final round of negotiations, it is likely to receive further consideration in the future.

facilitate, and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention."¹⁴⁷ Annex II parties are also required to support the "development and enhancement of endogenous capacities and technologies of developing country Parties."¹⁴⁸ Other parties and organizations are invited to contribute to this effort.¹⁴⁹

Developing countries generally sought to establish a mechanism for the transfer of technology on a "preferential and non-commercial basis."¹⁵⁰ The U.S. and a few other industrial countries responded that, since governments of countries with market economies do not own technology, they are unable to transfer it non-commercially. Some delegates found this argument unconvincing, and thought that industrial countries should be able to purchase needed technology and transfer it to developing countries for free or on favorable terms. In fact, however, since the financial mechanism is to pay the agreed full incremental costs of technology transfer, it is not clear that providing for preferential or non-commercial transfer would have made a significant difference.

D. ARTICLES 5 AND 6: RESEARCH, EDUCATION, AND TRAINING

In Articles 5 and 6 the Parties agree to support international data collection and observations¹⁵¹ and to promote endogenous research capabilities in developing countries.¹⁵² They also agree to provide scientific and technical information to which countries might otherwise not have access,¹⁵³ and to promote public awareness and education,¹⁵⁴ public access to information,¹⁵⁵ public participation,¹⁵⁶ and training of scientific, technical, and managerial personnel.¹⁵⁷

E. ARTICLES 7 - 10: INSTITUTIONAL MECHANISMS

Articles 7 through 10 describe the Convention's institutional structure. The Conference of the Parties (CoP) is given primarily responsibility for

147. Climate Convention, *supra* note 1, at Art. 4.5.

148. *Id.*

149. *Id.*

150. IPCC Response Strategies 226, Malaysian Positions on Climate Change (undated paper distributed at Climate Convention negotiations) (on file with author).

151. Climate Convention, *supra* note 1, at Art. 5(a).

152. *Id.* at Art. 5(c).

153. *Id.* at Art. 5(b).

154. Climate Convention, *supra* note 1, at Art. 6(a)(i).

155. *Id.* at Art. 6(a)(ii).

156. *Id.* at Art. 6(a)(iii).

157. *Id.* at Art. 6(a)(iv).

achieving the Objective of the Convention. The CoP is supported by administrative and advisory bodies created by the Convention, including the Secretariat, the Subsidiary Body for Scientific and Technical Advice, and the Subsidiary Body for Implementation. The Convention also provides for participation by NGOs.

1. Article 7: Conference of the Parties

Like a number of other international environmental agreements, the Convention establishes a Conference of the Parties (CoP). The CoP is the governing body of the Convention, and it is composed of all the parties.¹⁵⁸ The CoP is to meet at least once a year, beginning within a year of the Convention's entry into force.¹⁵⁹ The CoP is to review the operation and implementation of the Convention and consider the need for modifications by way of decisions, amendments or the adoption of protocols and other related legal instruments.¹⁶⁰ Meetings of the CoP may be attended by observers, including the United Nations, its specialized agencies, and the IAEA, as well as UN member states and observers.¹⁶¹ National, international, governmental, and non-governmental organizations may also attend as observers, unless one-third of the parties in attendance object.¹⁶²

As more is learned about global warming, the CoP must continually reassess the Convention to ensure that it is meeting its Objective. In particular, it must assess the adequacy of the specific commitments contained in Article 4.2(a) and (b). If it finds that, in light of the best available scientific information, these provisions require strengthening, the CoP may amend them.¹⁶³ An initial review of these provisions must take place at the first meeting of the CoP, with a second review to follow by the end of 1998.¹⁶⁴

Negotiators left a number of other important issues for the CoP to resolve. The CoP must develop criteria for joint implementation of annex I parties' obligations under Article 4,¹⁶⁵ decide on the structure of the financial mechanism,¹⁶⁶ and consider the establishment of a multilateral consultative process for resolving questions concerning implementation of the Convention.¹⁶⁷ Also, at its first session, and periodically thereafter, the CoP

158. *Id.* at Art. 7.2.

159. *Id.* at Art. 7.4.

160. *Id.* at Art. 7.2.

161. *Id.* at Art. 7.6.

162. *Id.*

163. *Id.* at Art. 4.2(d).

164. *Id.*

165. *Id.*

166. *Id.* at Art. 11.4.

167. *Id.* at Art. 13.

must review the plans submitted by countries for meeting their Convention commitments.¹⁶⁸ Much of the groundwork for these decisions will probably be done even before the Convention enters into force, by working groups established by the INC.

2. Article 8: The Secretariat

The Secretariat, the Convention's operational staff, is made up of professional civil servants with no official ties to the parties.¹⁶⁹ The Secretariat will be responsible for arranging for meetings of the CoP, assisting in the development of country reports, and working with other international bodies to promote the effective operation of the Convention.¹⁷⁰

3. Article 9: Subsidiary Body for Scientific and Technical Advice

The Subsidiary Body for Scientific and Technical Advice is a multidisciplinary body comprised of government representative experts.¹⁷¹ It is to provide the CoP and its subsidiary bodies with timely information and advice on scientific and technological matters.¹⁷² Though negotiators considered giving this advisory body a role in conducting research into global warming, perhaps replacing the IPCC, it was decided instead to continue the activities of the IPCC as the world's principal body on climate change research.¹⁷³ The Subsidiary Body for Scientific and Technical Advice is nonetheless responsible for providing a variety of scientific advice to the CoP.¹⁷⁴ Its duties include: assessing the state of scientific knowledge on climate change;¹⁷⁵ assessing the effects of measures taken under the convention;¹⁷⁶ providing advice on state-of-the-art technologies and their development and transfer;¹⁷⁷ providing advice on scientific programs, research and development, and capacity building in developing countries;¹⁷⁸ and responding to questions from the CoP and its subsidiary bodies on science, technology, and methodology.¹⁷⁹

168. *Id.* at Art. 4.2(b).

169. The Secretariat activities will be carried out on an interim basis by the INC secretariat. *Id.* at Art. 21.1. Correspondence may be addressed to Climate Change Secretariat, 16, Avenue Jean Tremblay, 1209 Genève, Switzerland.

170. Climate Convention, *supra* note 1, at Art. 8.2.

171. *Id.* at Art. 9.1.

172. *Id.*

173. See *id.* at Art. 21.2.

174. *Id.* at Art. 9.

175. *Id.* at Art. 9.2(a).

176. *Id.* at Art. 9.2(b).

177. *Id.* at Art. 9.2(c).

178. *Id.* at Art. 9.2(d).

179. *Id.* at Art. 9.2(e).

4. Article 10: Subsidiary Body for Implementation

The Subsidiary Body for Implementation is to assist the CoP in the assessment and review of implementation of the Convention.¹⁸⁰ It is to be comprised of government representatives who are experts on matters related to climate change, and is open to participation by all parties.¹⁸¹ Under the guidance of the CoP, this implementation body's duties include: considering country reports to assess the "overall aggregated effect of the steps taken by the Parties in the light of the latest scientific assessments concerning climate change";¹⁸² assisting the CoP in its review of those reports;¹⁸³ and assisting the CoP, "as appropriate," in the preparation and implementation of its decisions.¹⁸⁴

In considering the implementation of the Convention by the parties, the Subsidiary Body for Implementation is to consider "the situation of Parties, particularly developing country Parties, with economies that are vulnerable to the adverse effects of the implementation of measures to respond to climate change," notably countries dependent on income from production, processing, export, or consumption of fossil fuels and energy-intensive products, or countries with serious difficulties switching to fossil fuel alternatives.¹⁸⁵ During the negotiations, a number of fossil fuel producing countries expressed concern that they could be severely hurt by measures to restrict the use of fossil fuels. This issue has yet to be addressed in any serious fashion by negotiators, and it is certain to be highly charged when it is taken up by the Subsidiary Body for Implementation.

5. The Role of Non-Governmental Organizations

Non-governmental organizations (NGOs) have an important role to play in the monitoring, implementation, and administration of the Convention. This role is acknowledged in Article 7, which requires the CoP to "seek and utilize, where appropriate, the services and cooperation of, and information provided by, competent international organizations and intergovernmental and non-governmental bodies."¹⁸⁶ Article 7 also stipulates that NGOs "qualified in matters covered by the Convention" may attend meetings of the CoP as observers, unless one-third of the parties present

object.¹⁸⁷

NGOs have been involved in the climate negotiations from the start.¹⁸⁸ They lobbied delegates, addressed them on the floor at plenary sessions, and kept them informed with daily publications of Eco, a newsletter put out by the Climate Action Network, a coalition of environmental NGOs working on climate issues.¹⁸⁹ As NGOs now turn their attention to implementation and monitoring, they will focus on: national reports; the laws and policies that parties adopt to carry out their obligations under the Convention; and the effectiveness with which parties implement their laws and policies. The Center for International Environmental Law, for example, as part of its State of Environmental Law program, will assess the laws of parties to determine how they should be revised to meet the objectives of the Convention.

F. ARTICLE 11: FINANCIAL MECHANISM

Article 11 "defines" a financial mechanism for providing financial assistance and transferring environmentally sound technology, on a grant or concessional basis, to developing country parties, as required by Article 4. The financial mechanism is to "(function under the guidance of and be accountable to the Conference of the Parties, which shall decide on its policies, programme priorities and eligibility criteria."¹⁹⁰

Despite this language, developed countries have made clear that they do not want the CoP to exercise unfettered control over the financial mechanism, or its "operating entity." Thus the word "defined" was chosen to distinguish the financial mechanism from subsidiary bodies, which are established by the Convention, and which are under the control of the CoP, the "supreme body of Convention."

Article 11 stipulates that the operation of the financial mechanism "shall be entrusted to one or more existing international entities."¹⁹¹ The clear intent of the developed countries was that this "operating entity" would be

187. *Id.* at Art. 7.6. A question that remains is whether this rule also applies to meetings of subsidiary bodies.

188. Indeed, NGOs are largely responsible for spotlighting the problem of global warming, and the author has noted their attendance at all the major meetings and conferences leading up to the negotiations of the Convention.

189. See Eco (Climate Action Network), dates throughout 1991 and 1992.

190. Climate Convention, *supra* note 1, at Art. 11.1.

191. *Id.* (emphasis added).

180. *Id.* at Art. 10.1.

181. *Id.*

182. *Id.* at Art. 10.2(a).

183. *Id.* at Art. 10.2(b).

184. *Id.* at Art. 10.2(c).

185. *Id.* at Art. 4.10.

186. *Id.* at Art. 7.2(f) (emphasis added).

the Global Environment Facility (GEF), an international funding institution implemented jointly by the World Bank, the United Nations Environment Programme, and the United Nations Development Programme.¹⁹² Indeed, Article 21, on Interim Arrangements, provides for operation of the financial mechanism by the GEF on an interim basis.¹⁹³

Such a role for the GEF was resisted by a number of developing countries and environmental NGOs, in part because they considered the GEF to be undemocratic, with the donors and the sponsoring institutions having the strongest voice in its governance. Environmentalists have also criticized the GEF for failing to provide for public consultation and public access to information, and for serving as "green" window dressing for World Bank projects that otherwise fail to meet criteria for sound environmental investment.¹⁹⁴

Developed countries, many of which are also donors to the GEF, want the GEF to be the operational entity of the financial mechanism largely because of the central role in project selection and approval played by the World Bank, over which developed countries exercise control. As members of the CoP, the industrialized countries are likely to be in the minority, whereas in the World Bank, where voting by the Executive Directors is weighted in proportion to contributions, industrialized countries control a majority of the votes.¹⁹⁵

Article 11 attempts to resolve the tension between these opposing views by giving operational functions to the GEF (or other existing international entity or entities) and oversight functions to the CoP. The precise relationship between these two bodies is left for future negotiations, and will be taken up at the CoP's first meeting.¹⁹⁶ Article 11 does place some limits on the role of the operating entity, however. As noted, the financial mechanism is to function under the guidance of, and be accountable to, the CoP.¹⁹⁷ Funded projects must conform with the policies, program priorities,

192. See Donald M. Goldberg, *The Montreal Protocol Multilateral Fund: A Model for the Framework Convention on Climate Change*, 16 Int'l Env't Rep. (BNA) 233, 233-34 (Mar. 24, 1993).

193. Climate Convention, *supra* note 1, at Art. 21. For this purpose, the GEF should be "appropriately restructured and its membership made universal to enable it to fulfill the requirements of Article 11." *Id.* Article 11 stipulates that the financial mechanism is to have an "equitable and balanced representation of all Parties within a transparent system of governance." *Id.* at Art. 11.2.

194. See Procedures to Ensure Public Accountability in the Global Environmental Facility: An NGO Proposal to the GEF Participants (April 28, 1992) (unpublished paper, on file with author). See also K. HORTA & S. HAJOST, ENVIRONMENTAL DEFENSE FUND, G-7 NATIONS NEED TO PUNISH RESTRUCTURING OF GLOBAL ENVIRONMENTAL FACILITY BEFORE COMMITTING NEW FUNDS (1992).

195. For a list of World Bank Executive Directors and their voting power, see WORLD BANK, THE WORLD BANK ANNUAL REPORT 225 (1990).

196. Climate Convention, *supra* note 1, at Art. 11.4. At this meeting the CoP is to review the GEF's interim operation of the mechanism and decide whether the interim arrangement should continue. *Id.* The CoP is required to again review the financial mechanism within four years of its first meeting. *Id.*

197. *Id.* at Art. 11.1.

and eligibility criteria established by the CoP,¹⁹⁸ and decisions on funding may be reconsidered if these policies, priorities, and criteria are not met.¹⁹⁹ The operational entity must report regularly to the CoP on its funding operations,²⁰⁰ and must reach agreement with CoP on the amounts of funding to be made available through the financial mechanism.²⁰¹

The governance of the financial mechanism is yet to be resolved. A central question is what body shall have authority to approve projects. Most developed countries favor the GEF approach, with project approval authority residing primarily with the World Bank. Developing countries prefer the approach taken by the Montreal Protocol on Substances That Deplete the Ozone Layer,²⁰² which has a subsidiary body called the Executive Committee that approves all projects over \$500,000.²⁰³

The developed country preference for the GEF structure may not be consistent with the language of Article 11. While Article 11.2 says that the financial mechanism is to have an "equitable and balanced representation of all Parties within a transparent system of governance,"²⁰⁴ Article 11.1 speaks only of entrusting the mechanism's operation to one or more existing international entities.²⁰⁵ Thus, the Convention seems to contemplate a governance structure other than the operating entity.

Moreover, as presently structured, the GEF does not meet the requirements of Article 11.2. Although it is presently undergoing restructuring in an effort to conform to the Convention,²⁰⁶ its links to the World Bank make it unlikely that the GEF will ever meet the Convention's demand for transparency.²⁰⁷

The United States has interpreted the provisions of Article 11 in a way that further weakens the role of the CoP.²⁰⁸ The U.S. asserts that "eligibility criteria" — which are to be decided on by the CoP — refers to eligibility of countries, not programs. This would, of course, limit the role of the CoP in determining the types of projects to be funded.²⁰⁹ Such a definition does not seem consistent with the requirement in Article 11 that modalities

198. *Id.* at Art. 11.3(a).

199. *Id.* at Art. 11.3(b).

200. *Id.* at Art. 11.3(c).

201. *Id.* at Art. 12.3(f).

202. Montreal Protocol, *supra* note 56.

203. Amendment to the Montreal Protocol on Substances That Deplete the Ozone Layer, Terms of Reference of the Executive Committee, at Annex IV, para. 10, U.N. Doc. UNEP/OzL.Pro.3/4 at 46.

204. Climate Convention, *supra* note 1, at Art. 11.2.

205. *Id.* at Art. 11.1.

206. Article 21 calls for the GEF to be "appropriately restructured and its membership made universal to enable it to fulfill the requirements of Article 11." *Id.* at Art. 21.3.

207. See WORLD BANK, WORLD BANK INFORMATION DISCLOSURE POLICY (1992).

208. DEPT. OF STATE ANALYSIS, *supra* note 132.

209. *Id.* at 10.

be created to ensure that *projects* conform to eligibility criteria,²¹⁰ or for reconsideration of projects that fail to conform. Similarly, the U.S. is of the view that the CoP can only *request* that the operating entity reconsider a particular funding decision,²¹¹ whereas Article 11 leaves it to the entity and the CoP to agree upon modalities by which a particular funding decision may be reconsidered.²¹² The U.S. also asserts that the requirement in Article 11.3(b) that the CoP and the operating entity determine the necessary level of funding means only that the CoP may "help" the operating entity determine the amount of funding required.²¹³

The details of the financial mechanism will likely be worked out only after the Convention enters into force. The U.S. statement on the financial mechanism reflects the views of many of the developed countries — indeed, some appear to go even further in their attempt to shift authority away from the CoP and to the operating entity, which they presume will be the GEF. Whether their views will prevail in light of strong opposition from developing countries and NGOs remains to be seen.

G. ARTICLE 12: COMMUNICATION OF INFORMATION

The reporting requirements of Article 4²¹⁴ are fleshed out in Article 12. Each party must "to the extent its capacities permit" provide the Secretariat with a national inventory of its emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.²¹⁵ These inventories are to be compiled using standardized methodologies to be developed by the CoP.²¹⁶ Each party is also to provide the Secretariat with a general description of steps it has taken, or expects to take, to implement the Convention, and any other information it considers relevant to the achievement of the Objective of the Convention.²¹⁷

Each party listed in annex I must, in addition, provide the Secretariat with a detailed description of the policies and measures it has adopted to implement its emissions reduction commitments under Article 4.2(a) and 2(b).²¹⁸ Furthermore, it must estimate the effects of these policies and measures on emissions by sources and removals by sinks up to the end of the decade.²¹⁹

210. See Climate Convention, *supra* note 1, at Art. 11.3(e).

211. DEP'T OF STATE ANALYSIS, *supra* note 132, at 10.

212. Climate Convention, *supra* note 1, at Art. 11.3(b).

213. See DEP'T OF STATE ANALYSIS, *supra* note 132.

214. Climate Convention, *supra* note 1, at Art. 4.1(e), (f), and 2(b).

215. *Id.* at Art. 12.1(e).

216. *Id.*

217. *Id.* at Art. 12.1(b) and (c).

218. *Id.* at para. 2(e).

219. *Id.* at Art. 4.2(b).

Subject to guidelines to be adopted by the CoP, any group of parties may submit joint reports, provided that the report includes sufficient information on the fulfillment of each party's individual obligation under the Convention.²²⁰

Annex I parties must transmit their initial reports to the Secretariat within six months of the date the Convention enters into force for them. Other parties — with the exception of least developed countries — must transmit their initial reports within three years of either entry into force for them, or the time financial resources for compiling their reports, as provided by Article 4.3, are made available.²²¹ Least developed country parties are permitted to make their initial report at their own discretion.²²² The frequency and timing of subsequent reports for all parties is to be decided on by the CoP.²²³

Upon receipt of the country reports, the Secretariat is to transmit them as soon as possible to the CoP and any subsidiary bodies concerned.²²⁴ Information that parties designate as confidential, in accordance with criteria to be established by the CoP, is to be aggregated by the Secretariat before being transmitted to the CoP or others.²²⁵ At the same time the Secretariat transmits the reports to the CoP, it is to make the reports available to the public, subject, of course, to the confidentiality requirements.²²⁶

Under Article 12, developing country parties may also submit to the Secretariat proposals for projects under Article 4 for which they are seeking financial or technical assistance.²²⁷ If possible, such proposals are to include an estimate of incremental costs, expected reductions in emissions or uptake by sinks, and an estimate of resulting benefits.²²⁸ The CoP is to arrange for the provision to these parties of technical and financial support to help them identify the technical and financial assistance they will require to implement their proposals.²²⁹

H. ARTICLES 13 AND 14: DISPUTE RESOLUTION

If a dispute arises between two or more parties concerning the interpretation or application of the Convention, they must attempt to settle it by

220. *Id.* at Art. 4.8.

221. *Id.* at Art. 4.5. The CoP is to arrange for the provision of such financial and technical assistance on request. *Id.* at Art. 12.7.

222. *Id.* at Art. 12.5.

223. *Id.*

224. *Id.* at Art. 12.6.

225. *Id.* at Art. 12.9.

226. *Id.* at Art. 12.10.

227. *Id.* at Art. 12.4.

228. *Id.*

229. *Id.* at Art. 12.7.

any peaceful means of their choice.²³⁰ Two options for resolving the dispute are submission to the International Court of Justice (ICJ), or submission to arbitration in accordance with procedures to be adopted by the CoP.²³¹ Parties may declare in their instrument of ratification, acceptance, approval, or accession that they accept compulsory submission of all their disputes to the ICJ and/or the arbitration procedures developed by the CoP, provided the other parties to the dispute accept the same obligation.²³² Regional economic integration organizations may make such a declaration only with respect to the arbitration procedures.²³³

If, twelve months after one party has notified another that a dispute exists between them, the dispute has not been resolved by the procedures mentioned above, any party to the dispute may submit the dispute to a conciliation commission.²³⁴ This commission is composed of an equal number of members appointed by each party to the dispute and a chairman chosen jointly by all of them.²³⁵ The commission is empowered only to render a recommendatory award, which must be considered in good faith by the parties.²³⁶

An earlier draft of the Convention text contained a provision which allowed parties to refer questions about another party's implementation — or its own capacity to implement its obligations — directly to the CoP, which would have the option of resolving the dispute itself or referring it to an ad hoc panel of CoP members.²³⁷ Another option contained in the draft text was to establish an Implementation Committee to hear such questions and report its findings and recommendations to the CoP, which could make a final determination by a two-thirds majority vote of parties present and voting.²³⁸ However, negotiators were unable to complete work on this provision, and Article 13 states simply that "[t]he Conference of the Parties shall, at its first session, consider the establishment of a multilateral consultative process, available to Parties on their request, for the resolution of questions regarding the implementation of the Convention."²³⁹ As soon as practicable, the CoP is also to adopt additional procedures for conciliation.²⁴⁰

230. Climate Convention, *supra* note 1, at Art. 14.1.

231. *Id.* at Art. 14.2.

232. *Id.*

233. *Id.*

234. *Id.* at Art. 14.5.

235. *Id.* at Art. 14.6.

236. *Id.*

237. Revised Consolidated Text Under Negotiation, at 42, U.N. Doc. A/AC.237/Misc.20 (1992).

238. *Id.*

239. Climate Convention, *supra* note 1, at Art. 13.

240. *Id.* at Art. 14.7.

I. ARTICLES 15 - 26: FINAL CLAUSES

The final clauses covering amendments, annexes, protocols, right to vote, entry into force, and so on are fairly standard. One exception is Article 21, on interim arrangements, which establishes procedures for the Secretariat, the financial mechanism, and consultation with scientific bodies, particularly the IPCC.²⁴¹ As noted, the GEF is to serve as the operational entity of the financial mechanism until the CoP takes up the matter at its first meeting.²⁴²

An amendment proposed by a party may be adopted by a three-fourths majority vote at any ordinary session of the CoP, provided six months have passed since the proposal was communicated to the parties by the Secretariat.²⁴³ An adopted amendment enters into force for the parties that have accepted it ninety days after receipt by the Depositary of instruments of acceptance from three-fourths of the parties to the Convention.²⁴⁴

Annexes, which are restricted to "lists, forms and any other scientific material of a descriptive nature that is of a scientific, technical, procedural or administrative character," are adopted and amended by the same procedures as those for amendments to the Convention.²⁴⁵ A noteworthy distinction, however, is that annexes enter into force for all parties to the Convention that have not notified the Depositary, in writing, of their non-acceptance.²⁴⁶

Protocols may be adopted by the CoP at any ordinary session, provided the text was communicated to the parties at least six months prior.²⁴⁷ Only parties to the Convention may become parties to a protocol.²⁴⁸

241. *Id.* at Art. 21.

242. *Id.* at Art. 14.3; see *supra* notes 191-201 and accompanying text.

243. Climate Convention, *supra* note 1, at Art. 15.1, 15.2, 15.3.

244. *Id.* at Art. 15.4.

245. *Id.* at Art. 16.1, 16.2, and 16.4.

246. *Id.* at Art. 16.3. This distinction is a carryover from the Vienna Convention and the Montreal Protocol. See Vienna Convention, *supra* note 2, Montreal Protocol, *supra* note 36, at Article 10. It was not used, however, when a second annex containing additional controlled substances was added to the Protocol in 1990. See Amendment to the Montreal Protocol on Substances That Deplete the Ozone Layer, at 25, U.N. Doc. UNEP/OzL.Pro./H (1992). Instead, the annex was incorporated into a regular amendment of the Protocol. *Id.* at 37. A more important feature of the Montreal Protocol was its allowance for "adjustments" to the phaseout schedules of the controlled substances. Upon a two-thirds vote of parties representing at least fifty percent of the total consumption of controlled substances, phaseout schedules could be accelerated, and new substances could be added to annexes. Montreal Protocol, *supra*, at Art. 2, para. 9. Such adjustments are binding on all parties. *Id.* This provision has since been amended to require a two-thirds majority of parties representing a majority of developed country parties and a majority of developing country parties. Amendment to the Montreal Protocol on Substances That Deplete the Ozone Layer, at 27, U.N. Doc. UNEP/OzL.Pro./H.

247. Climate Convention, *supra* note 1, at Art. 17.1 and 17.2.

248. *Id.* at Art. 16.4.

The Convention is subject to ratification, acceptance, approval, or accession,²⁴⁹ and will enter into force on the ninetieth day after the date of deposit of the fiftieth instrument of ratification, acceptance, approval, or accession.²⁵⁰ No reservations may be made to the Convention,²⁵¹ and parties may withdraw only after three years from the date of entry into force for that party.²⁵² Withdrawals become effective one year after notification.²⁵³

V. CONCLUSION

It is likely that the Framework Convention on Climate Change will come to be regarded as a necessary first step on the long road to solving the problems of global warming. The process will inevitably be incremental, and it cannot be predicted how quickly or even in what directions it will evolve. It is therefore not constructive to brand the Convention a failure so early in the process, especially as it contains numerous provisions for its own improvement. These provisions are crucial, as substantial improvement is needed.

Most important is the need for the parties to agree on GHG emissions reduction targets and timetables, which were largely excluded from the Convention in its present form due to the opposition of the United States. Targets and timetables could be included either in a protocol, or in an annex or an amendment to the Convention itself, although the restriction in Article 16 of annexes to "material of a descriptive nature that is of a scientific, technical, procedural or administrative character" might bar their use for this purpose. The CoP must consider the need for targets and timetables at its first meeting, but there is no reason why negotiators could not begin work on such a provision before the CoP meets, or even before the Convention enters into force. At the very least, the language of Article 4 should quickly be clarified to require parties to stabilize emissions at 1990 levels by the year 2000.

Once developed countries make their mitigation commitments firm, it should be possible to address with specificity the actions developing countries should take to help avert global warming. These include bringing a halt to deforestation and utilizing the most energy efficient, non-polluting, and otherwise environmentally sustainable technologies in their quest for economic parity with the industrialized countries. In this regard, it is crucial that the developed countries quickly implement the financial mechanism, a necessary precondition to developing country actions.

249. *Id.* at Art. 22.

250. *Id.* at Art. 23.

251. *Id.* at Art. 24.

252. *Id.* at Art. 25.1.

253. *Id.* at Art. 25.2.

Many terms, procedures, and institutions require further elaboration. The CoP must decide what is permitted by the term "joint implementation," and what measures parties may take to meet their obligations through sink enhancement.²⁵⁴ It must develop procedures for the financial mechanism and, in particular, define the role of, and the CoP's relationship to, the operating entity of the mechanism. Finally, the CoP must establish dispute resolution and enforcement procedures, which are almost completely lacking in the present Convention.

In short, the Convention requires a great deal of refinement and expansion.²⁵⁵ But the focus of future work should not be entirely on improving the text of the Convention. Indeed, it is crucial that countries that intend to become parties immediately begin work on implementation. GHG inventories and national plans will require considerable time and attention, and countries should promptly begin work on them. Countries then must implement those plans by putting in place the requisite domestic laws, regulations, and policies. Delay could be costly, for by the time we are sure that we are experiencing global warming, it will be too late to prevent its most serious impacts.

254. A major concern is that parties may promote conversion of scrub forest, grasslands, or agricultural areas to tree farms for carbon storage, or that they might promote scientifically and environmentally questionable projects for fixing GHGs, such as fertilization of ocean algae with iron filings.

255. Recognizing this, the INC has requested the Secretary-General of the U.N. to recommend to the General Assembly at its forty-seventh session that the INC Secretariat continue to operate and the INC itself continue to hold negotiating sessions up to the entry into force of the Convention. *Report of the INC, 5th Sess., supra note 77*. The first of these sessions, INC VI, was held in New York City, March 15-21, 1993. The author attended this session as the first representative from an environmental NGO on the U.S. delegation.