Negotiating a Global Regime on 'Climate Change' : Problems and Prospects

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CERTIFICATE

This is to certify that the dissertation entitled **"Negotiating a Global Regime On `Climate Change´: Problems and prospects"** submitted by **Mr. Kaushik Ganguly** in partial fulfilment of the requirements for award of the degree of Master of Philosophy of this University, is his original work. This dissertation has not been published or submitted to any other university.

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DEDICATED TO
MY PARENTS

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INTRODUCTION

Purpose of the Study

Diplomatic activity in the field of global environmental management has acquired a new dimension over last two decades. In the field of environmental diplomacy, the issue of climate change, has curved out a niche for itself because of the global concerns for its potential harmful impacts on human life.

Climate change is a risk management issue. However, unlike the situation with floods and to some extent earthquakes for which records date back to hundreds of years, there is no historical experience to guide the assessor. Thus a better understanding of the complex issues involved and the development of appropriate strategies for coping up with the possible climate change needs global co-operation. This can be attained only through diplomatic negotiations and initiatives which can provide a major thrust to better climate management.

Of all the issues involved in climate change, global warming and ozone depletion have hogged diplomatic limelight wherein the reduction of emissions of manmade greenhouse gases and CFCs has become an area of major public policy debate. This can be gauged from feverish diplomatic activity starting with the **First Climate change conference**

held in Geneva in 1979.

Framework of Research

The research will aim at pinpointing the reasons: why the issue of global warming induced climatic change and the related issue of ozone-layer depletion have become a central topic dictating the terms of diplomatic negotiations. Moreover, an effort will be made to identify, the issues under the broad context of `Climate Change' on which diplomatic concessions have come thick and fast and the issues wherein concessions are hard to come by.

There is an effort to investigate the issues which are considered vital from the angle of `National Interest' of various countries or groups of countries. As a result the issues which are not easy as far as bargaining and negotiations are concerned in terms of foreign policy perspective of various nation-states, are analysed herein. Research tries to underline whether the North-South conflict will widen as a result of Climate Change debate and the related topic of sustainable development. The `polluter pays' principle would be examined in detail. A clear North-South divide on the reduction of emission of greenhouse gases (consequence of industrialization) would clearly undermine effective global action.

The first chapter focuses on the theoretical analysis of the dynamics of environmental diplomacy. Here, a special

emphasis is placed on the issue related to climate change.

The second chapter seeks to unravel as to why the framing of a global `Climate Change Convention' became important in the arena of environmental diplomacy. The issues of ozone layer depletion, reduction in use of CFCs, global warming, possible sea level rise and its consequences and reduction of emission of CO_2 and other greenhouse gases are addressed thoroughly. It also examines the inter-linkages among them so as to delineate the various controversies which are specific to the dimensions of Climate Change.

The third chapter investigates the structure of negotiations at all levels, viz., global/multilateral, regional and bilateral, depicting the evolution of negotiations on Climate Change starting from 1979. This chapter entails a detailed study of the processes of negotiation on the issue. It explores the different aspects of the problems that have been taken up for negotiation at all levels. It includes an analysis of policy perspectives of various nation states, conditioned by foreign policy considerations. Research strives to throw light on how various countries have been able to utilise the negotiations on `climate change' as a diplomatic tool in relation to their overall developmental priorities. Thus the research focuses on the issues of quota restrictions on CO_2 and other

greenhouse gas emissions, the concept of CO_2 tax pertaining to the paradigm of North-South divide. The related issue of technology transfer from the developed North to the developing South leading to cleaner industrial use, is also discussed.

The fourth chapter tries to identify linkages between diplomacy and international law. It endeavours to explore whether a negotiated outcome, might result in contributing to a public good viz. protecting a global commons that is our climate which has been declared a `common concern' of humanity by the UN General Assembly Resolution 43/53 in 1988. An analysis of adoption of the `Climate Change Convention' in UNCED, 92, ratified so far by 158 countries helps examine whether a `stable diplomatic agreement' can be reached through protracted and even acrimonious negotiation process. The analysis of this process seeks to unravel how diplomacy can help create a global `legal regime' on issues related to environment.

The research plans to test the following **hypotheses**:

(1) Protracted but minute diplomatic negotiations can lead to the creation of international legal regime in the field of global environmental risk management.

(2) Negotiations directed towards creation of international legal regimes in the field of environmental diplomacy is shifting toward **preventive diplomacy replacing the earlier**

approach of containment diplomacy.

Research Methodology

The research is based on **`Case Study Method'** incorporating **`issue-analysis'**. The study will be carried out from the perspective of negotiations - the structure and processes of which will be analysed to explain the stability of negotiated outcome leading to `Regime Formation'. It tries to identify the inter-relation between diplomacy and international law.

The analysis of the issues of climatic change, global warming, ozone-layer depletion and the related issues of technology transfer; the scrutiny of stands taken by various countries at the prep-com meetings of Working Group-I (on climate change) of UNCED, 1992 - is expected to generate sufficient data to understand the structure and processes of negotiation. This also helps understand the variables under consideration. After collection of ideas and clues from these data, broad generalisations drawn, while taking note of the inconsistencies.

The primary sources employed in the study include all UN and other governmental documents on `Climate Change' as well as declarations on various `Protocols" and `Conventions'. It also includes the verbatim minutes of various Conferences on climate change. The stands taken by various governments in the Rio UNCED as also the speeches of

various world leaders on `Climate Change' and related topics are also included in the primary source material.

The research also depends upon the secondary sources like newspaper clippings, articles on the issue in different journals and books by experts on the topic.

CHAPTER I

THEORETICAL ANALYSIS OF THE DYNAMICS OF ENVIRONMENTAL DIPLOMACY

"There is nothing static about either environment or its relationship to development."[1] Development is the means by which we utilise environment to produce goods and services. The industrial revolution of the 18th and 19th century and `good life' oriented scientific and technological revolutions of the 20th century dramatically increased humanity's need for natural resources to be exploited for development. Thereby humankind's relationship with environment became a `zero-sum game' in the pursuit of development where the misplaced faith in human rationality to manipulate the nature for temporal benefits has destroyed the fabric of global environmental balance almost to the point of no return. A warning was provided when Rudyard Kipling penned in his famous poem "If" the following lines:

"Yours is the Earth and everything in it
and which is more -
You will be a man my Son."

This provides the indication that it is our future

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1. Dr.Mostafa K.Tolba, Public lecture - "Environment: The Road Forward", Centre for Science and Environment, New Delhi, 20 April 1993.

generations that will have to bear the burden of modern man's developmental excesses vis-a-vis environment.

The growth of environmentalism has been a historical development in the second half of the 20th century, powerfully afflicted by mismanagement of scientific application powered by human greed for short term benefits.

Environmentalism as a global phenomenon was strengthened with the rise of public concern by a large number of incidents that demonstrated that foolhardy environmental management can cause disasters viz., death of people in smog episodes in Belgium, the USA (New York) and the United Kingdom (London) between 1952 and 1956, the fatal instance of mercury poisoning in Minamatu and Negatu in Japan in 1953, the acidification of natural lakes in Scandinavia and the Great Lakes of North America reducing aquatic life and death of birds caused by side effects of DDT and other organochloric pesticides, oil spills polluting marin life and ecosystems (Tory Canyon disaster in 1966) and the `Orange Yellow' chemical warfare waged by USA in Vietnam during 1965-67. Barring the last instance all the other instances of environmental disasters occurred in the developed countries. It forced the public opinion in developed North to put pressure on respective governments to reorient developmental policies to take into account environmental risk management. These fears were accentuated

at a global level in the 1980s with the discovery of the rise in the atmospheric concentration of Chlorofluro carbons (CFCs) leading to depletion of stratospheric ozone layer and rise in the atmospheric concentration of anthropogenic (man-made) greenhouse gases including that of Co_2 due to increasing fossil fuel use which causes global warming leading to climatic change.

Barring the last two developments all the other problems of global environmental management as issues and challenges before international diplomacy culminated in the `United Nations Conference on Human Environment' at Stockholm in 1972. The Stockholm Conference was the turning point in the history of environmental awareness if not overt diplomatic action. Its `Action Plan' for the Human Environment and establishment of United Nations Environment Programme (UNEP) with the involvement of Non-governmental Organizations (NGO's) gave environmentalism an effective expression in the internal force.

However, at the same time, the Stockholm Conference, 1972 reflected two diametrically opposed views of the developed and the developing world, bringing into play the legacies of North-South conflict in diplomatic fora into the domain of environmental diplomacy. The developed world viewed the environmental concerns in terms of the impact of human population on the biophysical environment, stressing

upon control of pollution and conservation of resources, and pointing toward population control. The developing world stressed the inequitous social and economic development and sovereignty over utilisation of natural resources reserves for their development as the main issue. This international attitudinal divide of the North and the South in the field of environmental diplomacy persists till date.

Despite all these developments, "less than ten years ago global environmental problems were still regarded as `low politics' - a set of minor issues to be relegated to technical experts."[2] Environmental issues were a diplomatic backwater, the province of conservationists, not diplomats and were marginal to the national interests of major powers and not in the same league as either international security or global economic issues.

But the withering of superpower competition and appearance of a new set of environmental issues that have seized the attention of the media and popular opinion have given environmental politics and diplomacy a new status in world politics. Some of these issues are depletion of stratospheric ozone layer, global warming and consequent climatic change and the destruction of the tropical forests. More importantly, throughout the industrialised world,

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2. Gareth Porter and Janet Welsh Brown, Global Envrionmental Politics, (Oxford, 1991), p.1.

environmental risk management is no longer perceived as merely a scientific and technical issue but as one that is intertwined with other central issues in world politics: the future of North-South relations, the international system of resource production and use, the liberalisation of world trade and even East-West relations. "The global environment has emerged as a third major issue area in world politics and international diplomacy along with international security and the global economy."[3]

In the past decade, scientific understanding of global environmental issues has greatly increased. The realisation that global environmental threats can have serious socio-economic and human costs and that they cannot be solved by the unilateral decisions of states has given impetus in recent years to increased international co-operation to halt or reverse environmental degradation. That realisation has also unleashed a new political force - a global environmental movement that undertakes increasingly effective transnational action on various issues. But some states and certain economic interests have opposed strong international actions to regulate these damaging or potentially damaging activities.

The result is an intensifying struggle over global

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3. Porter and Brown, n.2, p.2.

environmental issues. As global negotiations multiply on issues affecting a wide range of interests around the globe, the stakes for all participants in this struggle will continue to grow. The rise of global environmental diplomacy can only be understood within the context of the major changes in the global environment resulting from the explosive growth of population and the economic activity in the latter half of the 20th century.

Global environmental politics and diplomacy is not a single issue but a complex of issues which has its own structure and dynamics. "But the scope of the issue area is defined by two dimensions of any international environmental problem: the scope of environmental consequences of the economic activity in questions and the geographical scope of the states and non-state actors involved in this issue."[4] If the consequences are global or if the actors in the issue transcend a single region, it can be considered a global environmental issue. Thus issues involving threats to the integrity of the biosphere on which all human life depends - the planet's climate, atmosphere, land, oceans and seas as well as destruction of tropical forests are clearly global environmental issues.

Most global environmental diplomacy involve

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4. Ibid, p.15.

multilateral negotiations to reach global agreements aimed at reducing transnational environmental hazards. Global environmental negotiations seek to achieve effective international cooperation under circumstances in which environmental interests of states diverge. Different states have different combinations of internal economic and political forces that influence their policies towards environmental issues. The actual costs and risks of environmental degradation, moreover, are never distributed equally among all states. Hence, some are less motivated than others to participate in international efforts to reduce environmental threats. Nor do states have the same perceptions of equitable solutions to environmental issues. Yet despite these disperate interests, states must strive for unanimity, at least among those states that significantly contribute to and are significantly affected by a given environmental problem. "In every global environmental issue there is at least one and sometimes more than one group of states whose cooperation is so essential to a successful agreement for coping with the problem in question that they can have an effective veto power over the agreement. When these states indicate their doubts or outright opposition to the agreement, they become **veto**

states and form **veto coalitions**."[4] On the issue of whaling moratorium, for example, four states, led by Japan, accounted for three-fourths of the whaling catch worldwide, so that could make or break a global regime to save the whales. Similarly, "Brazil, India and China could block the international agreement on climate change by refusing to curb the use of fossil fuels in their own development programmes; the growth of their Co_2 emissions could eventually overwhelm proposed reductions carried out by the industrialised countries"[5] under the Framework Convention on Climate Change (FCCC). Thus veto coalitions constitute potential obstacles to effective international cooperation on environmental issues, and their role is central to the dynamics of burgeoning and negotiation in environmental diplomacy.

Because of the importance of the veto power, an economically powerful state may not be able to impose a regime on a much weaker state if the latter is strongly opposed to it. Thus, some key developing countries may credibly threaten to reject the global climate change agreement i.e., the FCCC if the financial burden of future

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4. Ibid, p.17.

5. Leiv Lunde, "North/South and Global Warming - Conflict or Co-operation?", Bulletin of Peace Proposals, vol.22, no.2, 1991, pp.199-210.

implementation of this regime is deemed as unfavourable by them. "And if bargaining turns to the distribution of costs and benefits, it is precisely the inability to bear the costs of implementation of policies required to contribute to global environmental action that gives developing countries a strong basis for demanding compensation and other forms of favourable treatment in global negotiations."[6]

"A second characteristic of global environmental diplomacy is that they tend to reflect the structure of the global economy."[7] Firstly, a number of global environmental issues involve, either directly or indirectly, trade relations between states that are producers and exporters of a particular good and states that are importers of that good and those roles tend to define the political dynamics of the issue. The issue of international hazardous waste trading, for instance, is defined by the relationship between the industrialised countries that are exporting the waste and the developing countries that are potential importers. In the case of ozone depletion, the critical relationships are

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6. Patti L.Petesch, North-South Environmental Strategies, Costs and Bargaining, Policy Essay No.5 (Washington, D.C., 1992), p.10.

7. Lynton K.Caldwell, "Beyond Environmental Diplomacy: The Changing Institutional Structure of International Cooperation", in Lynton K.Caldwell, ed., International Environmental Diplomacy (Cambridge, 1990), p.8.

between the countries that produce and export CFCs and those that import them. On tropical deforestation, trade relationships between timber exporters and consuming nations are critical to the dynamics of the issue.

In each of these cases, the roles and the relative bargaining powers tend to be defined by a country's position in the economic relationship in question. In some cases, it is the producing-exporting countries that have the veto power and in others, it is the importing countries. In one case - tropical deforestation - both producers and importers have roughly equal veto power, making it very difficult in forging a global regime. However, industrialised states and developing countries do not have equal veto power over the outcomes. Although, a relatively few developing countries may have the ability either to prevent n agreement from being reached or to bargain for special treatment on some environmental issues, the major economic powers have the ability to do that on every environmental issue.

There are other ways in which n economic power may affect the outcomes. The ability of an economic power to give or withhold economic benefits such as markets access for various goods and services to others or financial resources enables it to persuade states dependent on such benefits to avoid open opposition to the power's own policy. If the economically strong states can reach an agreement on

a given environmental problem, they can use the threat of trade sanctions against weaker states who refuse to cooperate and thus exercise leverage to get them to go along with the agreement. Such sanctions, for example are built into the Montreal Protocol on substances that Deplete the Ozone Layer to discourage non-participants from exporting CFCs. Even more importantly, however, the ability and willingness of the major donor states to commit resources determines whether or not an international agreement is possible on several issues under negotiation.

The third characteristics of politics in this issue area is that traditional power relations based on military power have no direct impact on the outcomes of specific international environmental conflicts. "Global environmental diplomacy, by its very nature does not give rise to a hegemonic power in the traditional sense of the ability to coerce other states into accepting the hegemon's position on a particular environmental issue. The conceptual and value basis of security politics is so far removed from environmental diplomacy that it is difficult to conceive of even imagining the use of military force to influence the outcomes of global environmental issues. However, military power may have an indirect effect on such outcomes by diverting the resources and attention of policy makers and thus reducing the ability and willingness of a

state to play a lead role on an environmental issue.

Although the actors found in the issue areas of security and economic diplomacy - international organisations, states and transnational corporations - all play distinct roles in the political process in the environmental arena, a distinctive characteristic of diplomacy is the importance of public opinion and the non-profit NGOs, especially environmental NGOs, that are both national and international in scope. Environmental issues like human rights issues preceding them, have mobilised active political participation and interest articulation of large number of citizens and citizen groups in key countries, including shifts in policy that helped turn the tide in a number of environmental issues. Public opinion, channeled through electoral politics and NGOs, has had a substantial, if not decisive influence on the outcomes of global bargaining on whaling, Antarctic minerals and ozone depletion"[8] and is also a key factor in negotiations on the Framework Convention on Climate Change. Comparatively speaking, public opinion has not played similarly important roles in the security and economic issue areas, which have been much more heavily dominated by bureaucratic elites and special interests. This is not to say that public opinion

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8. Porter and Brown, n.2, p.20.

has never had a substantial impact on national security policies or on outcomes of international security issues (the Vietnam war being an obvious example), but such instances are relatively rare.

GLOBAL REGIMES IN ENVIRONMENTAL DIPLOMACY

One concept used to compare international politics and diplomacy across issue areas is global/international regimes. The concept of international regimes is defined in two very different ways. According to the first definition, it is a set of norms, rules or decisionmaking procedures, whether implicit or explicit that produces some convergence in actors' expectations in a particular issue area. In this broad definition, it may be applied to a wide range of international arrangements, from the co-ordination of monetary relations to superpower security relations. However, "this way of conceiving regimes has been strongly criticised for including arrangements that are merely agreements to disagree and have no predictability or stability."[9] Although a set of norms or rules governing international behaviours may exist in some issue areas without there being a formal international agreement, it is difficult to identify norms or rules in the global

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9. Susan Strange, "Cave! Hic Dragons: A Critique of Regime Analysis", International Organisation (London), vol.36 Spring 1982, pp.479-96.

environmental area that are not defined by an explicit agreement.

The second definition of global regime is that "it is a system of norms and rules that are specified by a multilateral legal instrument among states to regulate national actions on a given issue".[10] The main form taken by multilateral legal instruments on global environmental problems is the **Convention**, which may contain all the binding obligations expected to be negotiated or may be accompanied by a more detailed instrument elaborating on its rules and regulations. If it is negotiated in anticipation of later elaborating texts, it is called a **framework convention** and is intended to provide a set of principles, norms and goals relating to the issue. It normally imposes few, if any, specific and binding obligations on the contracting parties and is termed **softlaw** in international legal parlance, e.g. the Framework Convention on Climate Change.

A framework convention assumes negotiation, either simultaneouly or upon its completion, of one or more **protocols**, which spell out specific, binding obligations of the contracting parties to the framework convention. When the negotiations on the framework convention and protocols

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10. Porter and Brown, n.2, p.20.

are done in sequence rather than simultaneously, as was the case with Vienna Convention for the Protection of the Ozone Layer and the recent Framework Convention on Climate Change, the stage of bargaining and regime formation may take several years. Similar was the case of the regime for transboundary acid-rain.

However, defining global regimes in terms of multilateral legal instruments is by no means free of ambiguity. An agreement may contain explicit rules and norms without effectively regulating action of the national actors on a particular issue. But the concept does provide a minimum standard for distinguishing a regime from mere administrative or political arrangements accepted tacitly or otherwise by parties, and it suggests criteria for judging a regime's effectiveness. Finally, it permits comparison of binding norms and rules on an issue between one historical moment and another and suggests the importance of strengthening those norms and rules that are too weak.

Thus far, global environmental regimes have been negotiated on the protection of whales, international trade in endangered wildlife species and hazardous wastes, long-range transboundary air pollution, protection of stratospheric ozone layer, marine pollution from ships, the dumping of wastes and other material in the oceans, protection of biodiversity and finally on stabilising

climate while halting climate change. These regimes vary widely in their effectiveness, from weak to quite strong.

Several major theoretical approaches have been advanced to explain why global regimes in any issue come into existence and why they change. These include the structural, game theoretic, institutional bargaining and epistemic communities approaches.[11] Each of them may help to explain one or more global regimes, but each fails to account for all the regimes. The structural or hegemonic power approach holds that the primary factor determining regime formation and change is the relative strength of the nation-state actors involved in a particular issue and that "stronger states in the issue system will dominate the weaker ones and determine the rules of the game."[12] This approach suggests that strong global regimes are functions of the existence of a hegemonic state and the absence of a such a hegemonic state would frustrate regime formation.

The structural approach can be viewed in two ways. One stressing coercive power, the other focussing on public goods. "In the coercive power variant, regimes are set up by hegemonic states that use their military and economic

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11. Stephen Haggard and Beth A. Simmons, "Theories of International Regimes", International Organisation, vol.41 (Summer 1987), pp.497-517.

12. Robert O.Keohane and Joseph S.Nye, Power and Interdependence (Boston, 1977), pp.50-51.

leverage over other states to bring them into regimes, as the United States did in setting up trade and monetary regimes in the period immediately after World War II."[13] The second variant views the same postwar regimes as a hegemonic power adopting policies that create public goods i.e., benefits open to all states who want to participate, such as export markets in the USA and the US dollar as a stable currency for international payments.

However, the structural approach fails to explain why global environmental regimes have been negotiated with such greater expanse and scope in the eighties and nineties. The global regimes negotiated since then, including the environmental regimes, have come about despite the fact that the role of the USA, which had been the hegemon in the past decades, has been constrained by two factors, viz., the rise of competing economic powers in Japan and the EC and since 1981, a US ideological hostility towards international environmental regulation. "The environmental regimes that have been successfully negotiated have depended on wide concensus among a number of states, not on the imposition by

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13. Robert Gilpin, The Political Economy of International Relations (Princeton, N.J., 1987).

the United States."[14]

"Another approach in regime formation is based on game theory and utilisation models of bargaining and can be called the utilitarian approach."[15] It focuses on such issues as the number of parties involved and the various strategies that are available to two parties in the negotiation. This approach suggests that small groups of states are more likely to be able to successfully negotiate an international regime than a large number because each player can more readily understand the bargaining strategies of other players. "On the basis of this approach, Fen Osler Hampson analysed the process of regime formation as an effort by a small coalition of states to form a regime by exercising leadership over a much larger number of national actors."[16]

Because of the importance of Veto power in global environmental diplomacy, however, relatively small groups of states are no more likely to be able to form regimes than

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14. Oran R. Young, "The Politics of Internatioal Regime Formation: Managing Natural Resources and the Environment", International Organisation, vol.43 (Summer 1989), p.355.

15. Porter and Brown, n.2, p.23.

16. Fen Osler Hampson, "Climate Change: Building International Coalitions of the Like Minded", International Journal, vol.45 (Winter 1989-90), pp.36-74.

much larger ones. If veto states are included among a small group, it will be just as prone to opposition as it would have been in a large group of states. If veto states are left outside the small group of states, they will still be in a position to frustrate regime formation when it is enlarged. The Group of Seven, according to this approach, would be the ideal forum in which the highly industrialised countries could have worked out the essentials of global agreement on halting climate change and then try to bring in other countries within its ambit. But opposition by a single state viz., the USA, prevented such a scenario. The small group model is further weaken by the fact that in some cases (whaling and ocean dumping of radioactive wastes) enlarging the number of actors involved in bargaining has helped to bring about a stricter environmental regime.

"A third approach, which has been termed the `Institutional bargaining model' of regime formation, hypothesises that regime formation can be successful only if state actors are unclear about how their interests would be affected by any proposed international regime".[17] The global environmental negotiations that have resulted in the formation of global regimes suggest, however, that lack of

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17. Oran R.Yong, The Politics of International Regime Formation (Cambridge, 1988), p.367.

clarity about the interests of the actors, is seldom, if ever, the factor that makes regimes possible.

"The fourth approach is the epistemic communities model, which emphasizes international learning, primarily on the basis of scientific research on a given problem, as a factor influencing the evolution of regimes."[18] This approach advanced specifically to explain formation, adherence and compliance with an international regime - the Mediterranean Action Plan - identifies intra-elite shifts within governments as the critical factor in the convergence of state policies in support of a stronger regime. The shifts strengthen the decision making or influencing capaicty of technical and scientific specialists allied with officials of international organisations. These elites thus formed a transnational epistemic communities, i.e., communities of experts sharing common values and approaches to policy problems.

Can this theoretical approach, derived from a case study involving regional cooperation, be transferred to global environmental diplomacy and international regime formation? The answer seems to be a qualified yes on the basis of empirical evidence. The importance of scientific

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18. Peter M.Haas, "Do Regimes Matter? Epistemic Communities and Mediterranean Pollution Control", International Organisation, vol.43 (Summer 1989), pp.378-403.

knowledge and expertise in the politics of some key global environmental issues cannot be ignored. Issues like global warming and the related climate change, stratospheric ozone depletion, involving threats that cannot be detected, much less understood, without scientific research have been defined to a great extent by the judgement of the scientists. A significant degree of scientific consensus has sometimes been a minimum condition for serious international action on an environmental issue area. A 1985 agreement to reduce So_2 emissions by 30 percent of 1980 levels was made possible by mounting scientific evidence of the damaging effects on European temperate forests, especially those of West Germany. The impetus for an agreement to phase out CFCs in 1990 was the scientific evidence that the ozone layer in the stratosphere was much thinner than had previously been thought. The formal international consideration of the climate change issue beginning in 1988 was made possible by a wide consensus among climatologists and scientists in related fields that the threat of greenhouse warming is real.

Generally, international cooperation has been led by a powerful actor. Yet under recent conditions of uncertainty, specialists, who form epistemic communities based on knowledge, have played a significant role in attenuating such uncertainty for decisionmakers. As is often the case

in environmental issues, national leaders have been uncertain about the extent of pollution or environmental damage, the interaction among specific pollutants, the costs of clean up and the likely action of their neighbours. These questions are particularly puzzling in technical issues that pose low probability but high risk outcomes. Traditional search procedures and policy-making heuristics are impossible and specific state interests may be hazy. Under such circumstances information and knowledge is at a premium, and leaders, in order to attenuate such uncertainty, do look for experts who are able to provide authoritative advice. Politicians may look for technical solutions which confer political gains as well. Thus, decision-makers may consult specialists for policy-advice, or they may delegate responsibility to them. "International negotiations on environmental issues and regime formation, may thus be viewed as a process for reducing uncertainty and during these negotiations, national leaders defer to individual/groups regarded as experts in the issue area under consideration."[19]

Embedded in international organisations such as UNEP, they may help set agendas, initiate discussions, present

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19. Gilbert R.Winham, "Negotiation as a Management Process", World Politics, vol.30, no.1 (October 1977), p.96.

issues for collective treatment and propose solutions. Embedded in national administrations, they may facilitate agreement at international negotiations, as well as guide their respective countries' foreign policy in ways consistent with their technical understanding and preferences. "Since, epistemic communities as a group of specialists share a common world view or believe in a common set of cause and effect relations, they will be particularly influential in global regime formation in any environmental issue area, because they will resist the political temptations to subordinate their advice to existing political concerns."[20]

But although scientific elites may play a supportive and enabling role in some environmental negotiations, on other issues they remain divided or even captured by particular government or private interests. On some issues, such as the whaling ban, hazardous waste trade and ocean dumping of ratio-active wastes, scientist have contributed little to global regime formation and/or strengthening some of these more politicized environmental issues. In those cases, either scientific elites were not particularly

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20. Peter M.Haas, "Obtaining International Envrionmental Protection Through Epistemic Consensus", in Ian H.Rowlands and Malory Greene, eds., Global Environmental Change and International Relations (London, 1992), p.42.

influential in the policy making process or scientific findings were explicitly rejected as the basis for decision by some key actors.

Theoretical approaches based on a unitary actor model (one suggesting that state actors can be treated as though they are a single entity with a single, internally consistent set of values and attitudes) and that ignore the roles of domestic socio-political structures and processes are likely to be poor bases for analysing and predicting the outcomes of global environmental bargaining. Negotiating positions usually reflect domestic socio-political balances and may change dramatically because of a shift in those balances. The roles of economic and bureaucratic elites whose parochial interests or ideology may conflict with the formation of global environmental regimes are sometimes more relevant than utilitarian models in the explanation of state policies.

A theoretical approach to environmental regime formation should also recognise the importance of the unique structure of each issue as well as the nature and rules of the negotiating forum. As noted above, most issues involve economic relationships, which, in turn structure the relationships of state actors to the issue. The economically defined roles often tell us who the potential veto coalitions are and pose the question of why they do or

do not veto an international regime. So a theoretical approach should direct us to an investigation of links between international economic relations and the political dynamics of the issue.

Environmental regime formation or failure is influenced by various features of the international context. That context includes independent economic and political-military ties between or among key state actors that can sway a veto state to sway or compromise. The structure and the rules of the negotiating forum itself are also important, particularly when the negotiations are taking place within an already established organisation.

"Finally, a theoretical approach should also recognise that, while global environmental regimes cannot be divorced from the complex of trade, investment, security and other regimes involving the advanced market economy countries, they are not simply nested within the complex of those regimes."[21] Because environmental regimes are responses to a new global problem whose dimensions are being progressively revealed with the passage of time, they have a tendency to become stronger overtime. Increasing scientific knowledge, the rise of pro-environmentalist public opinion

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21. Robert O.Keohane, "The Demand for International Regimes", International Organisation, vol.36 (1982), p.334.

and the emergence of environmental policy as a factor in the international image of nation states are all factors driving this process.

Paradigm Shift and Environmental Diplomacy

In times of relative social stability, there is a dominant social paradigm, a set of beliefs, ideas and values from which public policies and whole systems of behaviour flow logically. Every dominant social paradigm is ultimately challenged, however, as its anomalies - the contradictions between its assumptions and observed reality - multiply and its usefulness wanes. Finally, it gives way to a new paradigm in a process called paradigm shift.

Because economic policy and environmental policy are so intertwined, the social paradigm that has dominated public understanding of environmental management during the period of rapid global economic growth has been essentially a system of beliefs about economies. It has been referred to as the **exclusionist paradigm** because it excludes human beings from the laws of nature. "It has also been termed **frontier economics** suggesting the sense of unlimited resources that characterises a society with an open frontier."[22]

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22. Kenneth Boulding, "The Economics of the Coming Spaceship Earth", in H.E.Janett, ed., Environmental Quality in a Growing Economy (Baltimore, 1966).

This dominant social paradigm of the post Second World War world based on neoclassical economics argues that firstly, free market will always maximise social welfare, and secondly, that there is not only an infinite supply of natural resources but also infinite amount of sinks for disposing of wastes from exploitation those resources in an interplay of free-market forces. According to this Weltenshaung, as long as technology is given a free rein and prices are allowed to fluctuate well enough to stimulate the search for substitutes, absolute scarcity of resources can be postponed indefinitely. Conventional economic theory is concerned only with rational allocation of scarce resources. Nature is not considered a constraining factor, according to this paradigm and it considers environmental degradation to be irrelevant. This approach weakened the impulse towards global cooperation for environmental protection and management.

However, since the early 1960s this dominant social paradigm has come under steadily mounting attack, starting with the USA and then spreading to Europe and other regions, from an epistemic community of scientists and later from economists with some understanding of natural system. This began with the publication of Rachel Cason's "Silent Spring" - such writings helped raise awareness that public policies based on the exclusionist paradigm carry high costs to

societies. One of the results of the burst of environmental activism resulted in the convening of UN Conference on the Human Environment in Stockholm in 1972, attended by 114 states (excluding the Soviet block states). This conference approved a declaration containing 26 broad principles on the management of the global environment. It also produced an Action Plan for International Cooperation on the environment. The Conference recommendations led to the establishment by the UN General Assembly of the UNEP in December, 1972, for the co-ordination of environmentally related activities within the UN system.

The Rise of an Alternative Paradigm

During the seventies and eighties an alternative paradigm challenging the assumptions of frontier economics began to take shape. Two of the frontrunners of this new paradigm were the `Limits to Growth' study by the Club of Rome[23] published in 1972 and the `Global 2000 Report' released by the US Council on Environmental Quality and the Department of State in 1980.[24] Applying global-systems computer modelling to the projected interactions among

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23. Donella H.Meadows, et al, The Limits to Growth (New York, 1972).

24. Council on Environmental Quality and US Department of State, Global 2000 Report to the President on Global Resources, Environmental and Population (Washington, D.C., 1980).

future trends in population, economic growth, and natural resources, both studies postulated depletion of natural resources and degradation of ecosystems if the path followed for economic development with the rate of population growth were continued. It argued that this would harm the earth's `carrying capacity'.

This new paradigm was criticised by the defenders of the exclusionist paradigm as `no growth paradigm'. However, a global epistemic community was emerging, driven by the belief that economic policies based on the dominant paradigm had to be replaced by ecologically sound policies. The **`tragedy of Commons'** metaphor, first used by a biologist Garett Hardin in 1968 was widely quoted in the seventies and eighties to convey in a few words the contemporary world's problem of managing its common resources. The Hardin metaphor suggested that the earth's major natural systems and resources - the oceans, atmosphere, lands and climate - were being degraded and destroyed for the benefits of specific minority groups while the environmental costs of a degraded earth were being passed on to the human society as a whole.

The publication in 1987 of `Our Common Future', the Report of the World Commission on Environment and Development, established by the UN General Assembly, popularised the term `sustainable development' and gave the

new paradigm momentum in replacing the dominant paradigm.[25] This finally led to the UN General Assembly Resolution 44/228 which called for a UN Conference on Environment and Development (UNCED), termed the Earth Summit in Rio in 1992. The Bruntland Report defined sustainable development that is `consistent with future as well as present needs'. Its central themes criticised the dominant paradigm to reconcile those needs. It asserted that earth's natural system has finite capabilities to support human production and consumption and the continuation of existing economic policies risks irreversible damage to the natural systems on which life depends. The new paradigm argues for radically reducing the world's energy use, i.e., reducing fossil fuel use per unit of GNP and shifting to greater reliance on renewable energy source and a global accord on stabilising world population at the lowest level possible, for sustainable development. This viewpoint also suggests, although not explicitly, the need to impose some limits on total worldwide economic activities.

Thus the sustainable development paradigm assumes the need for greater equity not only between wealthy and poor nations but also `intergenerational' equity. Industrialised countries of the North that now use a disproportionate

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25. The World Commission on Environment and Development, Our Common Future (New York, 1987).

share of world's environmental resources are seen as inherently unsustainable according to the alternative paradigm and it and recognises that developing countries must meet the basic needs of the poor in ways that do not deplete the countries' natural resources. It also posits a point to re-examine the basic attitudes and values of conspicuous consumption based life style in the industrially developed countries

The new paradigm points to the failure of market forces to encourage the sustainable use of natural resources. Prices should reflect the real costs to the society of producing and consuming a given resource, but conventional free-market economic policies systematically underprice or ignore natural resources. Thus raising the prices of resources through taxation to make them reflect real social and environmental cost is the favoured means of slowing down rates of consumption of fossil fuel and tropical timber, identified as the main culprits for the predicted climate change. Placing an upper limit on consumption is another method.

Conclusion

The process of paradigm shift has already begun. The sustainable development paradigm has begun to displace the exclusionist paradigm and the negotiations in the field of global environmental diplomacy are taking place within this

context. Much of the global environmental diplomacy focusses on efforts to negotiate multilateral agreements for co-operation on environmental risk management. These agreements constitute global environmental regimes of varying effectiveness, which govern state behaviours in regard to the environmental problem in question. In the next few chapters the problems and prospects of negotiating a global regime on climate change will be analysed.

CHAPTER II

QUESTIONS OF OZONE LAYER DEPLETION AND CLIMATE CHANGE: FROM CONTAINMENT DIPLOMACY TO PREVENTIVE DIPLOMACY

In this chapter my efforts will be directed towards analysing the backdrop to the framing of the FCCC. The basic idea will be to test the hypothesis that we are moving towards preventive diplomacy (as in the case of stratospheric ozone layer depletion and global warming induced climate change) from earlier adopted posture of containment diplomacy (say, the convention on long-range transboundary air pollution, 1979). The effort will be towards showing that, the growing diplomatic urgency in international cooperation to cope with global environmental challenges is currently directed towards preventing or mitigating anticipated impacts (preventive diplomacy) rather than towards adjusting to changes that have already occurred (containment diplomacy). .The analysis of issue areas will involve such anticipatory action as the phasing out of CFCs, reductions in the use of fossil fuels and the protection of moist tropical forests. This shift is guided by the influence of epistemic consensus on such issue areas as a factor directing the evolution of international regimes like Vienna Convention for the Protection of Ozone Layer (1985),

Montreal Protocol on Substances that deplete Ozone Layer (1987) and the Framework Convention on climate change (FCCC, 1992).

To achieve this purpose of analysing the trend of a characteristic shift in diplomatic activity leading to formation of international environmental regimes on stratospheric Ozone layer depletion and global warming induced climatic change, I will look into the two issues in turn and undertake four tasks in each section. First, I will provide a basic description of the natural processes involved. Second, I will recount what are purported to be the most significant impacts of these natural changes, upon social systems. Third, I will review the international diplomatic activity on the respective issue areas. And finally, I will offer some preliminary thoughts about the major issues that may lie ahead of the international community.

THE OZONE LAYER DEPLETION ISSUE

The Natural Processes and the possible Impacts

The ozone layer, located 10 to 50 kilometres above the earth's surface, absorbs most of incoming ultraviolet radiation. The natural equilibria of the gases in this layer have been disrupted recently by a number of human-made substances that have been destroying the ozone. If these

chemicals (the major ones being chlorofluorocarbons [CFCs]) continue to be emitted and the earth experiences a depletion of its protective ozone layer, more ultraviolet radiation will be allowed to penetrate the atmosphere and hit the earth's surface. This increase in ultraviolet radiation would have devastating effects upon humans, animals, material objects and the natural environment.

The US Environmental Protection Agency (EPA) in 1987 completed a study that examined the implications of increased ultraviolet radiation (that is, if nothing were done to save the ozone layer) for the US population. The report found that among those people alive today and born by 2075, there would be an additional 163 million to 308 million cases of skin cancer of which 3.5 million to 6.5 million of these cases would be fatal.[1] Under the same scenario and taken worldwide, it has been suggested that `skin cancer increases alone could exceed 1-2 billion cases over this period'.[2] It has also been shown that there would be an increase in the incidence of cataracts and a general weakening of the immune system, making all people more

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1 EPA Report, Costs and Benefits of Phasing Out Production of CFCs and Halons in the United States, cited in Testimony of David D.Doniger before the Subcommittee on Health and the Environment Committee on Energy and Commerce, US House of Representatives, 25 January 1990.

2 Ibid.

susceptible to illness and disease. Further, similar health ailments would affect animals. With greater amounts of ultraviolet radiation, therefore, the productivity of raising farm animals would decrease. Perhaps more significantly, preliminary studies suggest that the DNA of phytoplankton - the tiny sea-organisms which photosynthesise light and form the basis of the food chain - would be damaged. Declining stocks of phytoplankton would place the existence of their predators in doubt and, like dominoes, endanger the whole of food chain. Additionally, research has indicated that some plants would be harmed by greater doses of ultraviolet radiation, and thus crop yields would decline. Non-living things would be also affected by a thinner ozone layer. A variety of manufacturing materials would be weakened by greater ultraviolet flux and therefore would have to be replaced more frequently. Finally, because CFCs are also greenhouse gases, they would not only deplete the ozone layer, but they would also accelerate the rate of global warming induced climatic change.[3]

International Diplomatic Activity

Although ozone was first detected late in the nineteenth century, the presence of ozone in the

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3 V.Ramanathan, et al, "Trace Gas Trends and Their Potential Role in Climate Change", Journal of Geophysical Research, vol.90, 1985, pp.5547-66.

stratosphere was not discovered until 1917. Speculation about the formation and destruction of ozone prompted British chemist Sydney Chapman to investigate the substance. In 1930, he proposed that the amount of ozone present was dictated only by the concentrations of atomic oxygen, molecular oxygen and ozone. His work became the accepted foundation of this branch of atmospheric chemistry for many years.

Following an investigation of new data collected after the International Geophysical Year (1957-58), however, scientists learned that other atmospheric trace gases also affect the ozone balance. The discovery that both hydrogen and nitrogen compounds influence ozone levels helped to launch the public debate about the ozone layer.[4]

This new scientific information was used by environmentalists (and others) in order to challenge the supersonic transport (SST) project, which was being developed during the late 1960s.[5] They claimed that the substances released by the airplanes while in flight would threaten the ozone layer. One estimate suggested that there

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4 R.P.Turco et al, "SSTs, Nitrogen Fertiliser and Stratospheric Ozone", Nature, vol.276, 21/28 December 1978, pp.805-7.

5 Joel Primack and Frank Von Hippel, "Scientists, Politics and SST: Critical Review", Bulletin of the Atomic Scientists, vol.28, no.4, April 1972, pp.24-30.

could be 500 SSTs flying by 1985 (each of them flying on average seven hours a day), leading them to argue that the damage could be significant. Although at that time most of the development of the SST was being undertaken by Boeing in the US, the Soviets were also building a prototype (the Tupolev 144) and the French and the British were collaborating on the Concorde. In the light of scientific apprehensions, the US government decided to investigate further the possible dangers of SST flights, and the US Congress ordered a report in 1971. This report initiated by the US Department of Transport and undertaken by the Climate Impact Assessment Programme, was completed in 1974 at a total cost of US $40 million.[6] The final report concluded that a 500-plane fleet of Boeing SSTs would have caused a 16 percent depletion in the southern hemisphere.[7] But by this time, Boeing's programme had been discontinued. (The Senate, in 1971 had cancelled the plan. Not only was the environmental impact of its operation causing anxiety, but the SST's economic non-viability also played a major role in the final decision.) The Soviet programme was also eventually cancelled. Further, the commercial viability of

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6 Nicholas Valery, "SSTs are Clean - In Small Numbers", New Scientist, vol.68, no.969, 2 October 1975, pp.19-21.

7 WMO Bulletin, vol.25, no.1, January 1976.

the Concorde never materialised, and today there are only about a dozen Concordes in operation. The SST controversy, however, marked the first time that the issue of stratospheric ozone had come upon the agenda of any national government. and indeed the ensuing debate about US landing rights for the Concorde demonstrates that this issue also had international dimensions.

During the early 1970s, there were two other anthropogenic threats to the ozone layer that were recognized as being potentially significant. The first was the effects of nuclear explosions. This issue would have received greater attention if international agreements to restrict above ground nuclear tests had not been concluded in the 1960s. At this time, it was noted that the `effects of nuclear bomb tests around 1960 on ozone [were] only marginally detectable'.[8]

The other acknowledged threat to the ozone layer related to agricultural practices. The extent to which nitrogen compounds (which are released from the use of fertilizers) could deplete stratospheric ozone was starting to be considered. The potential impact was still, however, a matter of much debate.

These two threats did not have a major international

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8 Ibid.

impact, and with the waning of the SST issue, public interest in the ozone layer subsided. However, the issue once again started to occupy a part of the public's consciousness after the 1974 publication of a paper in the scientific journal Nature.[9] In this paper, it was hypothesised that the chlorine present in CFCs had the potential to destroy significant amounts of stratospheric ozone. With this supposition, the international ozone layer debate entered a new dimension.

The scientific community was in an uproar as controversy over the validity of the theory ensued. But because it was such a serious assertion, with significant implications, it was not taken lightly. A major international conference was convened in Washington,DC in March 1977. Its delegates produced a World Plan of Action on ozone that called for greater monitoring and research into both technical and social issues in the problem area.[10]

The worldwide political response was varied, and by the late 1970s two blocs had formed. On the one hand, the United States (soon to be joined by Sweden, Norway and Canada) had outlawed the use of CFCs in non-essential

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9 Mario J.Molina and F.S.Rowland, "Stratospheric Sink for Chlorofluoromethanes: Chlorine Atom-catalysed Destruction of Ozone", Nature, vol.249, 28 June 1974, pp.810-12.

10 Asit K.Biswas, ed., The Ozone Layer (Oxford, 1979).

aerosols in 1978 and was calling for a global ban. On the other hand, the major states of the European Economic Community, along with Japan, had refused to impose stringent controls. Citing uncertainties in the theory and the lack of empirical evidence the European Economic Community only called upon member states to reduce non-essential aerosol usage voluntarily by 30 percent of their 1976 production figure by 1982.[11]

Neither side wavered from its position, and during the early 1980s little political movement took place. Further, governments' interest in the issue diminished during the early 1980s for four major reasons. First, in 1981 the new Reagan Administration in the US appointed Anne Gorsuch to head the EPA. She did not pursue the issue vigorously, because she dismissed ozone depletion as just another environmental scare.[12] Second, the international scientific group that was studying the issue was steadily revising its calculation of ozone depletion - downward. It estimated eventual ozone depletion to be 15 percent in 1979, but only 10 percent in 1980, and down to between 5 and 10 percent in

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11 Markus Jachtenfuchs, "The European Community and the Protection of the Ozone Layer", Journal of Common Market Studies, vol.28, no.3, March 1990, pp.261-77.

12 David Dickson, "Congress Faces Decision on CFC", Nature, vol.293, 3 September 1981, pp.3-4.

1981.[13] Third, the world was experiencing a recession, and environmental matters took a back seat to economic issues. Finally, owing mainly to the US `can ban', the use of CFCs was declining worldwide.[14]

Nevertheless, under the auspices of the United Nations Environment Programme (UNEP), international negotiations towards a convention and protocol commenced in January 1982.[15] Just over a year into the process, international interest in the issue was revived: there was a change in the EPA leadership, there was increased growth in the use of CFCs and the chemicals' potential link to global climatic change was firmly established. The friction between the two groupings of countries, however, endured.

Although negotiations for a convention were proceeding satisfactorily, conflict inhibited the prospects for an accompanying protocol. The Americans, the Scandinavians and the Canadians demanded that an aerosol ban be written into

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13 David D.Doniger, "Politics of the Ozone Layer", Issues in Science and Technology, Spring 1988, p.87.

14 Thomas H.Maugh II, "That is the Risk from Chlorofluorocarbons?", Science, vol.223, 9 March 1984, p.1052.

15 The negotiations progressed under the name of the `Ad Hoc Working Group of Legal and Technical Experts for the Elaboration of a Global Framework Convention for the Protection of the Ozone Layer", See UNEP Annual Report of the Executive Director (Nairobi, 1982), p.136.

the ozone convention. The Europeans, for their part, did not want to focus solely on aerosols, because they believed that this approach would be beneficial only in the short term. They proposed a production cap on all CFCs. The dispute persisted.[16]

On 22 March 1985, the "Vienna Convention for the Protection of the Ozone Layer was signed by 20 countries.[17] There were no specific obligations upon the parties to the convention. Rather, it created a framework for international co-operation on research, monitoring and information exchange with respect to the ozone layer, potential modification of the ozone layer and the potentially adverse health, environmental and climatic effects of such modification. Nevertheless, this was a very historic document, because, for the first time, states agreed in principle to tackle a global environmental problem before its effects were felt or its scientific foundations firmly proved. With the convention signed, the next step was to try to achieve a protocol.

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16 Richard Elliot Benedick, "Ozone Diplomacy", Issues in Science and Technology, vol.6, no.1, Fall 1989, pp.43-50.

17 "United Nations: Vienna Convenion for the Protection of the Ozone Layer", International Legal Materials, vol.26, 1987, pp.1516-40.

In the middle of 1985, the international efforts were given a further sense of urgency by two developments. First, the discovery of a significant `crater' in the ozone layer above the Antarctic was reported by the British Antarctic Survey.[18] Second, a report was jointly released by the US National aeronautics and Space Administration (NASA) and UNEP in July 1985. In this report, 150 scientists from 11 countries concluded that the ozone layer had already been damaged. However, they also stated that they had too little information to predict what the future might hold.[19]

By the summer of 1986, a consensus had been reached upon a number of issues: that substitutes were limited by price, not chemistry; that production rates were rising; that the concentration of the chemicals in the atmosphere was increasing, and that emissions must be cut by 85 percent to keep chlorine levels from growing.[20] Some progress was made at a workshop in Leesburg, Virginia, US in September 1986. A change of heart was evident because working upon a Canadian-proposed compromise, a broad agreement in favour of

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18 J.C.Farman, et al, "Large Losses of Total Ozone in Antarctica Reveal CLOx/NOx Interaction", Nature, vol.315, 16 May 1985, pp.207-10.

19 Sharon L.Roan, Ozone Crisis: The 15-Year Evolution of a Sudden Global Emergency (Chichester, 1989), p.142.

20 Ibid, pp.189-90.

a cap on global emissions, rather than on the restriction of end uses, emerged.[21] UNEP itself has noted that "the Leesburg meeting considered various options for controls, but took care not to contrast between them. In the friendly atmosphere important concessions were made, trust was built up, and for the first time an obvious international will to forge a successful protocol emerged."[22]

With the last informal technical workshop concluded, the formal negotiations on a control protocol began in Geneva in December 1986. Negotiations towards a protocol continued fervidly during 1987, and acceptable proposals were slowly being agreed upon. Finally, on 16 September 1987, 27 countries signed the "Montreal Protocol on Substances that Deplete the Ozone Layer".[23] The significance of this document is that it committed signatories to reduce their consumption of certain CFCs by 50 percent of their 1986 figure by 1999. The wording of the final document reflects the delicacy of the negotiations, because it contains a number of clauses to cover the special circumstances of several states. For example, the Europeans

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21 Tim Beardsley, "Global Limit for CFC Emissions", Nature, vol.323, 25 September 1986, p.286.

22 UNEP, Action on Ozone (Nairobi, 1989), p.8.

23 "United Nations: Protocol on Substances that Deplete the Ozone Layer", International Legal Materials, vol.26, 1987, pp.1541-61.

insisted that the limits be placed on consumption and production, to protect their export markets. Further, concessions were made to allow existing industrial produces in the US, the European Community (EC) and Japan to produce up to 10 percent more if the incremental production went to developing countries. (This was to discourage developing countries from constructing their own CFC-production facilities.) The Soviet Union was also allowed to complete two CFC plants then under construction and to increase per capita consumption (to 0.5 kilogrammes/capita) so as to account for the implementation of its five-year plans. Finally, states of the developing world were given ten-year period of grace to implement the controls.[24] These facts should not, however, diminish the significance of the document.

Just as the ink was drying on the Montreal Protocol, an important scientific expedition set off from Punta Arenas in Chile. With 150 scientists and support staff from 19 organizations, this NASA-sponsored expedition travelled to the Antarctic in order to investigate ozone depletion. The group's discoveries demonstrated `an undoubted chemical cause in the destruction of ozone by atmospheric

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24 Kathy Johnston, "First Steps in Ozone Protection Agreed", Nature, vol.329, 17 September 1989, pp.1541-61.

chlorine'.[25] These results, which implicated CFCs, not only highlighted the significance of the just-signed protocol, but also suggested that its controls were perhaps not strong enough.

During the entire 14-year history of the CFC debate, the chemical industry had been adamant in its belief that there was not enough scientific evidence to warrant international controls. Thus Du Pont's announcement, in March 1988, that it planned to phase out CFCs was quite notable.[26] It is generally agreed that this decision was motivated by the results of a NASA-sponsored study, released in the same month. Following upon the autumn expedition to the Antarctic, the NASA-sponsored group (which had over 100 scientists from 10 countries) had scrutinised a large amount of data and found ozone depletion in excess of what had been predicted by computer models.[27]

In 1988, such mounting evidence of ozone depletion

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25 David lindley, "Ozone Hole Deeper Than Ever", Nature, vol.329, 8 October 1987, p.473.

26 Joseph Palca, "CCs Phased Out", Nature, vol.332, 31 March 1988, p.385.

27 The scientific group was called the `Ozone Trends Panel'. It was set up in October 1986 `in response to claims made before [the US] Congress by Donald Heath, of the NASA/Goddard Space Flight Center, that ozone levels were decreasing globally at an inexplicably high rate'. David Lindley, `CFCs Cause Part of Gobal Ozone Decline', Nature, vol.332, 24 March 1988, p.293.

prompted a number of national governments, including Sweden, Norway, Finland and the Netherlands, to take unilateral control action beyond their obligations as outlined in the Montreal Protocol. Further, in March 1989, the environment ministers of the EC agreed to phase out CFC use by 85 percent as soon as possible and to seek a total ban by the end of the century. The next day, US President George Bush stated that the US would join the ban. Thus, in a space of two days, 13 countries, among them producing over two-thirds of the world's CFCs, had agreed to a total phase-out of the chemicals. An unprecedented agreement about the severity of the problem was emerging among the industrialised states. This consensus was one of two dominant themes that became prominent at major international conferences in London in March 1989 and in Helsinki in May 1989.

At these meetings, a general sense of urgency prevailed as delegates recognised that the provisions contained in the Montreal Protocol would not adequately address the ozone layer problem. A feeling was emerging that the Protocol would have to be amended and that the timetable for reducing and eventually eliminating CFCs would have to be brought forward.

But delegates were also accepting the fact that the Montreal Protocol would have to be altered in another manner. At these two meetings, the issue of global equity

became dominant. Politicians from developing states, led by the Chinese and Indian representatives, demanded assistance in order to meet the obligations of the Montreal Protocol.[28] They argued that because the industrialised world had caused most of the destruction of stratospheric ozone, the developed countries should be primarily responsible for paying the costs of repair. The developing states' leaders made it clear that they did not want to jeopardise their prospects for a higher level of development by foregoing the use of these chemicals. They called for technology and financial resources to be transferred - free of charge - from the North to the South. This would allow their citizens to leap-frog the use of CFCs and immediately use substitute chemicals. Decision-makers from the North recognised that Southern participation in the Protocol was essential to its success. Although the developing world produces a relatively small amount of CFCs, it was accepted that it could easily expand its capacity for production.[29] Thus these demands became a primary issue in the international politics of the ozone layer.

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28 "China Attacks `Unfair' Protocol", New Scientist, 11 March 1989, p.26.

29 Annette M.Capretta, "The Future's So Bright, I Gotta Wear Shades: Future Impacts of the Montreal Protocol on Substances that Deplete the Ozone Layer", Virginia Journal of International Law, vol.29, 1989, pp.235, note 160.

In the middle of 1989, a number of working groups were formed in order to investigate proposals to amend the Protocol, with the questions of stricter controls and an international fund being at the top of their agendas. Negotiations were, however, soon frustrated by a conflict over the funding mechanism. The Europeans moved to support its creation, but the US opposed it, worrying about the precedent that such a fund might set for the larger issue of global warming. Meetings in May 1990 in Geneva and Bergen were hampered by this conflict.[30]

The US, however, shifted its position in June 1990 and agreed to the principle of an international fund. Nevertheless, some issues were still left unresolved (for example, the fund's size and administration) as the parties to the Montreal Protocol met in London in June 1990 in order to amend the agreement legally. After three days of intense negotiations at the ministerial level, some consensus was finally reached, the delegates agreed to phase out CFCs completely by 2000 and controls on halons were strengthened and controls on carbon tetrachloride and methyl chloroform were introduced. A US $240 million fund was established.[31]

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30 "The World Through Green-Tinted Specs", The Economist, 19 May 1990, p.94.

31 Nicholas Schoon, "Deal to Save Ozone Layer", The Independent (London), 30 June 1990,p.1.

This money, to cover an initial three year period, would be used to assist developing countries to switch from CFCs. In this way, less than three years after the Montreal Protocol had been written, the terms of the ground-breaking document were considerably tightened.

Towards the Future

Although there has been considerable success in the international efforts to protect the ozone layer, we should not assume that the case is by any means closed. A number of scientists and pressure groups argue that the enhanced regulations agreed in London do not go far enough. Even with the new controls, scientists say that the rate of ozone layer depletion will continue to rise until at least 2000, and that the Antarctic ozone crater will not be fully repaired until well into the second half of the twenty-first century. Thus it is apparent that they believe that the deleterious effects of ozone layer depletion could still threaten international society. As a result, numerous scientists and policy analysts have called for even stricter controls and an accelerated timetable.

The substances that are replacing the CFCs are quickly becoming topics of debate. It has been argued that the hydrochlorofluorocarbons (HCFCs, the most significant substitute chemicals), although more benign than CFCs, will nevertheless destroy some stratospheric ozone. Because

chemical companies estimate that these `second generation' ozone depletors will replace about 30 percent of the CFC market, pressure are building for restrictions to be imposed. In London, however, no legal controls were placed upon HCFCs, although a declaration that they should be used carefully by industry and phased out by between 2020 and 2040 was agreed.[32] With such a long time horizon, the international political dimensions of the issue may well persist.

THE ISSUE AREA OF GLOBAL WARMING INDUCED CLIMATIC CHANGE

The Natural Processes and the Possible Impacts

The earth's atmosphere is constituted so that it allows most sunlight to stream in uninterrupted. After striking the earth's surface, this solar energy is reflected as longer-wavelength infrared radiation. Some of this radiation is subsequently trapped in the atmosphere by clouds and `greenhouse gases' (which include carbon dioxide, methane, nitrous oxide and CFCs). Without this greenhouse effect, the surface of the earth would be about 33^{o}C cooler than it presently is, and this phenomenon is necessary for life, as we know it, on the planet. But since the Industrial Revolution, humankind has pumped more gases into

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32 Ibid.

the atmosphere and has, in effect, `thickened' the greenhouse blanket that surrounds the earth, therefore trapping more heat near the surface. The intergovernmental Panel on Climate Change (IPCC) has estimated that average global temperature may rise by 1°C by 2025 and by 3°C by the end of the twenty-first century. This increase in average global temperature would induce a number of natural changes that would have significant consequences for the world's population.

One major outcome of higher temperatures would be a rise in sea levels. Given that warmer water occupies more volume, it has been estimated that the world's oceans could rise by between 10 cm and 30 cm by 2030 and by between 30 cm and 100 cm by 2100. Flooding in coastal areas would cause a recession of shorelands and wetlands, displace low-lying urban infrastructure. A shortage of freshwater - for both agricultural activities and human consumption - would result.

In a warmer world, the resulting shift in climatic zones would also have a significant impact. First with different climatic characteristics for a given geographical location, agricultural patterns would be forced to change. With human intervention, some degree of adaptation may be feasible on private lands, but changes in the `wilds' would have significant ecological consequences. Researchers

suggest that not only would certain species vanish, but entire specific ecotypes could also be lost. Further, forest areas would shrink, because trees would not be able to migrate quickly enough to keep up with the shifting climatic zones. Those living things that would prosper in a warmer world would be weeds and insect pests - thus causing more havoc for human settlements and other living creatures.

Additionally, all regions of the world would experience a harsher and more unpredictable climate with greater incidence of storms, floods and droughts. Considering all of these developments, the `IPCC Working Group 2 report emphasises that the regions that appear to be at greatest risk for "sustaining the population" are those that are already arid and marginal'[33] suggesting that the world's poor would be hardest hit. There is little doubt that climatic change would give rise to greater number of environmental refugees - people driven off their land by direct or indirect environmental change.

International Diplomatic Activity

The greenhouse effect was first described by the French mathematician Baron Jean Baptiste Fourier in 1827. In 1896, Svante Arrhenius, a Swedish scientist, published a paper

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33 George M.Wooewell, "The Effects of Global Warming", in Jeremy Leggett, ed., Global Warming: The Greenpeace Report (Oxford, 1990), p.127.

which postulated that an effective doubling of the amount of carbon dioxide in the atmosphere would cause the average global temperature to rise by $5^{o}C$.[34] Subsequent work in the area has effectively borne out his conclusions.

Yet the question of global warming did not reach international headlines until the 1980s. Instead, during much of the post-World War II period, the international community - if interested in climatic change at all - was concerned with global cooling. average global temperatures had decreased from 1945 to 1970 and this had initiated a spell of investigations into the prospect of a coming ice-age.

One of the first serious inquiries into the possibility of global warning was held at the Massachusetts Institute of Technology (MIT) in July 1970s. Researchers attending conference on "The Study of Critical Environmental Problems" concluded that the likelihood of climatic change during the twentieth century was small. However, they did `not discount the possibility of such consequences in the longer term and [they] recommended continuous measures of the CO_2

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34 Svante Arrhenius, "On the Influence of Carbonic Acid in the Air Upon the Temperature on the Ground", Philosophical Magazine, vol.41, April 1896, pp.237-76.

content of the atmosphere.'[35]

The World Meteorological Organization (WMO) convened the First World Climate Conference in Geneva in February 1979. Much of the discussion centred around the debate between the ice-age prophets and those who saw global warming as being more important in the medium-term. It seemed that a consensus was slowly building in favour of the latter view. The final declaration agreed that: "We can say with some confidence that the burning of fossil fuels, deforestation, and changes of land use have increased the amount of carbon dioxide in the atmosphere... and it appears plausible that [this] can contribute to a gradual warming of the lower atmosphere, especially at high latitudes.... It is possible that some effects on a regional and global scale may... become significant before the middle of the next century."[36] Thus just over a decade ago, it seemed that global warming would not become a political issue before the twenty-first century.

In October 1985, scientist from 29 countries met in Villach, Austria in order to review the then-current state of scientific understanding about the greenhouse effect.

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35 Luther J.Carter, "The Globa Environment: MIT Study Looks for Danger Signs", Science, vol.169, 14 August 1970, p.661.

36 W.W.Kellogg, "Prediction of a global Cooling", nature, vol.280, 16 August 1979, p.615.

The further workshops were held in Villach and Bellagio, Italy in 1987. In Villach-Bellagio workshops globalwarming trends were confirmed.[37] The question of global warming subsequently entered the international agenda in 1988. In June 1988, the Toronto Conference on the Changing Atmosphere's was held. With over 300 participants from 46 countries, it was the first major international gathering to focus on global warming. The final conference declaration stressed the need for a comprehensive global convention as a framework for protocols on the protection of the atmosphere. The delegates also proposed a World Atmosphere Fund as a financial mechanism to assist the developing states. More concretely, they also called for a 20 percent reduction from 1988 levels of carbon dioxide emissions by 2005.[38]

In North America, the summer of 1988 will also be remembered as one of the hottest on record. The drought conditions, although not necessarily manifestations of global warming, galvanised interest in the issue for both policy-makers and the general public. Additionally, an influential statement was delivered on 23 June 1988: James

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37 Stewart Boyle and John Ardill, The Greenhouse Effect: A Practical Guid to the World's Changing Climate (Houder and Stoughton, 1989), p.41.

38 "The Changing Atmoshere: Implications for Global Security" (Toronto, Canada, 27-30 June 1988), Conference Statement (Ottawa, 1988).

Hansen of NASA's Goddar Institute for Space Studies in New York appeared before the US Senate Energy Committee and declared that he was 99 percent certain that the warming of the 1980s was not a chance event. He went on to argue that it was time to stop stalling on the basis of scientific uncertainty and time to start taking action to address global warming. This statement attracted widespread attention and illuminated the importance of the issue.[39]

On 6 December 1988, the UN General Assembly, at the initiative of the Government of Malta, passed a resolution (43/53) that formally requested the UNEP and the WMO, through the IPCC, `immediately to initiate action leading, as soon as possible to a comprehensive review and recommendations with respect to... elements for inclusion in a possible future convention on climate'.[40] The assembly also recognised that climate change was the Common Concern of Mankind. Thus, with two international organisations committed to the issue, climatic change became the subject of global debate.

During 1989 and 1990 there were numerous international

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39 Stephen H.Schneider, Global Warming: Are We Entering the Greenhouse Century? (San Francisco, CA, 1989), pp.194-8.

40 UN General Assembly, Resolutions and Decisions Adopted by the General Assembly During Its Forty-Third Session (New York, 1989),

conferences on the issue. Let me just refer to a couple of the most significant meetings. In March 1989, the governments of the Netherlands, France and Norway hosted an international conference in The Hague. Representatives from 24 countries attended and issued a declaration that emphasised the use of legal instruments in trying to stabilise the atmosphere. The participants also envisaged an important role for the International Court of Justice, namely that of dispute resolution.[41]

At the World Economic Summit (G7) meeting in Paris that July, the leaders of the world's largest industrialised states addressed `green' issues for the first time as a group. Their final communique recognised that `decisive action is urgently needed to understand and protect the earth's ecological balance.'[42]

Meanwhile, at the other end of the economic spectrum, Rajiv Gandhi (the Indian Prime Minister at the time) called for a huge transfer of resources from the North to the south. Making the proposition at a meeting of the Non-Aligned Movement in Belgrade in September 1989, Gandhi outlined his plan for a Planet Protection Fund, putting the

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41 "Declaration of the Hague", reprinted in Environmental Policy and Law, vol.19, no.2, April 1989, p.78.

42 "G7: Economic Declaration, Section on the Environment", Environmental Policy and Law, vol.19, no.5, 1989, p.183.

price at US $18 billion.[43]

A major ministerial conference on atmospheric pollution and climate change was held in Noordwijk, the Netherlands, in November 1989. Although environment ministers from 68 countries were unanimous in their call for a climate convention as soon as possible, more specific agreement could not be reached. The United States, supported by the Japan and the Soviet Union, proved to be the most resistant to any further declarations.[44] They refused to agree to a Dutch proposal that would limit current levels of carbon dioxide emissions by the turn of the century. Thus, the battle-lines in this international debate were, at this time, firmly established.

This confrontation continued at a conference hosted by the United States in April 1990. Following George Bush's election promise to implement the `White House Effect', the President gathered international decision-makers and experts on the global warming issue. But once again, emphasis was placed upon further research and upon, in the meantime, a business-as-usual approach. The meeting ended in disappointment because delegates resented the Bush

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43 "Gandhi Urges an Environment Fund", The International Herald Tribune, 6 September 1989.

44 "Global Warming Conference Falters", The Interntional Herald Tribue, 6 September 1989.

Administration's attempts to recruit their governments to this passive position.[45]

The United States continued to occupy the role of chief antagonist at a meeting in Sundsvall, Sweden in August 1990. At this conference, representatives from 75 countries drew up the final report of the IPCC. Throughout the proceedings, US representatives frequently tried to tone down statements by citing uncertainty.[46] This notwithstanding, the delegates finalised the report.

The IPCC's final report was then presented at the Second World Climate Conference in Geneva in November 1990. At this conference, delegates from 137 countries agreed that `within 20 months there should be a new international law aimed at preventing potentially catastrophic man-made-changes in climate'.[47] Formal negotiations began in Washington, DC in February 1991, with subsequent meetings scheduled to be held in Geneva and Nairobi. In this way, the international process entered its next dimension. The aim was to have a convention ready for signing by 1992.

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45 Michael Weisskopf, "Bush Says More Data on Warming Needed", The Washington Post, 18 April 1990, pp.A1 and A23.

46 John Hunt, "US Stand on Global Warming Attacked", The Financial Times (London), 30 August 1990.

47 Nicholas Schoon, "International Law to Protect Climate "Ready by 1992", The Independent (London), 8 November 1990, p18.

Towards the Future

It appears that the global warming issue will remain on the international political agenda during the early 1990s. Although many believe that unprecedented actions will have to be undertaken in order to address adequately the issue, it is still unclear how international society will deal with the problems. From a wide range of concerns, four issues seem to pose the largest challenges.

First, scientific uncertainty may continue to play a role in the international politics of global warming. The underlying theory of the greenhouse effect is generally accepted. Further "the IPCC assessment conclude(d) first that we are certain that increased emissions of greenhouse gases will result in additional warming of the earth's surface".[48] There is, however, no consensus about the magnitude of the effect and the severity of the impacts. Additionally, the associated distributions are uneven - because not every area will be affected equally - are still being debated. In this way, scientists today are dealing "with risks and probabilities, which are no less real or

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48 John T.Houghton (Chairman of the Scientific Assessment Working Group of the IPCC), "Assessment of Global Warming" (Letters), The Independent, 6 November 1990, p.18.

dangerous for being uncertain".[49]

Second, one of the major hurdles impeding the implementation of any global convention on climate change is the perception that any action will be expensive. Figures in the billions and trillions of US dollars are often mentioned when the costs of adjusting energy consumption are calculated. Although there are those who challenge this assertion - some argue that it will actually result in a net economic benefit - the popular perception in many states is that both restructuring domestic society and assisting those in the developing world will cost dearly. Further, with a global economic recession perhaps just around the corner, the priority of environmental issues may be downgraded.

Third, just as North-South questions emerged as important issues in the international politics of the ozone layer, there is no reason to doubt that they will the same in the global warming issue. At the Second world Climate Conference in Geneva in November 1990, UNEP Executive-Director Mostafa Tolba called on industrialised states to help poorer ones.[50] The final declaration also recognised that `third world countries are bound to increase their

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49 Myles Allan, "No Time for Dead Certs", The Guardian (London), 9 November 1990, p.29.

50 Frances Williams, "UN Plea for Immediate Action to Curb CO_2", The Independent (London), 30 October 1990, p.2.

greenhouse gas emissions as they industrialise'.[51] Further, "it recommend(ed) they be given extra financial aid and technology to help minimise the environmental impact of industrialisation".[52] For the same reasons as cited earlier, this issue of `fairness' will have to be addressed to the satisfaction of all major participants before an international agreement can be implemented.

Finally because of the global nature of the problem, states continue to be reluctant to enter into any action unilaterally, lest others `free ride'. Thus decision-makers want reasonably to expect that any global agreement reached would be entered into, and honoured by, all states of the world. In this way, some sort of verification process may be needed. This may well be very difficult, because greenhouse gases are produced by every state in the world and are discharged from a wide variety of sources. Given the breadth of production, increasing the respect for international agreements on global warming could face a significant challenge. Not only will reporting be required, but on-site audits and remote sensing my also be necessary. These procedures would obviously entail the collection of large amounts of physical data from all states of the world.

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51 Schoon, n.31, in note 46, p.6.

52 Ibid.

Some national leaders would be reluctant to let others - even international organisations - undertake such a compilation, because they might suspect the motivation behind the act. Knowledge is power, and the command of information can be of strategic importance. Thus, national leaders may not let it be collected so easily. In this way, `data sovereignty' may hamper efforts to address this issue.

In spite of these monumental challenges, politicians hoped that a convention would be ready for signing by June 1992 at the UN Conference on Environment and Development in Rio de Janerio, Brazil, celebrating the twentieth anniversary of the landmark UN Stockholm Conference on the Human Environment.

And actually all such difficulties were circumvented through protracted multilateral negotiations in the Intergovernmental Negotiation Committee for a Framework Convention on Climate Change (INC) supported by UNEP and WMO. These negotiations in the INC began in February 1991, and ran parallel to the work of the Committee preparing for the Earth Summit (1992) in Brazil. All these led to the framing of the FCCC which was signed by 158 countries in the UNCED in June 1992. Since then the Framework Convention on Climate Change (FCCC) has become an international law on 23 May, 1994, after being ratified by national legislatures of more than fifty countries. So definitive steps towards a

preventive diplomatic approach in creating international environmental regimes is now well entrenched.

The next chapter will deal exclusively with the structure and processes of diplomatic negotiations leading to the framing of an international regime on stabilizing the atmospheric concentrations of greenhouse gases at levels that will prevent human activities from interfering dangerously with the global climate system i.e., the FCCC.

CHAPTER III

DYNAMICS OF NEGOTIATION ON THE FRAMEWORK CONVENTION ON CLIMATE CHANGE (FCCC): NORTH-SOUTH COOPERATION OR CONFLICT

The focus of research in this chapter would be directed towards analysing the structure and processes of negotiation on framing the FCCC and delineating the state of relationship between the industrially developed North and the developing but poor South on this particular issue area. The whole analysis is carried out in the framework of North-South debate on environmental issues and related problems of debt, equity, financial and technological help to be provided to the south by the north.

Structure of Negotiation

Negotiation is a process by which contending parties come to an agreement, but that process neither occurs nor can be analysed merely on its own terms. It begins with a certain distribution of actor characteristics, which then become the independent variables through which the process is conducted. These characteristics can be photographed at the beginning but may change during the process. "Whatever the components, their distribution is structure and whatever the intervening variables or terms of analysis that are interposed between structure and outcome, the structure is

determinant or at least highly influential, which helps in explaining the outcome."[1]

Structure of negotiation - the number of parties, value of potential outcomes, sources of tactical possibilities, and so on - is likely to be determined by extraneous causes, functional or dysfunctional for negotiations. The parties do the best they can under the circumstances, but, once the structure is determined, it provides the ingredients for making and explaining outcomes. Thus structural analysis is a skeleton key of understanding the negotiation process.

Here in the case of negotiation on the framing of an international legal regime on global warming induced change, i.e., the FCCC, the structure is multilateral. "Multilateral negotiation is a matter of making some order of complexity of issues, parties and roles. Managing complexity is a structural problem par excellence, since it is a matter of giving enough structure to chaos to provide a satisfying agreement."[2]

The groundwork for a framework Convention began in 1988 when the UN General Assembly adopted Resolution 43/53 recognizing climate change as a common concern of humanity.

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1 I.W.Zartman, "The Structure of Negotiation", in V.A.Kremenyuk, ed., International Negotiation: Analysis, Approaches, Issue (Oxford, 1991), p.65.

2 Ibid, p.73.

That year, UNEP and UN World Meteorological Organisation (WMO) established the Intergovernmental Panel on climate change (IPCC) to investigate the potential severity and impact of global climate change and to suggest policy responses. The IPCC's First Assessment Report was published in August, 1990 and discussed at the Second World Climate Conference in Geneva, later that year.

The Second `World Climate Conference', Geneva (1990), emphasized that despite remaining scientific uncertainties on climate change, nations must take steps towards reducing the sources of and increasing the sinks of greenhouse gases through national and regional action. The Conference emphasized that the long term goal should be to halt the buildup of greenhouse gases (in the atmosphere) at a level that minimises risks to society and natural ecosystems. It also explained that technically possible and cost-effective opportunities exist to reduce CO_2 emissions in all countries. Actions needed included steps towards efficient energy-utilisation and measures to develop renewable sources of non-conventional energy. Since the Conference a number of countries and the EC as a whole have announced actions aimed at stabilising their CO_2 emissions, generally at 1990 level, by or close to 2000 A.D.

The IPCC's First Assessment Report noted, among other things, that the 1989 session of the UN General Assembly had

agreed that existing legal instruments and institutions dealing with climate change were insufficient and that a framework Convention on climate change was needed. The idea was that, as a "framework", the Convention would outline a set of general principals and obligations in various areas and subsequent negotiations would produce specific targets and quantitative reductions which can be added on as protocols to the framework Convention.

In December 1990, the UN General Assembly set up the Intergovernmental Negotiating Committee for a framework Convention on Climate Change (INC) which were to be supported by UNEP and WMO. Negotiations began in February 1991 and ran parallel to the work of the Committee preparing for the UN Conference on Environment and Development (UNCEP) i.e., the Earth Summit in June 1992 in Brazil.

After acrimonious negotiations, which spanned fifteen months, the UN Framework Convention on Climate Change (FCCC) was finalised in May 1992. It was opened for signature at the UNCED on June 4, 1992. Since then, 158 countries had signed the Convention. Recently, the FCCC became international law after being ratified by national legislatures of more than fifty countries on May 23, 1994.

The most frequently advanced approach to multilateral negotiations is coalition analysis. The presence of several parties opens the possibility of grouping on the basis of

affinities. Negotiations can form a series of cross-cutting coalitions that pierce together agreements out of various positions on the issue area. This dimension of whether a third world coalition of developing South is possible in the arena of future environmental diplomacy will be discussed at a later stage in this chapter.

Processes of Negotiation and North-South Conflict/Co-operation in Framing of FCCC

"International Negotiation is seen as a sequence of stages, either organised in well articulated patterns, as in many instances of multi-conference diplomacy, or overlapping and developing over time in a rather haphazard or even confused way."[3] The crucial problems consist of identifying the forces behind the dynamics observed, the reasons why such stages seem to be useful, their roles and functions and the way in which they are instrumental in solving the basic challenge of negotiation to reach a collective decision, where there were once substantial and distinctive differences to preclude, at least temporarily, the use of alternative decision-making. In other terms, it is a process of combining conflicting positions into a common position, under a decisive rule of unanimity as argued by

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3 Christopher Dupont and Guy-Oliver Faure, "The Neogitaiton Process", in V..Kremenyuk, ed., International Negotiation: Analysis, Approaches, Issues (Oxford, 1991), p.40.

Henry Kissinger. The following analysis will try to identify the key factors in the negotiation leading up to the framing of FCCC in which the North-South divide was the bedrock. The multilateral negotiations at the INC and the Prep Com for the UNCED which ran parallel to one another were directed towards an agreement on an international legal regime to stabilize the concentrations of anthropogenic (man-made) greenhouse gases [the main components being CO_2 (55 percent), CFCs (24 percent), CH_4 (15 percent) and N_2O (6 percent) at 1988 levels, causing global warming] at levels that will prevent human activities from interfering dangerously with the global climate system. In signing the FCCC, the governments were asked to reduce emissions of main component of greenhouse gases i.e., CO_2 to 1990 levels by the end of the decade as advocated by the EC, Japan and many other countries but opposed by USA.

Taking actions to slow global warming may be among the most difficult challenges the world community has everfaced because virtually all human activity contributes to it in some fashion. Most of the energy systems that fuel modern economic development and lifestyles run on coal, oil and natural gas. The gaseous by-products of burning these three fossil fuels represent the leading source and probably best understood of the anthropogenic greenhouse gases.

The industrialized world has been responsible for the

bulk of carbon dioxide emissions. With less than 5 percent of the world's population, the United States alone emitted more than one-fifth of the 22 billion metric tons of carbon dioxide that entered the atmosphere in 1989. The countries of the Organization for Economic Co-operation and Development (OECD) combined contribute almost half of the world's emissions from fossil fuels. Thus, the onus falls on the United States and other industrialized nations to take the first steps toward stabilizing and reducing their emissions.

Although they harbor three-quarters of the world's population, developing countries contribute only one-quarter of global carbon emissions, most of which come from poor rural populations engaged in clearing forest lands, producing paddy rice, and burning wood and other biomass for fuel faster than it regenerates. Experts project, however, that the developing nations will become the major source of greenhouse gases by the middle of the next century unless they adopt emission-control measures. Of particular concern are the large and increasingly populous industrializing countries of India, China, and Brazil. These nations add significantly to carbon emissions because of their continued forest clearing and rapid development dependent on fossil fuels.

Almost all of the 95 million people now added to the

planet every year live in developing countries. In optimistic scenarios, experts project that this growth will probably not reach an equilibrium until populations double to 10 or 11 billion near the middle of the next century. This demographic explosion vastly compounds the challenges of controlling greenhouse gases, as energy supplies must be expanded to accommodate the demands of rapidly growing populations. Furthermore, developing countries will have to feed most of the additional 3.2 billion people who will inhabit the Earth by 2025. These food demands will only intensify pressure on frontier forest areas, thereby adding more carbon to the atmosphere and reducing the important climate-regulating role performed by forests (trees remove carbon from the atmosphere and store it in their bio-mass). Helping to stabilize population growth, through stepped-up family programmes and other supportive measures, must therefore be a central component of strategies to slow the greenhouse effect.

Economic development and population growth will require the South to significantly increase its use of energy, but policies and technologies directed at making energy systems more efficient and at switching to less polluting fuels can slow the growth of the South's carbon emissions. In practice, however, greenhouse-combating strategies will be exceedingly complex and vary widely from country to country,

depending on energy supply and use patterns, industrial and transportation structures, population trends, natural resource endowments, agricultural and forestry practices, and other factors.

In the short run the greatest advances in reducing emissions will likely come from demand-side policies that encourage increased energy efficiency. If a long-term exponential increase in emissions is to be prevented, however, "technological progress must offset the factors of demography and economic growth...."[4] In particular, widespread adoption of non fossil fuel energy systems will be critical.

DISCUSSIONS IN THE IPCC

At its first session the IPCC divided its work among the three Working Groups. Working Group 1 and 2 were concerned with scientific and socio-economic impacts of the climate change and working group 3 was looking into the response strategies. International legal and policy options form part of Group 3's priorities. Structured in this manner, the participants in the IPCC essentially either were chosen by the governments or were working in various

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4 John E. Gray, Robert W.Fri, Donald L.Euertin nd Tokao Tomitate, Global Climtic Change: US-Japan Cooperative Leadership for Environmental Protection (Washington, DC, November 1991), p.81.

governmental departments in the member countries, despite their being technical experts.

The second and third sessions of the IPCC with all of its Working Groups took place in Nairobi and in Washington, DC on 28-30 June 1989 and 5-7 February 1990 respectively. At the intergovernmental level before the Nairobi IPCC session, confusion as to the appropriate agency responsible for initiating the first step towards an international convention to stabilise the greenhouse gas composition of the atmosphere inhibited real progress in solving the climate change problem. At the Nairobi session, however, the chairman of the IPCC resolved the issue when he announced that IPCC will prepare the background for a draft of an international convention on combating climate change. This decision established IPCC as the international focal point with a clear agenda and timetable for progress on climate change.

A major change adopted at the Nairobi session was with reference to the concept of core membership. In November, 1988, thirty-two nations had core membership. The session in its plenary decided to abandon the core-membership concept. The representatives of forty-four nations and of several inter-governmental organisations and NGOs that attended the Nairobi session applauded the decision.

Among the various recommendations made for the IPCC,

the following merit particular attention:

- The IPCC should consider the possibility of arranging conference and seminars in developing countries to help mobilise national and regional action.

- The development of an indigenous intellectual and scientific base backed by appropriate technologies is a key factor in the medium to long term capacity of the developing countries to participate fully in international legal regimes on climatic change.

These issues became the rallying points around which both the developing counties of the South and the industrially developed countries of the North continued their negotiations.

However, despite the growing desire of the developing countries to participate in the IPCC process, the IPCC had, at best, only limited success in facilitating such participation. To correct this, a report was prepared by the `ad-hoc Sub-Group on Ways to Increase the Participation of the Developing Countries in the IPCC Activities". Saudi Arabia chaired this Sub-Group, with Brazil, Senegal and Zimbabwe as members. The Report[5] was circulated before the second session's meeting to China, India, the Chairman of the IPCC, the Chairman of the IPCC Working Groups and to

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5 Involvement of Developing Countries in the Work of the IPCC (IPCC-II/Rev.1, Nairboi, 28 June 1991).

Mostafa K.Tolba (Executive Director of the UNEP) and G.O.P. Obasi (Secretary General of the WMO). The Sub-Group pointed out that, among the most widely accepted scenarios, the area of the globe occupied by the developing countries will be most affected by climate changes. Moreover, the developing countries are not economically or technologically equipped to implement some of practical policy measures needed to find and implement appropriate solutions. Following are the recommendations of the Sub-Group on actions to be taken in the short term and in the medium and long term in order to include developing country participation in the IPCC process:

- The work of IPCC requires the involvement of disciplines beyond the normal scope of the WMO and UNEP, especially in relation to the Working Group 3. Therefore, the Working Groups, with the support of the WMO and UNEP Secretariat, should seek to identity possible funding sources beyond those traditionally associated with the work of the WMO and UNEP.

- A special emphasis needs to be placed on developing the capacity and infrastructure in the developing nations with the support of the international community.

Reacting to these suggestions, UNEP Executive Director Tolba and WMO Secretary General Obasi suggested that a system whereby (a) countries that could be seriously

affected by global warming and the consequent sea-level rise and (6) countries whose actions could have a major impact on CO_2 emissions and uptake would be selected as natural candidates and must be ensured full participation in the IPCC. It was estimated that about twenty countries would meet either of the two criteria and the total resources needed would be about $ 1 million.

On the whole, the IPCC proceeding moved slowly. At the 3rd session of the IPCC in Washington, DC, the developing countries dismissed the argument of the USA and other developed countries of the North for further scientific certainty over global warming, sought as a stalling tactics to delay the beginning of concrete negotiations on an international convention on combating climate change. The Foreign Minister of Brazil, Jose Francisco Rezek argued -

"There is no reason why international action should be conditioned to scientific proof which might be reached only when it becomes too late to adequately solve the problem of global warming induced climate change."

This forceful argument speeded up the process of work of the IPCC whose First Assessment Report was published in August 1990 and discussed at the second `World Climate Conference' in Geneva as mentioned earlier.

This was followed by setting up of the Inter-governmental Negotiating Committee (INC) for a framework

Convention on climate change by the UN General Assembly resolution in 1990, as mentioned earlier.

Negotiations in the INC Sessions

Negotiations at the INC concentrated on following three major issues in the framework of North-South debate:

- the issue of the level of reduction of emissions of greenhouse gases, the modalities of reduction of emissions of these and the timeframe of reduction.

- the issue of financial mechanism to bear the costs of adopting to climate change for the purpose of switching over to more environmental friendly technologies.

- the issue of technology transfer from the industrially developed North to the developing South for the purpose of switching over the more environment friendly technologies.

The Bush administration's position in the negotiations in the INC sessions during 1991 had called for a "comprehensive approach" to climate change, or the incorporation of measures to limit emissions not just of carbon but of the other greenhouse gases as well. This stand of the United States of America draws attention to the contribution of gases from other sectors, such as agricultural emissions from fertilizers, livestock production, and rice-paddy cultivation, as well as industrial uses of CFCs, and methane from landfills.

Consequently, US climate negotiators at the INC session in Geneva were pressing for extensive country-level studies on emission inventories and response strategies. Such analyses would help nations to "evaluate wide range of possible technology and policy actions across different gases and sectors."[6] This expanded agenda to incorporate a diversity of sources and global carbons sinks is important because "[n]o one activity or economic sector must bear the brunt of change. Many small percentage changes add up to a significant change."[7]

Critics of the Bush administration's approach led by India at the INC sessions pointed out, however, that CFCs are already being phased out, while the means for controlling methane and nitrous oxide - which together account for a small portion of the remaining emissions - are much less understood. In addition, many followers of the negotiations viewed the American emphasis on the bundle of greenhouse gases and the need for further research as a delaying tactic. Instead Japan, the EC, India, Brazil and China advocated taking action in conjunction with further study of problems and needs. Indeed, the Bush

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6 Richard Morgenstern, Testimony Before the Committee on Science, Space and Technology, 17 July 1991, p.11.

7 Jessica T.Mathews, Introduction and Overview - Greenhouse Warming: Negotiating a Global Regime (Washington,D.C., January 1991), pp.4-5.

administration remained isolated among virtually all other major industrial nations from the widespread consensus that prompt action should begin to limit the buildup of greenhouse gases and should center on carbon emissions.

Under the auspices of the United Nations Environment Programme and the World Meteorological Programme, the Framework Convention on Climate Change readied for signature in Rio de Janeiro included only very general commitments. This is similar to the negotiated response for threats to the ozone layer agreement on broad goals and obligations in 1985 were subsequently followed by substantive commitments on targets and timetables for phasing out CFCs in 1987 and 1990. Climate negotiators had a vastly more complicated task than their predecessors on the ozone issue who sought to restrict the use of one group of harmful chemicals that is primarily used by the industrial nations. Also very different from the ozone negotiations, most western European nations as well as Japan were moving ahead of the discussions on climate with unilateral commitments to stabilize their carbon emissions at 1990 levels by the year 2000. Some countries such as Germany and the Netherlands go even further.

Substantive commitments to emission control targets and time-tables were the subject of intense negotiation in the INC sessions. At some point, however, a global action plan

may ask the developing countries to slow their population growth and use of fossil fuels, reverse trends in deforestation, and undertake selected agricultural reforms.[8] More controversial were proposals for developing country participation in massive reforestation schemes. The developing countries widely perceive that (1) they are being asked to take remedial action for environmental damage caused by the industrialized economies, and (2) many of the measures required to slow climate change will drain resources away from their more pressing development needs.

The projected carbon emissions of developing countries in the absence of policy action make it quite clear that these countries' involvement in a climate convention will be absolutely vital to its success. Their participation will likely be contingent upon at least two factors: first, leadership and commitments to reduce emissions in the North: and second, additional financial and technical assistance to compensate the South for taking emission control measures.

Perhaps the most articulate voice in the South's behalf came from India at the Geneva Session of the INC in 1991, which insisted that climate diplomacy must focus on the problem of the industrial countries' excessive emissions,

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8 Subgroup Report on "Agriculture Forestry and Other Human Activities", in WHO and UNEP, Climate Change: The IPCC Response Strategies (Washington,D.C., 1991), pp.73-127.

both past and present. The Indian delegation's position has been particularly influenced by prominent environmentalists Anil Agarwal and Sunita Narain. They argued that experts of developed countries on climate - particularly in their calculation of greenhouse gas statistics and emission reduction targets - were making profound errors when they equate the decades of "luxury emissions" in the North with the "survival emissions" of the South. This analysis grows out of Agarwal and Narain's more basic argument that population growth is not nearly as significant a risk to the health of the environment as is unsustainable resource consumption. Put another way, the lifestyle of a person in an industrial country taxes the world's natural resources and atmosphere many times more than does that of an impoverished farmer in a developing country. Also, the imbalance of past emissions must be considered because of the long-lived nature of greenhouse gases. The lifespan of these gases ranges from roughly a decade in the case of methane to perhaps 500 years for emissions of carbon dioxide.

India objected to linking population proposals with the climate negotiations and had pressed for recognition that the South's per capita emissions must be allowed to rise and even converge with the necessary decline in emissions in the North. When questioned about India's rejection of

population targets, the country's leading climate negotiator, Ambassador C.Dasgupta, replied: "What the developed countries are doing is largely to expropriate the global sinks. They are taking them for free and then saying that if your are breathing, you are part of the problem. But the real difficulty is not simply all emissions of CO_2, which exceeds the capacity of the sinks. And that excess is almost entirely the responsibility of the developed countries."[9]

The voices from India, China, Brazil, and Mexico were moderate compared to those from the 35 countries of the Alliance of Small Island and Low-Lying States (AOSIS), often led by Vnuatu and Papau New Guinea. AOSIS allied closely with the European Community, Australia, Canada, and New Zealand in its call for immediate and significant reductions of industrial greenhouse gas emissions. At the other end of the spectrum, the oil-producing states such as Saudi Arabia, Kuwait, and Venezuela aligned themselves with the more conservative U.S. position, emphasizing the scientific uncertainties and the need for cautious programmes that are sensitive to the needs of oil-dependent countries.

These internal differences have made it extremely difficult for the Group of 77 to provide an effective single

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9 "India Will Not Accept `Figleaf' Convention", The Economist, vol.77, no.8, June 29, 1991, p.7.

voice in the climate negotiations.The interests of the oil-producing countries and small-island nations were in fact set aside at the December 1991 negotiations, when the Group of 77 fell apart and new coalition of countries, the Group of 24 broke away to issue their own proposal. Including the large nations of India, China, and Brazil, the new group called upon the developing nations to "consider taking feasible measures to address climate change", while the South awaits commitments from the industrial nations. Although it backed away from calling for a strong treaty with targets and time tables, the Group of 24 maintained that the developed countries should provide new resources to cover the full incremental costs of any climate-related measures that are taken and that they should transfer "technologies and know-how required for compliance with this convention on confessional, preferential and most favourable terms."[10]

Substantive internal differences exist, but the South's bargaining positions generally focused on areas of North-South conflict rather than on the considerably larger areas of common interests and multiple benefits that action on climate change offers. In fact, there are many

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10 "Proposal on Commitments Section: Extracts from the G24 Text", The Economist, vol.79, no.9, December 19, 1991, pp.1 and 4.

opportunities for North-South cooperation concerning energy and forest that can contribute to a range of national and global development and environmental objectives.

This North-South conflict over responsibilities to be borne on emission reduction of CO_2 (the main component of global warming causing greenhouse gas) led in the final analysis to the framing of the FCCC with the objective of reducing CO_2 to emissions to 1990 levels by the end of the decade, to be met voluntarily and not as a necessary obligation by the contracting parties.

To enable developing countries to meet their obligations under the Convention, the developed countries have agreed to provide "new and additional" financial assistance. Such assistance is, for the time being to be channelled through the Global Environment Facility, a fund administered jointly by the World Bank, the UN Development Programme (UNDP) and the UN Environment Programme (UNEP).

To have a binding international legal regime i.e. a hardlaw, there is a need to add obligatory protocols for apportionment of the carbon-budget among the various countries. Therefore, the most important question facing the successful implementation of the FCCC is how to reduce the CO_2 emissions from various anthropogenic sources, as well as reduction of emissions of other greenhouse gases.

Carbon Budget Allocation

The apportionment of the limited carbon budget may determine whether developing countries will be able to reduce carbon emissions and continue to industrialize at the same time. First, allocating emission reduction requirements based solely on current fossil fuel usage would be highly inequitable as it would not allow for any future growth of developing countries. By the same token, including current Gross National Product into the allocation formula would also maintain the inequitable economic/developmental status quo between the northern and southern hemispheres.

A second approach, that of a per capita carbon budget allocation, might appear equitable on the surface, but it would probably be seen as unfair by industrialized countries. Developed nations would deplete their per capita share of carbon emission allowances in a very short time, whereas developing countries would be able to operate at current levels of consumption for 183 years. Furthermore, the economic development of developing countries would shortly become illusory because their fossil based industry would become obsolete as the carbon budget was exhausted, gravely retarding their subsequent development.

A per capita equitable apportionment of the carbon budget, although impracticable for physical distribution,

could be used to allocate the financial burden of aid to developing countries energy development through trading or sale of emission rights. Unfortunately, this market strategy would simply maintain the energy status quo, leaving developing countries with little room for growth - albeit with a lot more capital - and would allow industrialized countries to maintain their current emission rates.

An optimal approach will need to take into account a combination of factors. The factors should be assessed by a working group, perhaps from the Intergovernmental Panel on Climate Change (IPCC). Most important, because methane and CO_2 have such different global warming potentials and different potential for reduction in the near term, the carbon budget should differentiate between these two compounds - not simply aggregate them as "carbon". First, Gross National Product (GNP) based on a target year would be assessed. The GNP would of course be much higher for industrialized than for developing countries and would be used as a benchmark for determining a country's required reductions or allowances. Next, Phase I CO_2 target dates and reduction levels would be set for industrialized countries, perhaps according to the Toronto Conference estimates, for the earliest technologically feasible institution of emissions reductions, controls, and interim

replacement technologies and fuels. Given the industrialized countries' greater economic resources and technology, they would be expected to institute emissions controls and technologies sooner than developing countries. Developing countries would accordingly receive CO_2 emissions allowances - that is, increases - that would equal the industrialized countries reductions. For example, if the most optimistic projection for near-term CO_2 emissions reductions for industrialized countries is 20 percent, developing countries would receive an initial corresponding 20 percent allowance in emissions. This would produce no net increase in worldwide emissions and would give developing nations room for industrialization while maintaining requirements that they institute energy efficient technology in order to meet the demands of industrialization. Phase II emission reductions for industrialized countries, which are set for 2030 or earlier, would not provide such sizable offsetting allowances for developing countries because, by then, the developing countries are expected to have an increased capacity for more emissions reductions.

A pro rata carbon reduction/emission allowance allocation is an important first step. However, in order to ensure the success of this apportionment, it is imperative that industrialized countries pay into a "global climate

protection fund." The fund would be used for capital and technology transfer programmes that would aid developing countries in installing and maintaining more expensive, energy efficient technologies. Payments to the fund would be in proportion to an equitable formula, based on criteria such as industrialized countries' cumulative per capitacarbon releases between 1950 and the present.

The fund would differ from the existing World Bank in two ways. First, countries such as Poland, China or Brazil that have more economic resources than other developing countries, but that have serious environmental problems, could borrow money from the fund at a lower interest rate than that offered by the World Bank. Second, the new fund would support globally related environmental projects, unlike the World Bank's current environmental investments which tend to support national or localized environmental action plans. Among the global fund's top priorities would be ozone protection, controlling greenhouse gases, and curbing deforestation.

Strategies to achieve emission reductions for methane would take priority over CO_2 emission reduction efforts because, it is estimated that both industrialized and developing countries have the ability to reduce methane emissions by 30 percent to 50 percent or more. Here, the developing countries may actually be able to contribute some

of the greatest reductions in carbon emissions because they are currently among the greatest contributors. This means that the carbon budget for methane should be apportioned on a per capita basis because the impact of reduction requirements on future capacity would fall equally on both developing and industrialized countries.

CHAPTER IV

THE FCCC - LINKAGES BETWEEN DIPLOMACY AND INTERNATIONAL ENVIRONMENTAL LAW

In this chapter efforts will be directed towards studying the role of global environmental diplomacy in establishing a stable international legal regime on combating global warming induced climate change i.e., the FCCC. The major objective of this chapter will be to assess to what extent this convention along with other various instruments adopted by the UNCED at Rio can be considered a positive contribution to the further development of international environmental law, and whether the conference has indeed succeeded in elaborating general rights and obligations of nation states. This chapter, like the previous one, also deals with the issue in the framework of North-South debate.

International Environmental Law and Global Warming

Principle 21 of the Stockholm Declaration on the Human Environment reads: "States have... the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction".[1]

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1 Report of the UN Conference on the Human Environment, UN DocA/Conf48/14/Rev.1 (1973).

This principle of state responsibility is emerging as a doctrine of customary international law.[2] International law would seem therefore to impose responsibility upon states to control emissions which cause global warming. State responsibility is likely, however, to be an inadequate remedy for global warming, since, in several ways, state responsibility does not respond to the complex scientific and political issues at stake. First, the sources of the emissions which lead to global warming are widespread. Global warming is the combined effect of emissions from many nations. Second, the time lag between the emissions and their adverse effects makes the application of state responsibility principles very difficult. Third, alternatives to excessive emissions are not always readily available, particularly for developing countries. For example, a poor developing country whose most valuable resources are coal reserves is unlikely to be easily persuaded to employ alternative energy sources. This is especially true where alternative energy sources would have to be imported and paid for with scarce hard currency. Even though state responsibility is not an adequate remedy for the problem of global warming, an analysis of principles of

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2 Restatement (Third) of the Foreign Relations Law of the USA.

international law may prove useful, nonetheless as a way of understanding the legal basis for a solution to the problem.

International environmental law, particularly Principle 21 of the Stockholm Declaration,[3] seeks to balance a nation's right to exploit its environment with its responsibility to avoid harm to other states and the world community. As the International Court of Justice stated in 1948 in the Corfu Channel Case, "every state (has an) obligation not to allow knowingly its territory to be used for acts contrary to the rights of other states".[4] The private law principle *sic utere tuo ut alienum non laedas*", which prohibits the use of one's own property in such a way as to injure another's property, thus has a corrolary in international environmental law. This principle has been applied to international water courses,[5] transfrontier pollution,[6] and marine pollution.[7]

The International Law Commission (the "Commission") of

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3 Report of the UN Conference, n.1.

4 Corfu Channel Case (Merits) (U.K.Vs Albania), 1949, ICZ 4

5 Proposed Article 8 on the Law of Non-navigational Uses of International Watercourses in the Report of the 40th International Law Conference.

6 UN Convention of Long-range Transboundary Air-pollution (November 13, 1979)

7 Report of the Un Conf., n1.

the United Nations examined "international liability for injurious consequences rising from acts which are not prohibited under international law".[8] According to Commission drafts, such acts would need the "physical consequences" provision. This was intended to exclude economic and social effects from the categories of compensable injury because they could raise difficult questions of causation. Under the Commission's approach global warming would probably be found to be such a physical consequence of gaseous emissions.

As the Special Rapporteur of the Commission's study remarked, however, the liability approach was premised on state obligations to take preventive measures, to consult, and to make reparations in case of harm. Since "those obligations presupposed an identifiable State of origin, affected State and identifiable harm.... the framework of the topic did not seem to be appropriate for dealing with harm to the human environment as a whole, when there were many States of origin and virtually the whole community of mankind was affected."[9]

The threat of liability for damages may be useful in encouraging nations to adopt preventive measures in certain

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8 Restatement (Third) of the Foreign Relations Law of the USA, n.2.

9 Ibid

areas of concern to the international environment. Such incentives will be minimal, however, with respect to global warming for several reasons. First, physical damage to many nations of the world will result if global warming effects occur (rising sea levels, droughts, changed weather patterns, etc.) Second, the cause will not be traceable to a single nation or a small group of states, making international legal precedents unlikely models for imposing liability.[10] Finally, if global climatic change does occur (and traditionally damage must occur before liability can attach), monetary damages would not compensate adequately for the damages sustained. No amount of money will allow a nation to purchase a more favourable weather pattern, a cooler climate, or adequate rainfall.

A new approach based on cooperation rather than liability is needed to respond to the problem of global warming. An international convention could start with pertinent traditional principles of international law, such as Principle 21 of the Stockholm Declaration, principles from case law, including the Corfu Channel Case and the Trail Smelter Case, and principles from treaties and customary law. These principles should be recognized as specifically pertinent to the problem of global warming. In

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10 Trail Smelter Case, 3 Rep. International Arbitration Awards 1965

addition, any international convention should provide for the establishment of institutional channels of consultation, information exchange and monitoring. Compliance could be encouraged through the development of alternative energy sources and through low-cost provision of such energy sources to less developed nations.

An international convention should be global in scale, as bilateral and regional efforts may be influenced by political considerations. In sum, the principles of state responsibility and liability for harm provide a useful starting point for dealing with the issue of global warming. Yet, international cooperation will provide a more effective solution to the problem than will the threat of liability.

The cooperative approach advocated here does not deem existing international law irrelevant, however. Instead, it presupposes such a system and calls for its reinforcement. The cooperative approach also allows for the possibility of unilateral, domestic procedures, including adaptive, mitigative or preventive options.[11] These domestic options, as well as suggestions for coping with the problem at the international level, will now be explored.

In the light of the above arguments let us now assess the FCCC. The real significance of this downgrading of

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11 Gleick, P., Global Climate Change and International Politics (London, 1991), pp.18-19.

environmental concerns in the legal discourse appears upon reading the penultimate draft of the Framework Convention on Climate Change, submitted to the last session of that Convention's Intergovernmental Negotiating Committee. In the Preamble of the draft one finds language spelling out the revisionist re-interpretation of the principle of environmental responsibility of States in its crudest version. Indeed the preambular paragraph which recalls Principle 21 and contains a bracketed clause adding that `accordingly... environmental considerations should not be used as a pretext for interference in the internal affairs of developing countries".[12] This disconcertingly frank and cynical re-interpretation of Stockholm Principle 21, proposed by India and China, shows little concern for preserving even the appearance of logical consistency and formal legal reasoning. Inferring a right to ecological non-interference from the principle of responsibility of States for transfrontier ecological damage is, in fact, the negation of the very essence of that principle, which logically and necessarily implies the existence of certain limits to national sovereignty.

Although we may rejoice that this preambular clause was

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12 Report of the Intergovernmental Committee for Negotiation of a Framework agreement on Climate Change Concerning the Work of its 5th Session (Part I), New York; DOCA/AC 237/18 (Part I), (10th March 1992), p.24.

not included in the final text of the Climate Change Convention, the paragraphs which replaced it achieve the same result, albeit in a more subtle way. In its final adopted version the Preamble no longer explicitly refers to Principle 21 of the Stockholm Declaration, but only to the `pertinent provisions' of that Declaration (Some States obviously do not consider Principle 21 to be all that pertinent to the issue of global warming). The Preamble reproduces verbatim the principle of responsibility as it appears in Principle 2 of the Rio Declaration.

Thus, the Framework Convention on Climate Change sanctions the silent demise of the principle of the responsibility in its classical, Stockholm version. To complete this revisionist exercise, the following preambular clause of the Convention yet again: "reaffirm(s) the principle of the sovereignty of States in international cooperation to address climate change."[13]

The precedence of national economic development policies over national and international measures to check climate change is also stressed in several operative provisions of the Convention, which provide, inter alia that such measures `should be integrated with national development programmes' (Article 3(4)), and should take(e)

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13 UN DOC A/AC 237/18 (Part II)/Add 1 (15th may 1992), p.2.

into account the need to maintain strong and sustainable economic growth (Article 4(2)(a)).

Articles 2-4 and Article 11 of the FCCC, which are very crucial to this analysis are provided in the appendix. Now an effort will be made to analyse the intricacies of implementation of the intent of these articles.

The Climate Change Convention, is an umbrella agreement which takes into account the cardinal principles on which actions to mitigate the causes of global warming are to be taken. However, by its very nature the Convention has major weaknesses - omission of specific actions or commitments that are applicable to the parties to the Convention. Hence, there will be several problems and pitfalls in the implementation of the Convention.

It will be useful to review the compelling reasons behind the Convention itself, because these will provoke actions that are likely to be taken under the Convention. The scientific rationale for global warming is not based on any recently discovered theory or phenomenon. Over a century ago this possibility was researched and put forward by Arrhenius, a Swedish scientist, who saw the effects of increasing Co_2 concentration in the atmosphere. He had based his studies on the greenhouse effect.

Political and public attention was focussed on this possibility only towards the end of the 80s, largely as a

result of the severe drought in North America in 1988, affecting the farmers cross the continent. The fact that the four warmest years of this century in North America occurred during the decade also was a cause.

Then a flurry of activity took place, with expert testimonies in the US House Representatives and the Senate, and a snowballing of attention on the issue all over the globe. This background is being mentioned because not only are the developed countries responsible for the increased concentration of greenhouse gases (GHGs) in the atmosphere, but also have high levels of per capita fossil fuels consumption. They are clearly in the strongest position to reduce emissions effectively and rapidly.

The implementation of the Climate Change Convention, therefore, rests on the initiative the developed countries take in the coming years. This in turn, will depend on the political consensus that the developed countries re able to achieve on the issue. The spirit of the debate that took place in the runup to Rio and resulted in several important features being included in the Climate Change Convention, therefore, cannot die now. It needs different focus where a country or groups of countries has to accept and implement specific commitments to reduce GHG emissions.

The increase in GHG concentration since the preindustrial era (1750-1800) has been substantial. For

instance, in 1990, as reported by the Inter-Governmental Panel on Climate Change (IPCC)_, Co_2 concentration had gone up from 280 parts per million by volume (ppmv) to 353 ppmv, at a rate of 1.8 ppmv a year. The concentration of methane too has increased from 0.8 ppmv to 1.72 ppmv.

Choloflourocarbons (CFCs), which were non existent in the preindustrial times and introduced in the 20th century, have reached levels of unacceptably high concentration and are increasing rapidly. CFCs have a very high global warming potential, but fortunately these will be phased out quite rapidly in two decades with the implementation of the Montreal Protocol.

However, much the developed countries resist discussions on lifestyles, it is obvious that if satisfactory progress is to be made in phasing out GHGs, lifestyles have be changed urgently. These do not necessarily imply a drop in living standards or a sacrifice of facilities and services that the most prosperous nations enjoy. But some change will be essential. For instance, greater use of public transport or renewable energy technologies and the implementation of energy efficient measures, several of which are feasible even today, but are being delayed as a result of institutional, price-related and attitudinal barriers. Removing these barriers will take political leadership and courage of an unprecedented level.

Without any lead from the largest polluters of the world, it is unlikely that any progress will be made worldwide in limiting emissions. The recent announcement by the U.S. President, Mr.Bill Clinton, on the eve of Earth Day, committing the country to a roll back of emissions during 2000 to the levels that existed in 1990 is an encouraging start. But the steps to achieve the target have not yet been spelt out and will undoubtedly call for negotiating several political minefields of attitudes and value systems of the citizens of the U.S. and several other developed countries.

The early and effective implementation of the Climate Change Convention depends largely on the emergence of courageous leaders who can convince the public that changes are inevitable in the interests of the globe as well as their own. The U.S. will naturally have to provide a vital lead in bringing this about.

The Other Half

As far as the developing countries are concerned, hard negotiations and rigorous analysis are extremely important in drawing up the agenda for the immediate and short term future. As per the Climate Change Convention, the developed countries will meet full incremental cost and provide technology for mitigation measures adopted by the developing countries. This principle appears simple in definition, but

is extremely complex in interpretation. Undoubtedly, thereare going to be several disputes on what constitutes the agreed full incremental cost.

Firstly, the issue of joint products is relevant and will, therefore, be raised while defining such incremental costs. For instance, most actions to mitigate global environment effects, also address the local ecological problems. Consequently, in assessing the incremental cost to be provided by the developed countries, these local benefits will logically have to be deducted. Agreement on the value or even the existence of such benefits will elude the negotiators from both the North and South.

On the other hand, there will be a large number of expenses that are relevant to the Convention, but which the developed countries may wish to ignore, particularly if the developing countries are unable to provide solid analysis and present a convincing case. Some of these cost which fall in the category of building capacity expense is vitally important in serving the interests of the developed countries.

The developed countries will prefer to view the introduction of new technologies merely as a case of mechanical quickfix. This is an extremely simplistic approach, because, new, sophisticated technologies cannot work in the absence of appropriate infrastructure, skills

and institutional arrangements. All of these are complex and costly in terms of resources and time. Consequently, technological upgradation to reduce GHG emissions will require extensive investments in building human and infrastructural capacity.

Unfortunately, very few developing countries have undertaken rigorous cost analysis. A convincing case cannot be made on the basis of rhetoric or a statement of general principles. Herein lies the biggest challenge for developing countries, who cannot possible undertake this kind of research and analysis within their own ministries and departments. The basic requirement, therefore, is to see that not only is the capacity tapped and utilized wherever it exists in poor countries, but also to ensure that it is enhanced rapidly to deal with future challenges.

The Tata Energy Research Institute (TERI) had organised a post-UNCED international seminar on "Environment and Development Policy Issues in Asia" in October 1992, in which some of the subjects were related to the Climate Change Convention and its implementation. In the recommendations of the Conference it was stated that, "There is a marked asymmetry between industrialised and developing countries in their respective capacity for formulating informed and cogent positions during the negotiating process. The asymmetry in capacity may have influenced the outcomes of

the negotiations leading to the Rio agreements. The agreements themselves were negotiated in a relatively short period of time with the explicit objective of adoption t the UNCED. The whole process extended to little more than a year. This was too short period for building up institutional capacities in the several disciplines which re germane to formulating negotiating positions.

Domestic capacity needs to be built in the relevant scientific disciplines, institutions, as well as skills in policy analysis and policy making. This process must commence expeditiously and involve the greatest measure of international cooperation between industrialised and developing countries on the one hand and developing countries themselves on the other. The future course of negotiations must allow for this process of get sufficiently under way."[14]

Study of Progress of International Environmental Law: From Stockholm to Rio

Now let us focus our attention on Rio Declaration on Environment and Development in order to assess the development of international law and legal regimes since the Stockholm Declaration.

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14 Pachauri, R.K., "Climate Convention: Problems and Prospects", The Hindu Environment Survey, 1993 (Madras), pp.53-54.

The Rio Declaration on Environment and Development is the one produce of UNCED designed precisely to embody rules and principles of general and universal nature to govern the future conduct and cooperation of States, and forms the focus of this study. Its provisions are analysed against the background of those of two earlier declaratory instruments of a universal nature, elaborated within the institutional framework of the UN: the Stockholm Declaration, adopted by the UN Conference on the Human Environment (UNCHE) in June 1972, and the World Charter for Nature, adopted by the UN General Assembly (UNGA) in October 1982. Analysis of the Rio Declaration necessarily entails also a consideration of the notion of `sustainable development' which forms the basis and also pervades all other instruments adopted by UNCED, namely the Convention on Climate Change, Convention on Biological Diversity, Agenda 21 and the Statement of Principles on Forests. However the scope of the study is limited to the FCCC, an analysis of which has been already done in earlier pages.

This study raises interesting questions as to how `progressive' the development of international environmental law really is-to use a term from the UN Charter, which is both a prescription for action and a statement of faith in the `progress' of the rule of law in the international community. It is obvious from their drafting history, form

and content that the Stockholm Declaration, World Charter for Nature and Rio Declaration each belong to the realm of soft law.

The Stockholm Declaration

Although Maurice Strong - at that time Secretary-General of the UNCHE - had initially recommended to the UNCHE Preparatory Committee that the Stockholm Conference should adopt a declaration laying down rights and obligations of citizens and governments with regard to the preservation and improvement of the human environment,[15] it became clear during the drafting process that many governments were hostile to his ideas as to the scope and legal status of the proposed declaration `embodying general principles elaborating the rights and duties of States with respect to the environment', they were not prepared to go s far as to accept the elaboration of a legally binding instrument.[16] They pointed out that `by its very nature, the Declaration should not formulate legally binding provisions, in particular as regards relations between States and individuals, or as between the latter.'

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15 UN DOC A/Conf 48/PC/2, Para 16 (1972).

16 John, Lewis, "Drafting History of the Stockholm Declaration", Harvard International Law Journal, vol43, no2, pp426-7.

The Stockholm Conference eventually opted for a non-binding declaration of principles, reflecting commitments of a political and moral, rather than of legal nature; a document embodying the aspirations of the world's people for a better environment, rather than imposing specific obligations on governments in order to fulfill those aspirations. Yet, notwithstanding its non-binding character, the "Stockholm Declaration is generally regarded as the foundation of modern international environmental law. Despite its ambiguities, the Declaration eventually acquired not only moral and political value, but some of the principles laid down in it are now considered as part and parcel of general international law and as binding on governments, independent of their specific consent. In particular, Principle 21 has evolved into hard law.

Moreover, the Stockholm Declaration has served as a basis for the subsequent development of international environmental law in the form of numerous bilateral and multilateral conventions and other legally binding instruments. Numerous principles and concepts which were first articulated in the Stockholm Declaration were subsequently incorporated not only in the preambles of international environmental treaties, but also in certain binding provisions, and even in the constitutions or other provisions of domestic law of various States.

World Charter for Nature

The need for a legal instrument of a universal nature setting forth, in general terms, the environmental rights and obligations of States under international law not only inter se but also in relations to individuals, and to future generations, or even to other species and the planet itself, is long-standing subject of scholarly debate.

From time to time, this debate has some impact outside academic circles and `spills over' in the real world of diplomacy and international law making. But it hardly ever seems to leave more than a few ephemeral ripples on the surface.

As the Stockholm Declaration fell short of the expectations of environmentalists and legal scholars, they vowed to try again. The second attempt to draw up a world environmental charter was spearheaded by the World Conservation Union (IUCN), which convinced Zaire to put the matter on the agenda of the UNGA. At the Session of a Special Character of the UN Environment Programme (UNEP) Governing Council, held in Nairobi in May 1982 to mark the tenth anniversary of the Stockholm Conference, President Mobutu of Zaire announced that `his' initiative was nearing adoption by the UNGA and harangued the governments assembled in Nairobi in the following terms: "The days of the `law of the jungle' are over. All responsible people on earth have

a duty to defend the global heritage, as well as the peace in which they live, against the insatiable vultures who will not hesitate to destroy and pollute for personal profit".[17]

The World Charter of Nature,[18] which was adopted by the UNGA a few months after the UNEP Special Session, Constitutes another laudable effort to formulate general principles of conduct for States and individuals, but its scope is limited to the conservation and use of living natural resources, and it does not purport to have any greater legal effect than the Stockholm Declaration. Though the UNGA urged that "the principles set forth in the Charter shall be reflected in the law and practice of each State, as well as at the international level', the various provisions of the Charter put as much emphasis on the duties of individuals as on those of governments who fail to clearly identify their addresses and specify their respective responsibilities.

The Brundtland Report

A few years later, the World Commission on Environment and Development (WCED) added its voice to that of earlier advocates of universal legal instrument and proposed to

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17 As quoted in UNEP's periodical (1982), Uniteria, no.2, p.13.

18 UNGA Resolution, 37/7; UN Doc A/37/51/(1982).

consolidate and extend relevant legal principles in a new charter to guide State behaviour in the transition to sustainable development. At present, international environmental law is scattered throughout numerous conventions and other instruments, all of which are limited in scope and only deal with ecological issues in a sectoral piecemeal fashion. The WCED was clearly aware of the need to strengthen this shoddy edifice by further elaborating and affirming number of general legal principles in the field of environmental protection, which would constitute the keystone of the system of international environmental law.

The WCED, therefore, recommended that the UNGA `commit itself' to the elaboration of a universal declaration and, ultimately, a global convention on environmental protection and sustainable development. To this end, the WCED had mandated a group of eminent experts on environmental law to draft a set of legal principles which ought to be in place now or before the year 2000 for submission to the UNGA. Unfortunately these principles, although very carefully and skilfully drafted by eminent experts from North and South, were never seriously considered by the UNGA, nor by the Preparatory Committee of UNCED let alone by the Rio Conference itself.

The Rio Declaration

The very wording of UNCED's mandate, as laid down by

the UNGA in Resolution 44/228, already indicated that this third attempt to elaborate `general rights and obligations of States', was doomed to fail, since the UNGA only half-heartedly greed to have UNCED `examine the feasibility' of such an exercise.

What then is the legal significance of the Rio Declaration? Has any progress been made since the Stockholm Declaration and the World Charter for Nature in codifying general rights and obligations of States with respect to the protection of the global environment? Does the Rio Declaration, however `soft' it may be, contain any principles which could evolve into hard law? The Rio Declaration[19] emerged from the last UNCED Preparatory Committee meeting in New York under the heading principles relative to general rights and obligations and was adopted unchanged by the Rio Conference. It is a far cry from the original ambitions of the proponents of an `Earth Charter', who hoped that UNCED would adopt a declaratory instrument whose moral and political authority would be equivalent to that of the Universal Declaration of Human Rights.

The Preamble of the Rio Declaration solemnly `reaffirms' the Stockholm Declaration and asserts that the Rio Declaration is `seeking to build upon it'. However, the

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19 UN Doc A/Conf. 151/5 (7 May, 1992).

operative provisions in fact proceed to unravel the Stockholm Declaration, which it ironically was pretending to reaffirm. The UNCED Secretariat's concern `to avoid a situation where countries will re-argue documents like the Stockholm Declaration or... the World Charter for Nature' and `not to go behind the baseline of those documents' obviously fell on deaf ears.

Soverignty Versus Responsibility

The fundamental principle of State responsibility for transboundary environmental harm - enshrined in Principle 21 of the Stockholm Declaration is regarded by most scholars as part of customary international law. Although worded in a general, even vague way, Principle 21 is clearly formulated as a legal principle which could be interpreted and applied in concrete situations through international mechanisms for dispute settlement. It describes limits to national sovereignty, and thus imposes limits on the pursuit, by States, of economic growth and development. In striking a balance between national sovereignty and environmental responsibility, Principle 21 of the Stockholm Declaration first affirms that: States have ... the soverign right to exploit their own resources pursuant to their own environmental policies, but this principle of soverignty is juxtaposed with and balanced against the principle of responsibility. The latter principle imposes on States :

> the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

What has become of this principle of responsibility in the Rio Declaration? The fact that a clause, virtually identical to Stockholm Principle 21, can be found in Principle 2 of the Rio Declaration, appearing at the beginning of the Declaration and not in the 21st place, gives cause for optimism, but a closer reading of Principle 2 reveals a skilfully masked step backwards. The Rio text is not identical to the one adopted in Stockholm: the Rio version of the principle of responsibility stipulates that:

> States have ... the sovereign right to exploit their own resources pursuant to their own environmental *and developmental* policies (emphasis added).

an addition of two words which is anything but innocent. The stronger emphasis on development in this new version upsets the delicate balance struck in Stockholm between the sovereign use of national resources and the duty of care for the environment.

In the Stockholm Declaration, the sovereign right of States to exploit their natural resources was affirmed in the context of their national environmental policies, giving `a more ecological colour' to the principle of sovereignty over natural resources (which was originally established in

a primarily economic context. This environmental colour is now neutralized by the parallel stress on national development policies. After Rio, a State's responsibility in the exercise of its sovereign right to exploit its natural resources will no longer be measured first and foremost in terms of its environmental policy obligations, which are now explicitly subordinated to the dictates of its economic development policy. This is an indirect result of North's refusal to agree to concretised transfer of financial and technological resources to the south for implementing adaptations to environment friendly technologies in the field of industry, as also North's not addressing the basic reasons behind South's debt burden.

Liability and Compensation

As UNCED has qualified and weakened the principle of State responsibility for transboundary environmental harm, there can be little doubt that it has failed completely to meet the recommendation of Stockholm Principle 22 to:

> develop further the *international* law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction (emphasis added).

Against the background of Stockholm Principle 22, and two decades of `progressive development' of international

environmental law which never squarely addressed the issue of liability, Principle 13 of the Rio Declaration appears at best as an utterly meaningless and gratuitous exhortation, at worst as yet another regressive provision. Principle 13 provides that:

> States shall develop *national* law regarding liability and compensation for the vitims of pollution and other environmental damage (emphasis added),

thus completely removing the issue of compensation for individual victims of environmental harm from the ambit of international law. As regards the liability of States under international law, Principle 13 stipulates that the rules of international law to be further developed are those: regarding liability and compensation *for adverse effects* of environmental damage (emphasis added). thus implicitly qualifying the notion of `damage to the environment' in principle 2. In this perspective the pious exhortation to States to `cooperate in an expeditious and more determined manner' to `develop further' international law in this field seems altogether cynical.

Where is the Future for International Environmental Law?

The new ideology of `sustainable development' might undermine the autonomy of environmental law as a body of rules and standards designed to restrain and prevent the environmentally destructive effects of certain kinds of

economic activity. There may even be some reason to fear that the Rio Conference constitutes the beginning of the *decline* of international environmental law as an autonomous branch of international law, as a body of `international juridical norms whose purpose is to protect the environment'.

The Rio Declaration, elaborated pursuant to UNCED's mandate from the UNGA to `promote the further development to international environmental law', does not even use the term `international environmental law' and instead the final Principle 27, calls for `the further development of international law *in the field of sustainable development*.'

The new `international law of sustainable development' presumably comprises those rules of law until now understood to constitute international environmental law, mixed in with various strands of what was formerly described as international development law. Thus, international environmental law risks being reduced to a mere appendage of international development law and subordinated to economic rationality.

Chapter 39 of Agenda 21 provides that `the further development of international law on sustainable development' will have to pay `special attention to the delicate balance

between environmental and development concerns'[20] What does this `delicate balance' imply? Clearly it means international environmental law must be `rebalanced' to take better account of the priority of economic development over environmental protection. A few paragraphs later, Agenda 21 flatly states that:

> many of the existing international legal instruments and agreements in the field of environmental law have been developed without adequate participation and contribution of developing countries, and thus *many require review* in other to reflect the concerns and interests of developint countries and to ensure a balanced governance of such instruments and agreements.

It is ironic that while the legitimacy, indeed the very existence of international environmental law as an independent branch of international law, a critical discipline standing in a dialectical relationship to other branches of international law, was being called into question, some UNCED participants continued to make pious statements of faith in the further development of international environmental law. Thus, the representative of Canada suggested that the newly established United Nations Commission on Sustainable Development `could negotiate an Earth Charter'. International environmental

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20 Agenda 21, Chapter 39, "International Legal Instruments and Mechanisms", UN Doc A/Conf 151/L3/Add.38, p.4, para 15 (11 June 1992).

law, luckily, still has true believers. And in the final analysis such beliefs have come true despite pitfalls.

However, for contined existence of international environmental law as a distinctive branch of international law and the successful implementation of international legal regimes on environmental risk management on a global scale, we need visionary national political leaders. Extra-ordinary change is possible when enough courageous people grasp the need for it and become willing to act. A few years ago, few envisaged that democratisation could sweep so rapidaly across so much of the world. Now the question remains, who will lead an intervention against our collective denial of environmental threats? Who will be the Gorbachew or F.W. de Klerk of the Environmental Revolution?

We can choose to downplay the dangers of the trends now unfolding and muddle through a while longer. But this denial will lead us to the apocalypse. Building a sustainable world will ask a lot of our leaders and ourselves. But it is within our reach, if we choose to take on the challenge. Otherwise, as Sara Parkin of the U.K. Green Party observed, "our numbness, our silence, our lack of outsage, could mean we end up as the only species to have minutely monitored our own existinction."

CONCLUSION

The chances for speedier international cooperation on climate change are clouded by the fact that the largest single contributor to the problem, the United States, is still resisting any regulatory regime. Persuading the United States to abandon its veto role, moreover, is complicated by the fact that deeply entrenched economic interests and ideological principles are involved. In addition, avoiding a veto coalition of developing countries led by China, India, and Brazil would require unprecedented mobilization of capital transfers by industrialized countries for a global environmental objective in which the United States would have to play a leading role. A comprehensive, equitous and binding legal regime on combating climate change must take cognigence of the interdependence of the North and the South; herein the role of the North led by USA becomes more important in bringing about North-South equity.

Global environmental politics has entered a new stage in which the political stakes for industrialized and developing countries alike have increased. As the costs of environmental degradation to present and future generations become clearer, the costs of global environmental and resource conservation are also rising for all states.

Meanwhile, the linkages among global environmental, economic, and security issues are becoming increasingly apparent. Long and difficult negotiations lie ahead on the issues of climate change, deforestation, and biological diversity. Beyond the next phase of negotiations, old issues that have already been negotiated will probably have to be revisited in response to changing circumstances and demands for strengthening enforcement of regimes already in existence (dumping of radioactive wastes in the ocean, ozone protection, and international wildlife trade).

Three broad alternative strategies have been suggested by governments and analysts for creating and strengthening the needed global environmental regimes over the next decade:

- A continuation of the political process that has brought incremental changes in global diplomacy during the last two decades
- An effort to achieve a new level of North-South partnership on both economic progress and environmental and resource conservation to revitalize environmental cooperation.
- An attempt to create new institutions of global environmental governance that would reduce the power of individual states to block or weaken environmental agreements and ensure that they are adequately enforced.

The first possible approach to environmental regimes is based on continued incremental changes. It would eschew any radical changes in either policy framework or institutional structure at the global level. Incrementalism denies the need to take into account the interrelatedness of all global issues and forces, dealing with issues on a case-by-case basis. It assumes that reasonable progress can be made on global environmental challenges within the parameters of existing global political institutions, diplomatic practice, and socio-economic realities. It must be distinguished from an approach involving no changes, which is no longer possible given increasing threats to the environment and rising popular interest in international action on environmental issues. Over the past two decades, multilateral environmental negotiations have become more sophisticated as diplomatic innovations have minimized some of the pitfalls in traditional multilateral environmental treaties.

The incremental change approach would begin in any given negotiation by searching for consensus on objectives and the intention to share research and to monitor problems but without binding commitments to regulatory action by the signatories. The Climate Change Convention pledges that the signatories abide by only the broad principles that would leave ample room for national discretion in adopting

national plans regarding greenhouse gases and to coordinate research on global change with one another. Similarly, negotiations on a framework convention on world forests called for domestic and international policies that contribute to sustainable management of forests, but those states most resistant of fundamental change might be accommodated by requiring no binding commitments to policy changes.

After this stage, agreements involving binding legal obligations, such as the Montreal Protocol, could be negotiated on climate change and forests, depending on the degree of support for such an agreement within the international community. On climate, there will be strong pressures for such an agreement; on forests, the pressures are likely to be substantially less.

Applied to the global warming issue, the incremental approach would permit some progress in curbing emissions reductions in the highly industrialized countries and help to keep the pressure on states to go farther in the future. It might produce an increase in tree planting in the developing countries, financed in whole or in part by the wealthy countries.

But an incremental approach would do little to bind developing countries to global agreements for action, thus undermining the effectiveness of most environmental regimes.

The problem of the industrialized states' reluctance to divert major resources to developing countries for participation in global environmental agreements would remain unresolved. Climate change, deforestation, and biological diversity conventions might well fall short of what is needed to reverse those threats, in part because of developing country opposition and the absence of any consensus among the major economic powers for a plan to support rapid technological modernization in the developing countries. The United States would continue to be the main blocking state, but not the only one, in issues involving new and additional funding.

An incremental approach to environmental negotiations continues to isolate environmental issues from larger North-South economic development issues. The scope of negotiations would be defined by the narrow boundaries of the environmental problem, as though the broader context of North-South economic relations and the problems of socio-economic development in the South were unrelated. Negotiations on climate change focus narrowly on energy-efficiency measures, while the impact of trade and financial flows on developing country energy policies are kept off the table.

The incremental change option would reflect reluctance to demand any fundamental changes in domestic economic

structure lifestyle. It would settle for modest progress toward effective regimes, on the assumption that further increments of progress will follow later. The final outcome of climate change negotiation reflects past US policy, for example, reductions are called for in the projected level of global emissions but not the mandatory stabilization of - much less reductions in - greenhouse gas emissions by industrialized countries.

This approach depends on future strengthening of initially weak regimes. But reasonable projection of greenhouse-gas emissions, tropical deforestation, diversity loss, or toxic chemical pollution over the next decades, however, would suggest that an incremental change approach is unlikely to build the momentum necessary to reverse these serious trends before environmental degradation gets much worse.

A second approach to global environmental regimes, calls for major shifts in the policies of key industrialized and developing countries to collaborate widely on sustainable development - what has been called a "global bargain" strategy. Developing countries have expressed displeasure with the term "global bargain", perhaps because it suggests a bargaining on unequal terms in which they are bound to lose. In the analysis that follows, therefore, the term "global partnership" is used to refer to new North-

South arrangements linking global environmental issues and economic relations.

Instead of trying to separate issues of debt, trade, financial flows, and technology transfer from global environmental negotiations, a global partnership strategy would make cooperation on such North-South economic issues a central feature of environmental diplomacy. It would start from the assumptions that the environment and natural resources can only be conserved under conditions of sustainable global development and that the present world economic system makes sustainable development impossible. It also recognizes the political reality that developing countries will certainly demand some linkage between global environmental agreements desired by most industrialized states and demands regarding North-South economic relations. The global bargain strategy thus represents a holistic, as opposed to an incremental approach to the formation of environmental regimes.

The global bargain referred to in this strategy would not be a single all-encompassing agreement, negotiated at a single conference. However, the 1992 UNCED conference did provide the opportunity for North and South to begin dialogue on how their separate interests can be linked in the interest of global cooperation for sustainable development, and the dialogue could accelerate the process.

Achieving a North-South partnership, however, would require a series of new arrangements covering a range of issues, all of which would probably take many years, even given a conscious decision by key actors to pursue it.

A global partnership strategy would require that industrialized states display a new willingness in all international forums to address the primary economic concerns of developing states as well as the objective obstacles to environmental and resource management in all countries. It would require that developing states - especially the largest and most important resource-holding states, such as Brazil, Mexico, China, India and Indonesia - make their economic development plans more environmentally responsive to the concerns of those in developed countries.

Negotiations on a North-South global partnership would have to deal with at least some of the following common interests and demands of developing countries:

- Ending the net capital drain from developing countries to industrialized countries by increasing financial flows to the LDCs and reducing LDC debt burdens;
- Increasing market access for developing country manufactured goods;
- Providing access on confessional terms to energy-efficient and other advanced technologies;
- Curbing wasteful high per capita consumption,

especially of energy, in the highly industrialized countries.

One obvious element in global partnership approach would be the linkage of global environmental agreements with new arrangements governing technology transfer and financial flows. That would mean a greater transfer of resources than that represented by the Global Environmental Facility (GEF). The GEF is to have a paltry $1-1.5 billion over three years to deal with all global environmental issues - hardly enough to touch the surface of the problem of making industry less polluting and more efficient in a few of the middle-income and larger low-income countries.

An increased level of financial assistance for technological modernization might be generated through a global agreement to impose new taxes on the combustion of fossil fuels. Such an international carbon tax would, in turn, require a new willingness on the part of the wealthy states to make substantial changes in their own systems of production and consumption of energy.

A global partnership approach to regime creation would require a level of political will to address global environmental problems that does not appear to exist now. There is still strong resistance in the United States, Japan, and Germany to the kinds of resource transfers envisioned in this approach, and removal of protectionist

barriers is still blocked by special interests throughout North America, Western Europe, and Japan. There are significant barriers to such a partnership in many developing countries as well. The willingness to raise the price of petroleum, which is necessary to achieve energy efficiency gains in the developing countries, is limited by the fears of weak states that their political survival depend on continuing to provide subsidized energy to urban dwellers.

Hopes for North-South partnership approach depend on a recognition of mutual dependence and self-interest among countries, both North and South. The highly industrialized countries must accept the fact that they cannot solve global environmental problems without the cooperation of the developing countries. The developing nations must recognize that they cannot pursue a sustainable development strategy without the cooperation of the partnership of the highly industrialized countries of the North. Very important also to achieving successful partnership is the development of more precise indicators for measuring progress toward agreed-on goals. Some of these indicators - for greenhouse-gas emissions, forest loss, health, and education - are already in use, but other measuring biological diversity, marine pollution and equity are still being developed.

The third approach to environmental regimes - global

environmental governance - has been increasingly advocated in recent years by unofficial observers and, more significantly, government officials. The approach is founded on the widespread perception that existing national and international institutions and international law are inadequate to the environmental challenges facing the globe in the coming decades. New Zealand's prime minister Geoffrey Palmer articulated one of the key principles of this approach when he said that the existing system of creating new international environmental regulations through "small incremental steps, each of which must subsequently be ratified before it comes into effect" is mismatched with the earth's "fast-moving crisis of environmental problems...." The second principle of the approach is that the absence of an effective enforcement mechanism remains a cardinal weakness of the present system.

The global environmental governance approach suggests that only far-reaching institutional restructuring at the global level can stem the tide of environmental disruption and natural resource depletion. A number of proposals for institutional innovations were proposed in the late 1980s as the pace of global environmental negotiations accelerated. What all of the proposals have in common is the assumption that new institutional structures must be created to overcome the resistance to strong international action

expressed by nation-states.

The most ambitious proposal for institutional restructuring is the call for a global environmental legislative body with the power to impose environmental regulations on nation-states. The idea surfaced at an international conference at The Hague in March 1989 sponsored by the French, Dutch, and Norwegian prime ministers. The delegates discussed a proposal for a new United Nations authority that would both legislate environmental regulations and impose sanctions on states that failed to carry them out. No explicit plan for such a body was passed, in part because of opposition from the EC, which feared that it functions would be supplanted by such a body. The final declaration, adopted by twenty four heads of state, called for a UN authority that could take effective action "even if... unanimous agreement has not been achieved".

This pathbreaking document, which has now been signed by more than thirty nations, anticipates a truly supranational institution capable of overriding national sovereignty on matters of global environmental concern. The acceptance of such an institution by most of the industrialized states suggests a significant trend toward global governance of the environment. The opposition of the United States, the Soviet Union, Britain, China, and Japan,

who are more reluctant to yield their sovereignty over an issue area as vital as the environment, remains a major obstacle to the realization of the scheme. Another potential problem is the sensitivity of most developing states to intrusions by the industrialized world on their sovereignty. The question that many developing countries may ask themselves is whether they could count on the developing-country majority to kill global legislation that would not be in their interests.

The global governance approach, which seemed hopelessly idealistic only a few years ago, has suddenly been given legitimacy by the support it has received from most industrialized states. In the states that remain opposed, however, one should not underestimate the strength of nationalistic resistance to give up sovereignty over environmental policy. The creation of a global environmental authority may be seen as appropriate to a later stage of evolution in global environmental politics. As political efforts on behalf of such an authority would be in competition with the more immediate objective of pressing for a global bargain, there is a danger of putting the institutional cart before the political horse.

Comments

The stakes in global environmental politics are bound to increase further in the coming decade as environmental issues such as global climate change, continuing rapid urban growth, tropical deforestation, international battles over water, and land-based sources of ocean pollution are

affected by economic development strategies and production techniques in both developed and developing countries. The choice of broad approaches to forging new environmental regimes and strengthening existing ones involves judgements about what is politically feasible as well as diplomatically and environmentally effective.

Something going beyond traditional power politics is clearly at work in global environmental politics. Global environmental issues are not the product of cyclical fluctuations of national moods but are reflections of global challenges that dwarf the issues of political-military power and economic competition in their implications for the future of mankind. Most people able to look beyond the daily needs of physical survival appear to understand that irreversible damage to the earth's natural systems and resources, some of which would profoundly affect the lives not only of future generations but most of the people live today, is at stake. The issue, therefore, is not whether nation-states will move towards progressively more effective international cooperation on global environmental threats but whether they will do so rapidly enough. This would require a judicious ad-mixture of the global governance approach and the global partnership approach.

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Appendix

IMPORTANT ARTICLES OF THE FRAMEWORK CONVENTION ON CLIMATE CHANGE

Article 2. Objective

The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stablization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved 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.

Article 3. Principle

In their actions to achieve the objective of the Convention and to implement its provisions, the Parties shall be guided, inter alia, by the following:

1. The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.

2. The specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those Parties, especially developing country Parties, that would have to bear a disproportionate or abnormal burden under the Convention, should be given full consideration.

3. The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be ussed as a reason for postponing such meanures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of green-house gases and adaptation, and comprise all economic sectors. Efforts to address climate change may be carried out cooperatively by interested Parties.

4. The Parties have a right to, and should, promote sustainable development. Policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programmes, taking into account that economic development is essential for adopting measures to address climate change.

5. The Parties should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all Parties, particularly developing country Parties, thus enabling them better to address the problems of climate change. Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.

Article 4. Commitments

1. All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall :

(a) Develop, periodically update, publish and make available to the Conference of the parties, in accordance with Article 12, national inventories of anthropogenic emmissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climage change;

(b) Formulate, 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;

(c) Promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and process that control, reduce or prevent anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors;

(d) Promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems;

(e) Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods;

(f) Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimizing 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;

(g) Promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archieves related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies;

(h) Promote and cooperate in the full, open and prompt exchange of relevant scientific, technological, technical, socio-economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies;

(i) Promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organizations; and

(j) Communicate to the Conference of the Parties information related to implementation, in accordance with Art.12.

2. The developed country Parties and other Parties included in annex I commit themselves specifically as provided for in the following:

(a) Each of these Parties shall adopt national (1) 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. These policies and measures will demonstrate that developed countries are taking the lead in modifying longer-term trends in anthropogenic emissions consistent with the objective of the Convention, recognizing that the return by the end of the present decade to earlier levels of anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal protocol would contribute to such modification, and taking into account the differences in these Parties' starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of these Parties to the global effort regarding that objective. These 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, particular, that objective of the Convention and, in particular, that of this subparagraph;

(b) In order to promote progress to this end, each of these Parties shall communicate, within six months of the entry into force of the Convention for it and periodically thereafter, and in accordance with Article 12, detailed information on its policies and measures referred to in subparagraph (a) above, as well as on its resulting projected anthropogenic emissions by sources and removals by sinks of

greenhouse gases not controlled by the Montreal Protocol for the period referred to in subparagraph (a), 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. This information will be reviewed by the Conference of the Parties, at its first session and periodically thereafter, in accordance with Article 7;

(c) Calculations of emissions by sources and removals by sinks of greenhouse gases for the purposes of subparagraph (b) above should take into account the best available scientific knowledge, including of the effective capacity of sinks and the respective contributions of such gases to climate change. The Conference of the Parties shall consider and agree on methodologies for these calculations at its first session and review them regularly thereafter.

(d) The Conference of the Parties shall, at its first session, review the adequacy of subparagraphs (a) and (b) above. Such review shall be carried our in the light of the best available scientific information and assessment on climate change and its impacts, as well as relevant technical, social and economic information. Based on this review, the Conference of the parties shall take appropriate action, which may include the adoption of amendments to the commitments in subparagraphs (a) and (b) above. The Conference of the Parties, at its first session, shall also take decisions regarding criteria for joint implementation as indicated in subparagraph (a) above. A second review of subparagraphs (a) and (b) shall take lace not later than 31 December 1998,

and thereafter at regfular intervals determined by the Conference of the Parties, until the objective of the Convention is met;

(e) Each of these Parties shall:

(i) coordinate as appropriate with other such Parties, relevant economic and administrative instruments developed to achieve the objective of the Convention; and

(ii) identify and periodically review its own policies and practices which encourage activities that lead to greater levels of anthropogenic emissions of green-house gases not controlled by the Montreal Protocol than would otherwise occur;

(f) The Conference of the Parties shall review, not later than 31 December 1998, available information with a view to taking decisions regarding such amendments to the lists in annexes I and II as may be appropriate, with the approval of the Party concerned;

(g) Any Party not included in annex I may, in its instrument of ratification, acceptance, approval or accession, or at any time thereafter, notify the Depositary that it intends to be bound by subparagraphs (a) and (b) above. The Depositary shall inform the other signatories and Parties of any such notification.

3. The developed country parties and other developed Parties included in annex II shall provide new and

additional financial resources to meet the agreed full costs incurred by developing country Parties in complying with their obligations under Article 12, paragraph 1. They shall also provide such financial resources, including for the transfer of technology, needed by the developing country Parties to meet the agreed full incremental costs of implementing measures that are covered by paragraph 1 of this Article and that are agreed between a developing country Party and the international entity or entities referred to Article 11, in accordance with that Article. The implementation of these commitments shall take into account the need for adequacy and predictability in the flow of funds and the importance of appropriate burden sharing among the developed country Parties.

4. The developed country Parties and other developed Parties included in annex II shall also assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects.

5. The developed country Parties and other developed Parties included in annex II shall 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. In this process, the developed country Parties shall support the development and enhancement of endogenous capacities and technologies of developing

country Parties. Other Parties and organizations in a position to do so may also assist in facilitating the transfer of such technologies.

6. In the implementation of their commitments under paragraph 2 above, a certain degree of flexibility shall be allowed by the Conference of the Parties to the Parties included in annex I undergoing the process of transition to a market economy, in order to enhance the ability of these Parties to address climate change, including with regard to the historical level of anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol chosen as a reference.

7. The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer of technology an will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.

8. In the implementation of the commitments in this Article, the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures, especially on:

(a) Small island countries;

(b) Countries with low-lying coastal areas;

(c) Countries with arid and semi-arid areas, forested areas and areas liable to forest decay,

(d) Countries with areas prone to natural disasters;

(e) Countries with areas liable to drought and desertification;

(f) Countries with areas of high urban atmospheric pollution;

(g) Countries with areas with fragile ecosystems, including mountainous ecosystems;

(h) Countries whose economies are highly dependent on income generated from the production, processing and export, and/or on consumption of fossil fuels and associated energy-intensive produces; and

(i) Land-locked and transit countries.

Further, the Conference of the Parties may take actions, as appropriate, with respect to this paragraph.

9. The Parties shall take full account of the specific needs and special situations of the least developed countries in their actions with regard to funding and transfer of technology.

10. The Parties shall, in accordance with Article 10, take into consideration in the implementation of the commitments of the Convention 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. This applies notably to Parties with economies that are highly dependent on income generated from the production, processing and export, and/or consumption of fossil fuels and associated energy-intensive products and/or the use of fossil fuels for which such Parties have serious difficulties in switching to alternatives.

Article 11. Financial Merchanism

1. A mechanism for the provison of financial resources on a grant or concessional basis, including for the transfer of technology, is hereby defined. It shall 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 related to this Convention. Its operation shall be entrusted to one or more existing international entities.

2. The financial mechanism shall have an equitable and balanced representation of all Parties within a transparent system of governace.

3. The Conference of the Parties and the entity or entities entrusted with the operation of the financial mechanism shall agree upon arrangements to give effect to the above paragraphs, which shall include the following :

(a) Modalities to ensure that the funded projects to address climate change are in conformity with the policies,

programme priorities and eligibility criteria established by the Conference of the Parties.

(b) Modalities by which a particular funding decision may be reconsidered in light of these policies, programme priorities and eligibility criteria;

(c) Provision by the entity or entities of regular reports to the Conference of the Parties on its funding operations, which is consistent with the requirement for accountability set out in paragraph 1 above; and

(d) Determination in a predictable and identifiable manner of the amount of funding necessary and available for the implementation of this Convention and the conditions under which that amount shall be periodically reviewed.

4. The Conference of the parties shall make arrangements to implement the above mentioned provisions at its first session, reviewing and taking into account the interim arrangements referred to in Article 21, paragraph 3, and shall decide whether these interim arrangements shall be maintained. Within four years thereafter, the Conference of the Parties shall review the financial mechanism and take appropriate measures.

5. The developed country Parties may also provide and developing country Parties avail themselves of, financial resources related to the implementation of the Convention through bilateral, regional and other multilateral channels.

ANNEX I

Australia
Austria
Belarus
Belgium
Bulgaria
Canada
Czechoslovakia
Denmark
European Community
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Italy
Japan
Latvia
Lithuania
Luxembourg
Netherlands
New Zealand
Norway
Poland
Portugal
Romania
Russian Federation
Spain
Sweden
Switzerland
Turkey
Ukraino
United Kingdom of Great
Britain and Northern Ireland
United States of America

ANNEX II

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