GLOBAL WARMING AND SMALL ISLAND STATES: THE SEARCH FOR ENVIRONMENTAL SECURITY

by

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DEDICATION

To my loving mother, ZULAIKHA

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ABBREVIATIONS

AOSIS	Alliance of Small Island States
BBC	British Broadcasting Corporation
C	Celsius
CARICOM	Caribbean Community
CCG	Commonwealth Consultative Group
CFC	Chlorofluorocarbons
CGG	Commission on Global Governance
CIEL	Center for International Environmental law
COP1	First Conference of Parties (FCCC)
cm	centimeter
CNE	Climate Network Europe
DIB	Department of Information and Broadcasting (Maldives)
EU	European Union
FCCC	Framework Convention on Climate Change
FIELD	Foundation for International Environmental Law and Development
FSM	Federated States of Micronesia
G7	Group of Seven (most industrialized countries)
G77	Group of Seventy Seven (developing countries)
GCMs	General Circulation Models
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GHGs	Greenhouse gases
IGOs	Intergovernmental Organizations
IPCC	Intergovernmental Panel on Climate Change
IPE	International Political Economy
GNP	Gross national Product
MNB	Maldives News Bulletin
MPHRE	Ministry of Planning, Human Resource and Environment
NGOs	Non-governmental Organizations
NIEO	New International Economic Order
NPT	Non Proliferation Treaty
OECD	Organization for Economic Cooperation and Development
OPEC	Organization of Petroleum Exporting Countries
PNG	Papua New Guinea
SAARC	South Asia Association for Regional Cooperation
SIDS	Small Island Developing states
SPREP	South Pacific Regional Environmental Program
SWCC	Second World Climate Conference
TNCs	Transnational Corporation
UNCTNCs	UN Center for TNCs
UNEP	United Nations Environment Program
UNDP	United Nations Development Program
UNGA	United Nations General Assembly
UNITAR	United Nations Institute for Training and Research
USCAN	United States Climate Action Network
WCED	World Commission on Environment and Development

WMO	World Meteorological Organization
WRI	World Resources Institute

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Chapter I: INTRODUCTION

No environmental issue has attracted so much attention, or led to larger debates in international relations in the last decade of the twentieth century, as global warming. It has become the most pressing environmental issue of the 1990s as it is predicted to be the most disastrous consequence of environmental degradation. It leads to rising sea levels, a matter of survival or even extinction for the most vulnerable states of the world, the small island developing states (SIDS). There is consensus among scientists today that global warming is a silent reality; only the rate, time and extent of its consequences are disputed due to inadequate research (Environment Canada, 1994, i). It is incumbent upon the international community to curb this grave situation and to provide environmental security as a fundamental right of the people of the threatened countries. As the Director of Environmental Affairs of the Maldives, Mr. Shihab, says, "the low-lying nations of the world are the most vulnerable but the least responsible for this state of affairs" (quoted in Thomas, 1992, 127). In order to save these endangered states from drowning in rising tides and to protect the refugee-prone people of these states, the international community must address the issue prudently.

Of course, there is a lot of scientific uncertainty surrounding the issue, but this does not mean that the international community can postpone action until harder

evidence is found. Recent predictions and facts about global warming have triggered alarm at the fact that human-induced global warming is already occurring and that its expected consequences are imminent (Brown, 1995). Although scientists are unable to conclusively confirm the precise cause and consequences of warming, some scientists argue that the damage already caused by the process requires larger commitments from the world community to mitigate the expected crisis. The scientific debate on the issue largely rests on the question whether global warming is in effect due more to human-induced factors than to natural cyclical factors. The world scientific body commissioned to study the issue, the Intergovernmental Panel on Climate Change (IPCC), strongly believes that global warming is occurring at an unprecedented rate. The IPCC attributes its cause primarily to human-induced factors like excessive emissions of greenhouse gases (GHGs), particularly carbon dioxide (IPCC, 1990, xi) (See Appendix I, Figure 2.2 for contributions to global warming by human activity).

The issue of global warming and climate change has raised a number of questions relating to conventional theories of international relations, particularly the realist paradigm and its analysis of and prescription for threats to national security. It implicitly challenges the existing structure of the international system for its limited capacity to deal with the management of the global commons (for example, the atmosphere). Furthermore, the issue demands a rethinking of

conventional understandings of security threats and economic development. Global warming cannot be resolved by unilateral efforts, but only through multilateral action, since it is a transboundary problem affecting the whole globe. It leaves no winners or losers, in contrast to conventional conflicts, although its impacts vary from country to country and region to region.

A lot of effort has already been devoted to addressing the issue of global warming in international relations. This has resulted in the initiation of a framework legal regime to mitigate the expected crisis, including regulation of the emissions of GHGs. However, the governments of the endangered countries, and environmental non-governmental organizations (NGOs) at large, have been disappointed by the fact that no specific targets and timetables for emissions control are set as yet in the evolving regime known as the United Nations Framework Convention on Climate Change (FCCC). The industrialized countries are held largely responsible for the problem as the greatest contributors of emissions (See Appendices II and III). However, they are reluctant to make any structural changes in their economies and consumer-life styles since they would have to make costly compromises in the interest of environmental protection (Bergesen and Sydnes, 1992, 37). There is also no legally binding mechanism to influence their economic policies in order to regulate pollution and their use of the atmosphere.

Opinion remains divided in the international community as to the best strategies and measures needed to solve the problem. Discussions of the issue are often dominated by economic factors. The divisions largely stem from the scientific uncertainty surrounding the issue and the economic costs involved in remedies. Unlike regional issues or sectoral problems, this is a transboundary problem that concerns not only a few selective producers of emissions but the whole international community. Switching from easily accessible sources of energy, and shifts in consumer life styles in the developed states, are costly alternatives. Thus, solutions to the problem are hard to achieve. Moreover, traditional features of international negotiations also exist in climate negotiations. There is a clear North-South dichotomy between the rich developed countries and the poor developing countries, while a "tug of war" exists between oil-based states of the Organization of Petroleum Exporting Countries (OPEC) and the most vulnerable states, represented in the Alliance of Small Island States (AOSIS).

Meanwhile, the countries most prone to the problem, SIDS such as the Maldives and the Marshall Islands, are increasingly at risk at the centre of the crisis. Most of these countries are situated in the middle of oceans a few meters above sea level, or have large coastal zones where a majority of the population live. These countries also lack the resources and technology to adequately respond to the impacts

of global warming or to adapt themselves to the changes. They are also too politically weak to wield substantial influence in international negotiations. In fact, they are heavily dependent on the industrial countries for development assistance and trade and lack the scientific capability and necessary expertise that are required to win substantial bargains.

Some of these countries, like the Maldives and the Marshall Islands, have recently experienced natural calamities that are strongly suspected to be the adverse impacts of global warming (Interviews with Shihab, Dec. 1994 and Ronneberg Aug. 1995). These episodic events such as unusual ocean storm surges and floods emphasize the fact that SIDS have become the prime victims of the problem. Indeed, the future of these countries is at stake if climatic events increase in frequency and intensity as predicted by scientists (UNEP, 1992, 9). Yet their efforts to explore all possible ways to effectively address the issue have run up against the apathy of the mighty industrial giants of the world.

Obviously, the political implications resulting from the crisis are serious and challenging. Sea-level rise not only puts a constraint on the economic development of the endangered islands but also poses a threat to their environmental security and sovereignty. Their security is threatened not by military aggression or external conflict but by ecological degradation. Unlike in conventional military

threats, in the battle against climate change there are no enemies to fight against (Prins, 1993, xvii). The crisis, in fact, has increased the dependency of island-states on industrialized countries. Their actions can hold island-states hostage if effective measures are not taken in a timely manner to control emissions of greenhouse gases. In other words, the small island states are at the mercy of the emission-producing countries. But this does not mean that they are helpless or idle, waiting for their destiny to be determined by the big players of the game. In fact, they have launched a relentless struggle in search of environmental security to protect them from climate change and sea-level rise, a struggle that is not backed by political power or military strength but fought through negotiations and cooperation.

1.1 The Place of SIDS in International Relations

SIDS began to participate in international relations upon gaining independence through the decolonization process that began with the disintegration of empires at the end of World War II. By April 1995, there were 31 UN members considered to be SIDS (AOSIS Memoir, 1995) and 27 small states in the Commonwealth (Commonwealth Consultative Group [CCG], 1985, ii). While the number of small states has grown, their role in international politics was historically marginal. They were traditionally considered as passive actors who exercised their only available political tool, voting rights in international fora. In other words, these states were considered to be

insignificant players in international relations, many of which balanced their position in international politics by pursuing a policy of non-alignment (the Maldives) or by entering into security alliances with strong regional powers (New Zealand provides security to Cook Island and Western Samoa). SIDS were also were severely constrained in pursuing larger international roles due to lack of economic resources and skilled personnel for diplomacy. They are often sidelined by influential states or compelled to follow the footsteps of "big brothers" with whom they share cultural, political and economic links. Anthony Payne notes that most SIDS upon independence adopted somewhat liberal-democratic politcal systems (Payne, 1993, 104).

As one attempts to analyze the place of SIDS in international relations the most important question that arises is: how can one define small island developing states. The defenition of SIDS, or small states for that matter, has been a contentious issue over the past decades. The criteria applied to define small states vary from study to study and analysts have followed working definitions that suited their respective analyses. Factors such as physical size, population, gross domestic product (GDP) and military strength have been taken into account in determining whether a country is "small" or not. Out of these determinants the most popular factor has been demographic; the upper limit recognized was 1 million or less (UNITAR, 1971, 32 and CCG, 1985, 9).

However, in the interest of limiting the scope of discussion in this thesis, I wish to define SIDS as those sovereign states belonging to the developing world which are largely surrounded by waters, inhabited by a population of less than one million, and face greater vulnerability as far as security threats or risks are concerned. This thesis looks at the members of AOSIS with the exception of those countries with a population exceeding one million (See the list of AOSIS members in Appendix V).

The four major elements that form the basis for the formulation of foreign policies of SIDS and the framework for interaction in international relations are: security, non-alignment or neutrality, non-interference in internal affairs of other states and development assistance. According to Sutton, much of the diplomacy of these states has been concerned with development assistance (Sutton, 1987, 20). In the international arena, SIDS or small states generally have mainly concentrated on seeking support from the international community for international law and enhancing the role of international organizations (IGOs) as the best means to ensure their long-term security (Ibid).

Due to their narrow economic base and lack of trained foreign service personnel, the SIDS have their diplomatic representation confined to those states where they have major interests in terms of cultural, trade and security links. These include important neighbors and major powers, or

significant capitals in international relations (New York and London). Sutton notes that the majority of small states pursue a pro-western and conservative stance in foreign relations. Only one Commonwealth country (Guyana) had resident diplomatic representation from the Soviet Union during the Cold War era (Sutton, 1987, 20). Nevertheless, the Soviet Union also established a few commercial contacts with a few South Pacific countries by striking fishing deals with Kiribati (1985) and Vanuatu (1987) and offering aid to Western Samoa and Tonga in exchange for shore facilities.

The SIDS played a passive role in international relations prior to the emergence of concern for the global environment. Their involvement was based on individual state interests in various issues. They practiced an ad hoc approach to issues, as in the case of Malta's initiation of the issue of the common heritage of mankind and the law of the sea in the 1960s. Although at the global level they were relatively silent, at regional levels they play a substantial role. The SIDS often addressed their concerns collectively through regional institutions, an approach found to be more applicable given their modest role in international relations. The issue of protection and security of small states was not taken seriously in international relations by the SIDS, though it was addressed at regional levels. It was the invasion of the Caribbean island of Grenada by the US in 1983 which awakened the small states to the issue of their vulnerability to

external threats. Following this incident, the Commonwealth conducted a study to analyze the security needs of small states in 1985. However, this study was preoccupied with security threats as perceived by the traditional theory of security within the realist perspective. The study identified the incapacity of small states to deter external aggression and failed to look at the new security threats arising from environmental degradation, deterioration of human welfare, societal discontent or domestic political instability, famine and economic decline. Thus, the Commonwealth study defined national security for small states as "the absence of threat to the exercise of the capacity to govern, protect, preserve and advance the state and its people, consistent with the principle of respect for sovereignty, territorial integrity of other states (CCG, 1985, 7).

The growth of environmental concerns and the fear of global warming that heated up in the late 1980s marked a major shift in the traditional thinking about threats to the national security of SIDS. The issue of global warming and its impact on climate change and sea-level rise alerted the SIDS to their plight. Thus, the issue exposed a new dimension of security threats that were insufficiently unrecognized in the traditional theory of security in international relations. This led to the emergence of international diplomatic activism among the SIDS. SIDS recognized that climate change and sea-level rise are equally serious threats to their security

besides external military threats. They also realized that these newly recognized threats do not call for an increase of defensive capability or entry into security pacts with big powers. Rather, they call for international cooperation in mitigating the crisis and the upholding of international law as a means to deal with the crisis.

With the realization of their vulnerability to sea-level rise and storm surges, SIDS began to mobilize their efforts to seek environmental security. This perceived common threat brought closer together all the concerned island states. Consequently, a representative group of SIDS held a Ministerial Conference in the Maldives in 1989 where deliberations took place in drawing up a strategy to address the issue. The Conference, which was the first of its kind, set in motion a momentum that finally culminated in the Alliance in 1990 (AOSIS).

The birth of AOSIS marked a new era of international diplomacy by SIDS in international negotiations. This movement had considerable success in raising their visibility and highlighting the plight of such developing states. The United Nations Conference on Environment and Development (UNCED, 1992) endorsed a proposal to hold a UN Global Conference on the Sustainable Development of SIDS, and the FCCC made recognition of the special conditions faced by SIDS due to environmental degradation. Subsequently, the Global Conference held in Barbados in April/May 1994 was the first UN conference

ever held to discuss the special needs of SIDS for sustainable development. The Conference adopted a Program of Action for SIDS. The first item on the Program highlighted under operative articles was the recognition of the vulnerability of SIDS to climate change and sea-level rise. It considered the present level of emissions control as inadequate and called for further action in achieving the objective of FCCC (Program of Action for SIDS, paragraphs 18 and 19, 1994).

This voice of the SIDS came to be heard in international relations in the post-cold war era. However, what impact the Alliance has in translating commitments into action in an effective manner at the global level is still questionable. The international response to their demands is still inadequate and they do not get adequate coverage in the world media. In fact, the AOSIS Summit held during UNCED (June 1992) recognized that "their needs, concerns and interests are assigned relatively low priorities within the UN system" (Declaration of AOSIS Summit, 1992, 2; see Appendix VI for the Declaration). It is also worth noting that the first ever proposal for the control of emissions of carbon dioxide made by the AOSIS was not adopted at the First Conference of the Parties to the Convention (COP1) held in Berlin in March/April 1995.

Although the SIDS are weak in terms of economic and political power, their increasing diplomatic activism has made a considerable difference. Their collective voice has enabled

them to win some bargaining power in international negotiations. They exercise jurisdiction over one-sixth of the earth's surface and form a distinctive group within the UN yielding one-fifth of voting power (UNNGLS, 1994, 1). Thus, it could be argued that SIDS are no longer insignificant players in international relations, but are important partners in the process of international decision-making.

1.2 Background to Climate Regime

Global warming has become a household term in everyday language with the increasing awareness of the degrading environment and its expected consequences on human life. It was the scientific community and the environmental NGOs in the developed countries which raised this awareness. Subsequently, IGOs began to address the issue in a gradual and cautious manner. In 1988, the WMO and UNEP jointly established a scientific body known as the IPCC which was charged with studying the problem and tasked to propose possible responses/strategies to mitigate the crisis. Its First Scientific Assessment Report contained some alarming predictions pertaining to increases in the earth's temperature, climate change and sea-level rise. This was released at the Second World Climate Conference (SWCC) held in Geneva in November 1990. This Report endorsed the emerging scientific consensus on the question of increases in the atmospheric concentrations of GHGs and their link to human activities.

The IPCC Report and the call by the Second World Climate Conference were instrumental in generating the necessary momentum for some kind of international action. Therefore, the urgency of the issue resulted in the adoption of a resolution (45/212, December 1990) by the UN General Assembly (UNGA) which established an Intergovernmental Negotiating Committee (INC) for a FCCC. As the name implies, the Committee's mandate was to prepare an effective framework convention to address the issue of global climate change. The establishment of the INC, which comprised governmental policy-makers, marked the politicization of the issue.

The INC held five negotiating sessions between February 1991 and May 1992 in preparing the FCCC in time for opening it for signature at the UNCED held in June 1992 in Rio de Janeiro. The approach pursued in drafting the Convention was based on a consensus approach, although heated debates and conflicting divisions characterized the negotiation process. Also, in line with the modern trend in international environmental negotiations, a precautionary framework approach was favored in the absence of complete scientific certainty on the issues. Hence, it was seen to be a weak convention lacking effective measures and binding commitments which appeared to some extent undermine its very objectives.

As the Article 2 of the FCCC describes, the objective of the Convention is "stabilization of greenhouse gases in the atmosphere at a level that would prevent dangerous

anthropogenic interference with the climate system" (FCCC, 1992, Article 2). However, the FCCC was negotiated within a short period of 15 months and achieved meagre results. The Convention failed to inscribe binding targets and timetables for emissions control and mandatory commitments for financial support for developing countries to meet the objectives of the Convention. This factor eroded its effectiveness, even though there is provision for further strengthening of the Convention as negotiations progress along with greater scientific certainty. The very few commitments it imposed on the developed countries (parties listed as Annex I countries in the Convention) were voluntary measures to control emissions of GHGs and the submission of review reports on measures of implementation.

A number of constraining factors were responsible for the watered down Convention on Climate Change. These reflected divergences in state interests relating to the economics and politics of the issue. Also, the rapid nature of the negotiations as well as deadlocks on a number of issues proved to be major obstacles to a rigorous convention (Pulvenus, 1994, 85). According to Pulvenus, the Chairman of the INC "confiscated the negotiation process" by restricting the final drafting group to a selected few and holding discussions in closed-door session (Ibid). The Group of 77 was quick to react with disappointment to this closed-door-draft but it was left with no choice. They had two options: either accept it or

leave it. The US and the European Union (EU) rejected any further modification to the final draft.

The governing body of the Convention is the Conference of the Parties (COP), which came into existence one year after the entry into force of the Convention on March 21, 1994. In the interim period five more negotiation sessions were held by the INC. These focused on matters relating to the financial mechanism, improving scientific research on climate change and procedural and legal matters (ENB, March 28, 1995, 1).

The COP, which is supposed to hold at least one meeting a year, met for the first time in March/April 1995 in Berlin. The AOSIS submitted a draft protocol to this Conference which called upon the developed country parties to reduce their current GHG emissions to 1990 levels, which is a reduction by 20 per cent by the year 2005. The AOSIS Protocol did not receive wide support from developed countries and met with total opposition from the OPEC countries. Hence, it failed to get adopted. Its failure marked the inability of the international community to take effective measures to combat global warming at least for another two years despite considerable evidence of climatic events around the globe (for example, the heat waves in US in July 1995 and Hurricane Luis in the Caribbean, September 1995). These have helped confirm strong public and scientific suspicion that a human-induced greenhouse effect is changing the global climate (CNN, September 12, 1995).

The COP1 resulted in what was called the Berlin Mandate, in which state parties decided to continue negotiations for a protocol with the objective of having it finalized for adoption at the COP-III to be held in Tokyo in 1997. Once again the climate issue did not receive adequate treatment. Nobody questioned the science of global warming at the Berlin Conference, but the political will was absent from the negotiations (see comments of Hare of Greenpeace International in Jardine, 1995, 10). Therefore, no effective measures have been implemented as yet in terms of setting targets and timetables for emission control, which is the first step in combating global warming. The critical question is now: who will be responsible for the plight of the so-called sinking island states?

1.3 Scope and Objectives of the Study

This thesis aims to explore the relationship between the issue of global warming and SIDS. In doing so it addresses the potential impacts of global warming on SIDS and analyses how these states have become prime victims of climate change. The SIDS have become the frontline states in the issue. Their plight poses challenges to traditional theories of international security. These need to be redefined in line with the newly emerging threats to national security resulting from climate change. The thesis argues that the traditional concept of security is incapable of providing an adequate understanding of security threats such as those facing SIDS or

of providing solutions to such threats.

SIDS have expressed disappointment at the poor responses made by the international community to address the issue. This thesis looks at the factors that inhibit effective international responses and analyses the stumbling blocks to progress. It further explores the effectiveness of the current climate regime and argues that it is inadequate to combat global warming or to provide protection for SIDS from environmental threats.

The most important analysis in this thesis is the examination of the role of SIDS in attempting to establish an effective regime. In this regard, the thesis analyses the environmental diplomacy pursued by SIDS and concludes that their efforts have been inadequate to meet their environmental security and that new strategies need to be devised. The thesis also presents a case study of the Maldives to illustrate the core argument of the research: that the low-lying island states are most vulnerable to the impacts of global warming, and that they are incapable of ensuring environmental protection either individually or collectively without urgent response and assistance from international community. Finally in the conclusions, the thesis attempts to draw out some strategies that could be useful for SIDS to follow in their search for environmental security against climate change.

The theoretical framework within which the issue is

analyzed is the theory of security rooted in the realist paradigm, while the politics of the issue is analyzed within the context of international political economy (IPE). In discussing the evolving regime to address the issue, the thesis also looks at epistemic communities and regime theory, which best explain the formation of the climate regime.

1.4 Thesis Outline

Following this introduction, chapter II provides a brief background to the issue by looking at the scientific theory of global warming and the potential impacts predicted to result from it. It also describes how SIDS have become the prime victims of the issue and analyses the vulnerability of these states to the expected crisis. The chapter further outlines the scientific debate on the issue and briefly evaluates the approaches and that have been developed to mitigate the crisis of global warming. It also explores the kind of strategies that have been adopted or suggested to control emissions of GHGs and outlines the most favorable strategy available to mitigate the expected crisis.

Chapter III begins by analyzing the issue of global warming within the conventional theories of security and argues that these are incapable of explaining the emerging realities of environmental problems. In this context, it looks at the new dimension of security added by environmental degradation and identifies the incapacity of conventional security theories to describe environmental threats posed to SIDS and solutions to

the problem. It also examines the political factors that inhibit progress towards effective action. Furthermore, it analyses the actors and forces that shape environmental politics and discusses the issues involved in the context of IPE. The central argument presented in this chapter is that multiple actors, including non-state actors and multinational corperations, are required to effectively address the issue of global warming. It also illustrates how economics and politics are linked to each other and the intertwined nature of domestic and international politics as far as the issue of global warming is concerned. The chapter calls for a redefinition of security threats and new solutions to the problem.

Chapter IV discusses the political implications resulting from the issue and evaluates the international responses it has generated so far. Especially it looks at the process of climate regime-formation and evaluates its strengths and weaknesses. The central point raised in this chapter is that the current regime is too weak to curb the crisis of climate change, and that mandatory commitments are required by the parties to the convention together with greater North-South cooperation. It also analyses the current state of the climate negotiations and argues that affirmative action to effectively address the issue is not likely to be achieved in the near future unless scientific certainty increases and political will could be mobilized by concerned countries.

Chapter V discusses the role of SIDS in addressing the issue of global warming and their efforts in search of environmental security from climate change and sea-level rise. It also looks at the evolution of AOSIS and its efforts in establishing an effective climate regime. Furthermore, the chapter evaluates the constraints and prospects of the Alliance in achieving its goal of environmental security for SIDS. The conclusion drawn in this chapter is that AOSIS has become a major bargaining force as an alliance, but that it needs more unity and institutional capacity-building in order to become a more effective body. Thus, it is argued that like the climate regime, their efforts are not effective enough to produce a greater impact on international community and so more effective strategies are required to champion their cause of environmental protection.

The last section of the chapter presents a case study of the Maldives in order to assess the vulnerability of SIDS to threats of climate change and sea level rise. It analyses the capacity of the country to respond to such threats and the effectiveness of the efforts already made to combat such threats. The study illustrates that the Maldives has already become a classical victim of global warming and has transformed itself into an experimental laboratory. It also shows that the survival of the country entirely depends on industrial countries who are urgently required to control emissions and take other measures to combat global warming.

Furthermore, the study also suggests that the country requires contingency plans if it is to avoid any sudden climatic onslaught. This situation can only be handled through assistance from the international community. The conclusion drawn from this study is that SIDS are incapable of ensuring environmental protection individually or collectively and their protection can only be sought through assistance and effective responses from international community.

Chapter VI draws some conclusions for dealing with the emerging political problems and discusses the implications arising from the issue of global warming for SIDS. It entails a comprehensive plan that needs to be implemented immediately. The chapter points out that greenhouse effect is aggravating climate change and that the most important cause is human interference in the atmosphere. It also points out that consequences of global warming are imminent and action cannot be delayed any further. It also agues that both the climate regime and the efforts of SIDS are not adequate to address the issue with positive results and urgent responses are needed more than ever now.

1.5 Methods and Sources of Research

A two-track approach has been applied in conducting research for this thesis. It includes consultation of secondary resources such as library books and periodicals plus primary sources such as interviews with officials/observers as well as study of policy documents and internal

memos/correspondences.

For the chapter that discusses the role of SIDS and the case study of Maldives, I undertook a research trip to New York (July 30 - August 6, 1995) to conduct interviews with government officials from AOSIS member-states and representatives from NGOs (See Appendix VII). I also read a number of policy documents and internal memos/correspondences that provided some useful insights for the thesis. In this respect, I managed to hold interviews with officials from 12 member states of AOSIS and four NGOs.

I have also made use of my personal experience and observations in writing these two chapters as a government official of the Maldives who had the opportunity to briefly work at the United Nations (UN) and attend several meetings of AOSIS in 1991. This thesis also draws information from a number of electronic media news reports about the issue of global warming and the Berlin Conference of March 1995. It also greatly benefited in its research from a number of electronic bulletins.

One obstacle in collecting information for this thesis is the unavailability of published works on AOSIS and on the Maldives. For example, I failed to obtain any published work on the role of AOSIS in the climate negotiations or background information in general about AOSIS. Similarly, not much has been published on the Maldives concerning the issue of global warming except a few newspaper articles and unpublished

papers.

Chapter II: THEORY AND IMPACTS OF GLOBAL WARMING AND SEA-LEVEL RISE

2.1 Origin of the Problem

The origin of the global warming problem lies in the "tragedy of the commons" - the overuse of common environmental assets due to the absence of a sufficiently strong system of co-operative management (CGG, 1995 , 214-5). In other words, the crisis has resulted from mismanagement of the global commons, particularly the use of the atmosphere and the incapacity of the dominant social paradigm of development or neo-classical economic theories to take into account the value of natural capital (air, water etc.) in economic development. The past 200 years of rapid economic development has been based on an "exclusionist paradigm" that assumed the availability of unlimited resources and societies with open frontiers (Harold and Margaret Sprout cited in Porter and Brown, 1991, 27).

Global commons are common environmental resources for which neither property rights nor collective responsibility is recognized. They include the atmosphere, oceans, climate, air, water, sunshine, rain, and seabed resources (CGG, 1995, 214-5). Neo-classical economics is based primarily on the assumption that the free market will always maximize social welfare and that there is not only an infinite supply of natural resources but also of "sinks" for disposing of the wastes from exploiting those resources (Ibid). It was assumed

that technology would take care of all the problems that market societies may confront, just as an "invisible hand" would take care of the economy. Therefore, orthodox theories of economics were concerned only with the use and allocation of scarce resources; nature was not considered a constraining factor. In other words, the environment was considered to be irrelevant to economics (Ibid). It could be argued that this outlook is the underlying reason for atmospheric pollution and its consequence of global warming.

This environment-unfriendly social paradigm began to be challenged in the 1980s as more evidence surfaced indicating that unlimited exploitation of resources brings more harm than good to the environment. A social paradigm is said to be "a set of beliefs, ideas, and values from which public policies and whole systems of behaviour follow logically" (Porter and Brown, 1991, 26).

The rapid consumption of fossil fuels in the process of industrialization and mobile life-styles has led to increased GHGs in the atmosphere, which has resulted in global warming. Therefore, a new paradigm to replace such ecologically unsound policies was advocated by environmentalists and the concept of sustainable development was suggested as the alternative paradigm (Porter and Brown, 1991, 30). Sustainable development recognizes that economic growth cannot take place at the expense of the earth's natural capital. According to Porter and Brown the concept "means radically reducing the world's

energy use i.e., reducing fossil fuel use per unit of gross national product (GNP) and shifting to greater reliance on renewable energy sources (Ibid).

2.2 Theory of Global Warming

> There is concern that human activities may be inadvertently changing the climate of the globe through the enhanced greenhouse effect, by past and continuing emissions of carbon dioxide and other gases which will cause the temperature of the earth's surface to increase - popularly termed the 'global warming'. If this occurs, consequent changes may have a significant impact on society (IPCC, 1990, xiii).

The process that causes global warming is known as the greenhouse effect. This effect is a natural one, and occurs when radiation from the sun is reflected off the earth and trapped in the troposphere by a combination of chemical reactions caused by gases like carbon dioxide, chlorofluorcarbons, methane and nitrous oxide. The problem is that human activities intensify this natural (and beneficial) process, making it damaging. It is strongly believed that human-induced global warming will result in climate change and a rise in global mean sea level. The melting of mountain glaciers and expansion of the warming seas are the main factors contributing to sea-level rise (IPCC, 1990, 4). The best predictions of sea-level change estimate that the sea level could rise between about 17cm and 26cm by the year 2030. (Maunder, 191, 1992). Such an increase would have drastic social, economic and political implications.

The process of global warming is a natural phenomenon that provides a favorable climate for life to exist on earth.

However, scientists have discovered that this natural process has been disrupted by anthropogenic GHGs that have been emitted in an increasing trend during the last 200 years (Foley, 1991, 2). Carbon dioxide has been identified as the most important of these GHGs. It accounts for almost half percent of the total emissions (IPCC, 1990, xi) (see Appendix I, Figure 2.1 and Appendix III).

Scientific concerns over global warming are expressed in forecasts, scenarios and models. A forecast is an attempt to predict the future. It uses the available information to make guesses, as accurately as possible, about what will actually happen in the future (Foley, 1991, 19). For example, in the 1970s, global energy consumption was forecast to treble by the 1990s; in fact it increased by 60 percent (Ibid). Unlike forecasts, a scenario does not describe the future rather it attempts to analyze implications if certain things happen (Ibid). Thus, a high GHG scenario can be used to evaluate the consequences of a major increase in GHGs without implying that it will necessarily occur. For example, using four scenarios of trace-gas emissions levels, ranging from business-as-usual to scenarios of various cuts in GHGs emissions, the IPCC displayed the expected climate in the twenty-first century. Temperature increases are noted as ranging between 5 degree C to 1 degree C. There was an uncertainty range of 0.2 degree C to o.5 degree C per decade. A computer model is a highly simplified version of reality expressed in mathematical terms

which can be handled by a computer (Foley, 1991, 20). The most popular are GCMs (general circulation models). These models divide the earth and the atmosphere into a three dimensional grid and are able to calculate the way in which temperature, wind, humidity and other variables are likely to change under different conditions (Ibid).

2.3 Observations and Predictions made by the IPCC

The IPCC has confidently observed an increase in global temperature due to the human-induced greenhouse effect, and a further increase in the greenhouse effect is predicted to occur as water vapor increases in the atmosphere. The full extent of this increase may not be felt immediately because of "thermal inertia" -the oceans' slowness to heat up.

Carbon dioxide has been responsible for over half the enhanced greenhouse effect in the past. Other long-lived gases are nitrous oxide and the CFCs. It is predicted that 60 percent of reduction in emissions of these gases are required to stabilize their concentrations at today's level.

The IPCC predicts a rate of increase of global mean temperature during the next century of about 0.3 degree C per decade. It is also estimated that an increase of 1 degree C would occur in 2025 while 3 degrees will occur before the end of the century (IPCC, 1990, xi). An average rate of global mean sea-level rise of about 6 centimeters (cm) per decade over the century is also expected. There is an uncertainty range of 3-10cm per decade. The predictions indicate a 20cm

rise in global mean sea level by 2030 and 65cm by the end of the century.

The IPCC also made reference to a number of uncertainties involved in arriving at these predictions, particularly with regards to the timing, magnitude and regional patterns of climate change. These uncertainties are based on their incomplete understanding of the sources and sinks of GHGs, the role of clouds and oceans in the climate-change process and the role of polar ice sheets which affect predictions of sea-level rise.

Thus "there is extensive scientific uncertainty about the nature of global warming" (Pearce, 1991, 13). The international community is neither sure of what precise impacts there will be nor of the scale of the problem. What is predicted by IPCC is that if trends in current emissions of GHGs continue, the globe may warm by an average of 2 degree C in the next 35 years and by 3 degree C by the year 2100. (Environment Canada, 1993,8). The imminent consequences of this trend would be irreversible damage. There is therefore, a scientific consensus that global warming is occurring and that carbon dioxide contributes about 66 percent to the process (Ogawa, 1993, 484).

2.4 Cures and Facts of Global Warming

There is consensus in academia and international fora that actions need to be taken as a precautionary measure to prevent global warming from worsening. To this effect the

"precautionary principle" is gaining prominence in international environmental law. According to Article 3.3 of FCCC, the "precautionary principle" can be referred to as taking "precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects". It further adds "where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures" (FCCC, Article 3.3, 1992).

Based on this principle, the main cure to the problem is identified as a reduction of GHGs by means of reducing the use of fossil fuels and increasing carbon sinks through reforestation. Actions suggested in this regard involve combinations of energy efficiency and conservation measures for vehicles and buildings, the development of alternative fuel sources, and stopping forest fires and deforestation.

A number of incidents have recently been identified by researchers as results of global warming. The years 1990 and 1991 were the warmest years on record (IPCC, 1992, 6), while the 1980s have been the warmest decade of the century (Foley, 1991, 32). Even 1994 was identified as the third or fourth highest on record (Greenpeace, 1995). Moreover, recent floods in Europe (January 1995) have been reported as the highest floods of the century in Europe (Walsh, Feb. 13, 1995, 18). Greenpeace International reported, with reference to Pier Vellinga from IPCC, that although European floods were not

proof of climate change, they were consistent with the climate predictions (Greenpeace, 1995). Other research findings also indicate that the earth's temperature has already risen by 0.3 to 0.6 degree C over the last century (IPCC, 1992, 5). Similarly, tidal-gauge data indicates that global sea level has been rising at the rate of 1.4 cm per decade (Maundar, 1992, 191). This anecdotal evidence bears witness to climate predictions made by scientists.

Similarly, recent research by British environmentalists has revealed an explosion of certain kinds of species in Antarctica which must have been under the ice before but not visible (BBC News, Oct.,1994). This news report tends to support the fact that the earth's temperature has been rising. A report that appeared in The Guardian (UK) on March 25, 1995, also reaffirmed the global warming theory. The article noted, "as countries squabble over tackling GHG emissions, doubts about whether the earth is really getting warmer are being resolved with the help of birdwatchers and super computers at Hadley Centre for Climate Change in Berkshire". It further said that droughts in Southern Africa in the last 10 years fit almost exactly with predictions and some of the data match what is happening in Europe and North America now (Brown, 1995).

2.5 Scientific Debate on Global Warming and Sea-Level Rise

One of the stumbling blocks to effective regime-formation in addressing the crisis of global warming is the debate on

the "greenhouse effect" (Mlot, 1992, 274). It stems from the scientific uncertainties that haunt research on global warming. Scientific evidence has been inadequate in proving conclusively that the modest warming of the atmosphere is due either to human-induced activities or natural phenomena. For example, clouds formed by water vapor are problematic in predicting likely changes about global warming since they act both as positive feedbacks (that is enhancing warming) and negative feedbacks (that is dampening down warming).

Similarly the role of oceans as absorbers of carbon dioxide and heat is still poorly understood. Skepticism remains about the extent of the carbon dioxide and heat that they would absorb, and over what timescale they will release stored-up heat back into the atmosphere (Mlot, 1992, 273).

New discoveries about the dual role of CFCs have also added new flavor to the greenhouse effect debate. Scientists have found that reduced stratospheric ozone exerts a cooling effect on the lower atmosphere of a magnitude that may offset the warming attributed to CFCs (WRI, 1992, 200). It is predicted that the cooling effect of ozone loss could act as a buffer to restrict the heating process. It could be a discovery, if confirmed, that would discredit some assumptions in the theory of global warming.

Another factor that stimulates scientific argument as to the shortcomings of the scientific evidence is the role of volcanic eruptions and their discharge of sulfur dioxide into

the stratosphere which could have a short-run effect on the atmosphere. Researchers have predicted that the process could cause a lowering of temperature temporarily to halt global warming (WRI, 1992, 200). However, a recent news report from the interim secretariat of the FCCC has confirmed that the capacity of the volcanic eruption process is marginal. For example, the climate impact of Mt. Pinatuba, which erupted in June 1991, has created a transient rise of stratospheric aerosols which has resulted in a surface cooling effect over about two years (Sundararaman, 1994, 3).

Some arguments have been raised as to the imperfection of much of the findings of the present research on global climate change given the constraints that exist in research methods and approaches. One leading author of the IPCC, notes that "researchers need long term data sets that are complete and homogenous" (Nicholls, 1994). According to him, doubts remain about the adequacy of the corrections to the historical data and measuring techniques.

It is true that scientific forecasts about global warming are based on computer models which lack supplementary details about the physical, chemical and biological process that affect climate. However, a majority of the world's top scientists and climatologists agree that the amount of greenhouse gases are on the rise, and that they contribute to global warming (Goldberg, 1993, 150). Carbon dioxide, for instance, has increased by 25 percent since pre-industrial

times. And global temperatures appear to have increased on average 1 degree Fahrenheit in the last 130 years. The IPCC disclosed in their first assessment report in 1990 that it is likely to increase global mean temperature by about 0.3 c per decade during the next century. A rise in global mean sea level of about 20 centimeters by 2030 also was predicted (IPCC, 1990, 2-4). Therefore, the threat of global warming is imminent and the question now is what can be done to mitigate the crisis.

Thus the debate over sea-level rise centers on the question of the validity of scientific research and the uncertainties inherent in predictions. The role of various elements involved in the process remain to be determined. It is not fully confirmed whether human-induced warming or natural factors are causing the problem or not. However, the general consensus is that human-induced global warming will be accompanied by a rise in global mean sea level (Maundar, 1992, 191). According to Maundar, tide-gauge data indicates a global sea level rising trend at the rate of 1.4 centimeters per decade with a tendency to accelerate in the past 50 years (Maudar, 1992, 192).

Warrick argues that natural variations in sea level are often overlooked in the recent excitement over the issue of global change supposedly caused by the greenhouse effect (Warrick, 1993, 3). He further argues that although change in climate and sea level is the rule, not the exception,

estimates of greenhouse-gas-induced global mean sea levels are fraught with uncertainty (Warrick, 1993, 11). Major sources of uncertainties, according to him, include future emission rates and consequent changes in atmospheric concentrations as well as radiative forcing; feedback in the climate system as they affect the climate sensitivity; the penetration and transportation of heat from the surface to the deeper layers of the ocean; regional and seasonal changes in climate; and model uncertainties in the response of ice sheets and glaciers to climate changes. Therefore, he concludes that there is a need to develop integrated modelling approaches for assessing the impacts of climate and sea level change (Warrick, 1993, 11).

Nevertheless, a majority of scientists agree that sea level has been rising. This fact was confirmed in October 1994 by the IPCC in its review report which said that there had been no change to their previous predictions about climate change and sea-level rise (Sundraraman, 1994, 2).

2.6 Impacts of Global Warming and Sea-Level Rise

The impacts of global warming on the surface of the earth may be disastrous. There would be no winners or losers in this issue, as its impacts will not be confined to a particular territory or region. Some studies have predicted a damage of 20 percent to world GDP by the middle of the next century if the present warming trend is continued undisturbed (OECD, 1992, 6). Moreover, the United States alone could suffer $60

billion annually as a result of a modest warming of 2.5 degree C, which is equivalent to 1 percent of that country's GDP (Ibid).

According to a study of UNEP, predicted changes will shift the spatial distribution of primary and secondary productivity in both the land and ocean environments. It further declared that the resulting consequences of climate change, such as increased frequency, intensity and duration of extreme meteorological events including hurricanes, storm surges, droughts and rain storms, would prevent the endangered countries from achieving sustainable development. The most fatal consequences would be the inundation of lowland areas, erosion of fragile beaches, and exacerbation of flooding and rise of salinity of soils and groundwater (UNEP, 1992, 16).

Furthermore, the physical consequences that would be felt would include loss of forests and wetlands, and shifts in agricultural zones. The greatest victims of the process are of course the low-lying coastal lands and islands. A three-meter rise in sea level will inundate the whole territories of these states by 2100 (IPCC, 1990, xi). Moreover, saline water intrusion, storm surges and flooding would make them uninhabitable long before that.

The social costs of SIDS are also substantial. Urban drift from affected islands to less vulnerable islands within an island state can cause a severe strain to their limited resources and result in the aggregation of human capital

resources in a few locations. Again aggregated settlements will cause coastal modification leading to a major vulnerability of these islands.

Coral growth may be adversely affected by increased temperature, particularly in more enclosed lagoons and atolls. Recent evidence of coral bleaching and death following increased lagoon temperature (2 degrees C above normal) underlines the importance of this potential impact (Weber, 1993, 43). Changes in reef growth and productivity combined with changes in local current patterns may adversely affect tuna production and the distribution of stocks. This in turn would affect the fisheries industries which are the lifeblood of most of the island states.

Thus the economic implications would be devastating since small states would totally lack the resources to adapt to these changes or to recover from damage. Economic impacts will be most intensely felt when tourism, a major industry in many of the SIDS, is adversely affected. The "resort-islands" in these states represent a considerable investment in infrastructure on the land and coastline of very small islands. Increased temperature may also lead to increased demand for air conditioning and hence higher energy requirements, thus indirectly affecting the economies of the countries. Therefore, it is indisputable that the smallest, lowest and weakest states in the international community which have least political clout and economic resilience are likely

to suffer most from the calamities of global warming.

2.7 Strategies to Combat Global Warming

Various measures and economic policies have been developed to form strategies at national, regional and international level to combat global warming and climate change. It is gratifying to note that some of these strategies are already being implemented on a regional basis. In the case of Denmark, Germany and Netherlands, measures to control emissions such as a carbon tax have been enforced (Barrett, 1991, 32; Bergesen and Sydnes, 1992, 35). This is in line with what has been called the "no regrets" strategy. It implies that action is taken to avert foreseen danger and even if there is no problem, little will be lost at the expense of a cleaner environment (Foley, 1991, 52-3). The "remedial approach" is the other kind of approach practiced in the 1970s and 1980s. A basic tenet of this approach was to wait for conclusive evidence of environmental degradation before mobilizing the resources necessary to combat such problems (Dawson, 1994, 7).

As natural adjustments are incapable of treating the concentrations of human-induced GHGs in the atmosphere, three approaches have been identified by analysts for addressing the necessary strategies for mitigating the threat of global warming. These are, the voluntary approach, the regulatory approach and the market-based approach.

The **voluntary approach** signifies voluntary action by individual countries to reduce emissions. It was characterized

as the experimental stage where a few countries practiced trial and error measures at the national level to gain currency. A few countries, namely the Netherlands, Finland and Sweden, have introduced carbon taxes in this regard and these became a spring board for developing a mechanism to address the question. However, with the increasing consensus among scientists about the reality of global warming, environmentalists and endangered countries have been pressing for speedier global action. They believe that the situation cannot be curbed by a few countries unilaterally but by global action. Therefore, the voluntary approach appears to be losing ground since it has been disputed by many environmentalists and NGOs as an ineffective approach. No country or consumer would give up any behavior if it directly affects present life-style. On the other hand, the approach has become insignificant since a regime is building up as result of increasing concern over the serious nature of global warming.

A <u>regulatory approach</u> is, according to Environment Canada, a "command and control" approach to achieve environmental goals (Government of Canada, 1992, 1). In this approach the government directly intervenes in the market in tuning the consumer behavior and production process to achieve its pre-set targets and standards in emission control. For example, regulations set maximum automotive emission levels on a gram-per-mile basis. In this approach the state or government directly "commands polluters to control specific activities"

(Ibid). This approach is very much disfavoured by free market industrialists as it undermines market relations, the very foundation that led to industrial growth in developed economies. However, many environmentalists tend to favor this approach as they argue that market relations disregard public goods in the drive for competition and profit maximization. Thus, for them government intervention would be the most effective approach to influence the behavior of polluters and to effectively manage the global commons.

Traditional economic principles such as market competition and the advancement of individual rights are incompatible with environmental values such as reducing social costs (pollution, resource exhaustion) and promoting the sustainable development of resources. In their drive for profit maximization, the exploiters disregard public goods and intergenerational equity (the right of future generations to their development), and this has caused constraints on available resources leading to environmental degradation. The regulatory approach may also be the best method for monitoring compliance with environmental standards, and a guard against the misuse of common goods. Barrett argues that in the absence of government intervention, users of fossil fuels will not bear the full costs associated with private actions and that these will be borne by others (Barrett, 1991, 31). On the other hand, critics of this approach have criticized the approach as being prone to inefficiency and higher administrative costs. It may

also be very unresponsive to changes due to rigid hierarchical decision making process.

The third approach is known as <u>market-based approach</u> (economic instruments). It is the most popular approach among industrialists who believe it to be the best mechanism to achieve environmental goals. In this approach, the market is used "to influence the behavior of both consumers and polluters indirectly in a manner consistent with environmental goals" (Government of Canada, 1992, 1). This leaves specific and detailed decisions about emission control to the decision-makers or market forces. Economic instruments would use market forces to integrate economic and environmental decision making. The instruments can provide the price and other market signals that help decision-makers to recognize the environmental implications of their choice.

It is argued that the market-led approach is more favorable to the development of innovative and cost-effective solutions. It is supposed to provide continuous adjustments and may be more responsive to changing circumstance. According to Environment Canada, the experiences of the United States in experimenting with market-based approaches prove them to be more productive and rewarding. It can serve multiple objectives and encourage faster achievement of goals. It is argued to be an easier method for administration as well (Environment Canada, 1993, 2).

Nevertheless, there are certain drawbacks in this approach.

In terms of enforcement and compliance, it is not impeccable and gives rise to bottlenecks. In other words, economic instruments do not enable governments to reach precise goals. Moreover, economic instruments may become defective when applied globally as market relations have an inherent tendency of tilting the process in the interest of profit maximization. This may be particularly true with tradeable permits.

2.8 Market Instruments for Emissions Control

Two important instruments are being developed by researchers that are most applicable for international implementation through the market approach. They include the carbon tax and tradeable permits. These will be briefly discussed in analyzing their effectiveness to achieve the objective of emission abatement.

(1) **Carbon Tax**: Carbon dioxide is the most predominant GHG that contributes to atmospheric concentration. It was estimated to have been responsible for 66 per cent of the incremental greenhouse effect (Ogawa 1993, 484). Human-induced burning of fossil fuel is accountable for an estimated 57 percent of carbon dioxide emissions, while forest destruction contribute 20 percent, farming live-stock activities 9 percent, and natural sources 14 percent (Ibid).

According to one proponent of the carbon tax, Barrett, its objective is to ask the emitters of fossil fuels to compensate for the damages they cause to the environment by polluting the atmosphere. He further says that users would abate emission as

long as the cost of doing so did not exceed the compensation levied (Barrett, 1991, 31). It is supposed to be a commendable objective for policy, but as Barrett admits, it also poses a number of difficulties. For instance, it is a very difficult task to calculate the potential damage of air pollution in monetary terms. One attempt in this respect suggests a figure between US $3 and $107 per ton of carbon (Barrett, 1991, 32).

Problems such as ignorance of the damage caused to other countries by a polluter, lack of concern for equity and reluctance to act unilaterally are some of the obstacles to achieving a useful carbon tax. Some polluters are also financially handicapped to pay the tax although they contribute to pollution to a large extent (due to poor development conditions like in China and India, and severe climate conditions in Canada and Finland that require high energy consumption). However, this does not mean that the carbon tax is a failure. In fact, the Netherlands, Finland and Sweden already have a carbon tax imposed at the national level.

Barrett advocates that the carbon tax be based on carbon dioxide emissions and not on the use of fossil fuel. This is because a uniform tax can be levied irrespective of the degree of potential for pollution by different fuels. The amount of the tax would then depend on the emission targets set by the concerned authorities.

There are a number of advantages in introducing a carbon

tax as an economic instrument which could influence the behavior of consumers and producers. It would be easy to administer and flexible to change as circumstances necessitate such action. It would certainly give incentives to consumers to reduce emissions as his or her expenditure increases, and producers could attempt to economize its usage by developing alternative substitutes or the more efficient use of carbon.

The International Energy Agency predicts that a carbon tax which reduces OECD emissions by 12 percent by 2005 would reduce consumption of coal by 28 percent, petroleum by 5 percent and natural gas by 4 percent (Barrett, 1991, 44). A carbon tax is quite compatible with the "polluter pays principle" as described by the Rio Declaration (Principle 16, Rio Declaration, 1992). Therefore, it will not only serve as a tax for environment protection but a source of revenue as well.

According to Barrett, the most likely losers from a carbon tax are oil exporters. They may suffer if a carbon tax raises prices of oil and in turn gives rise to supply-side effects of declining sales (Barrett, 1991, 49). Another negative impact would apply to rich countries if the carbon tax is based on the basis of population as such a mechanism would redistribute income from rich to the most populous countries. However, if the criterion for setting the tax is rate of energy consumption, the higher consumers will pay more while the low-income countries pay less on the basis of their fossil-fuel

consumption. According to Barrett, if carbon taxation is administered under a global scheme, the developing countries would receive US $ 94 billion (Barrett, 1990, 49).

One criticism levelled against a carbon tax is the fact that it hurts the poor more than the rich because the poor have to meet higher prices for energy-efficient goods. However, the objective of the tax is to reduce emissions and this may act as a disincentive for users to avoid less energy-efficient good. On the other hand, the revenue can compensate the poor to some extent to offset the negative effect. Another criticism raised is the argument that the polluter-pays principle means consumers pay because the tax is passed on to consumers by producers through the price of a commodity or service. In this case it is wrong to think that consumers are insensitive to prices; they can send a signal to producers by refusing to buy expensive cars thereby forcing the producer to change to cleaner technology or enhance efficiency and energy use. In many respects therefore, a carbon tax proves to be the most ideal economic instrument that could abate emissions.

Of course, setting up a carbon tax is not an easy task as it involves complex problems such as how much it should be priced, and what ratio of it be apportioned to various countries in line with their energy requirements and development conditions. For instance, a country like Canada may be required to spend more energy on heat due to cold weather while China needs to spend more energy to support its

economic development. Two countries have reasonable grounds to ask for preferential treatment in tax apportionment. On the other hand Canada is economically and resource wise far better off than China. Therefore, China may emphasize that its condition is more justifiable than Canada for preferential tax treatment. Researchers and policy advocates have to answer these discrepancies. Nevertheless, a tax carbon can act as a catalyst to provide economic incentives to cut back pollution and to develop the use of new technology.

(2) Tradeable permits: This is the alternative economic instrument identified by researchers for emission abatement. It is often described as a non-tax instrument. It calls for the responsible regulatory authority to set a ceiling or limit on total allowable emissions of a pollutant (Environment Canada, 1993, 66). It does this by issuing permits which authorize entities to emit specified amounts of the pollutant over a specified period of time. They are permitted to be purchased and sold at the current market price. The objective of tradeable permits is the same as the carbon tax. The size of a permit over a period would denote the desired level of emissions targeted. For permits to be traded, it requires a regulatory body to monitor exchanges and well functioning markets for permits to operate smoothly.

Like the carbon tax, tradeable permits would also be set according to the desired level required by an authority which may be distributed to various countries or emitters based on

a uniform criterion. Markandya suggests that permits be based on an "ecological sensitivity value" whereby an ecologically tolerable rate of global warming is thought to be about 0.1 degree C per decade (Markandya 1991, 56). Her argument is that the ecological sensitivity criterion turns out to be considerably stricter than one that would appear to emerge from a comparison of costs and benefits of global warming. She also proposes a bidding process for allocation of permits, where a central authority acts as an auctioneer. Bids could be made by governments on the basis of what they felt the demand for emissions in their respective countries would be.

The alternative solution for allocation of permits is the setting of a baseline on the existing rate of emissions. But this criterion may be extremely inequitable as it would result in the largest number of permits being given to the developed countries (46 percent) whereas developing countries would get much less amount (26 percent) against their increasing desire for rapid industrialization (Markandya, 1991, 58). The same shortcomings appear to be inherent in the criterion based on GDP, which means allocating permits to each country according to its share of the would's GDP.

The population basis of allocation of permits has also been criticized by some analysts. Such a criterion would encourage population growth as an economic policy in some developing countries (Shelling, 1993, 480). On the other hand, some have argued that this would be a good mechanism for enforcing the

transfer of resources from North to South to ease the existing disparity which is perceived to be one of the root causes of environmental degradation, according to environmentalists from the Third World.

Shelling proposes estimating reasonable emissions country by country and establishing commensurate quotas or distributing tradeable rights in accordance with some equitable criterion such as equal emissions per capita (Shelling 1993, 479-80). Unlike taxes, permits serve much better the question of equity and can specify exact cutbacks in emissions. For taxes are subject to market mechanisms and are indifferent to income distributional consequences (Cline, 1992, 348). It has been argued that such reasonable and equitable criteria will not be feasible given the varied conditions that exist in a heterogenous world community. It also requires administrative infrastructure which may add to technical and financial difficulties. Therefore, tradeable permits have been treated as lofty ideas that lack practicability. In light of these difficulties it is unlikely that a global sharing of permits can ever be agreed (Markandya, 1991, 59).

Practical analysis of both instruments indicates that the intervention of the government is inevitable for enforcement of any given instrument and one approach is complementary to the other (Market vs. Regulatory). It can be argued, therefore, that both approaches require a "visible hand" to

execute compliance. To enforce compliance at global level, an international authority that could regulate and supervise TNCs may be essential.

In summary, market and regulatory approaches embody three strategies that could be applied to curb the crisis of global warming. First, national or international legislation could directly control the activities that are causing global warming. This would include setting up environmental standards, targets and timetables for emission control. A second approach is intensification of research to develop alternative sources of energy to replace fossil fuels. This also includes conservation and efficient use of existing sources of energy. Third, there could be application of economic instruments through market mechanisms to influence consumer behavior. This strategy appears to be attractive since it has a number of advantages like avoidance of hard and fast rules and easy implementation.

Of all these, the most urgently needed strategy is a combination of both legislation and economic instruments. As proved by past experiences, unless binding commitments are demanded, sovereign states would fail to honor compliance. Barrett says, without "government intervention users of fossil fuels will not bear the full costs associated with their actions; these will be borne almost entirely by other people, living in other places and at other times" (Barrett, 1991, 31). Therefore, setting up targets and timetables for emission

control is the most viable action required. This strategy should be accompanied by the market strategy of economic instruments.

2.9 Conclusions

The preceding discussion has looked at the science of global warming, some of its potential impacts and responses suggested to mitigate expected crisis. Indeed, it is science that has generated concern over the issue and effective responses to address the issue as well depends on scientific certainty.

The chapter presented evidence that supports the argument that there is scientific consensus about global warming and its impact on climate change. Subsequently, climatic events that have been observed reaffirm the predictions made by IPCC about expected consequences of global warming. Likewise, Greenpeace International has reconfirmed this fact based on its findings on what it calls a "first catalogue of recent climatic events". It states that, since the release of the IPCC's First Assessment Report in 1990, update records of climatic events around the world "indicate that the first footprint of climate change as a result of human-induced greenhouse effect is now becoming clear" (Greenpeace International, homepage/www, 1995).

Nevertheless, uncertainties still exist about the correlation of global warming and unfolding events. What is certain, as Greenpeace International points out, is that the

climatic events witnessed over the last decade are consistent with the climatic model predictions.

The literature reviewed for this chapter also indicates three interesting conclusions. Firstly, most research carried focuses on developed countries, and analysis of developing countries and most vulnerable SIDS is marginalized. Even the research either originating in the South or done on the developing countries are apparently not fully incorporated in the assessment of the issue (Dawson, 1994, 8).

Secondly, environmentalists and economists remain divided on the issue. Environmentalists often criticize economists for their short-sightedness, while economists find environmentalists uneasy partners to work with on the issue. Indeed, more practicable and acceptable policies, and greater understanding of the issue can be achieved if environmentalists understood the economic costs and constraints of the economy, while economists listened to the "cries of the nature" and the ecological degradation that economic policies bring about.

Thirdly, most of the research emphasises states' roles in addressing the issue and developing responses at international level. Studies often failed to concentrate on policies at local and national levels or to look at the role of TNCs in the issue. Unless a multi-actor approach targeted to all levels is applied to address the issue, solutions at a global level will continue to be to hard to find.

The strategies and approaches outlined in the chapter seem to be at their infant stage and so need further development in terms of building institutional capacity both at the national and the international level for implementation and enforcement. Nevertheless, the "no-regret" strategy seems to take prominence over the remedial strategy. The international community cannot wait for conclusive evidence before mobilizing the resources necessary to correct damage given its inability to return the atmosphere to its original state in less than a century (Dawson, 1994, 7). The strategy must be based on the precautionary principle using preventive measures with a multi-sectoral approach and a long-term perspective.

As said above, a significant degree of uncertainty is involved in scientific predictions. Thus additional research with improved methods needs to be developed for more accuracy. Uncertainties arise from imperfect knowledge concerning future roles of human-made GHGs emissions and their influence on climate change. Another source of uncertainty comes from incomplete understanding of climate processes themselves. These include interrelationships between clouds, oceans, polar ice, ozone depletion and natural incidents like volcanic eruptions . Nevertheless, what is known about the process does warrant us to take precautionary measures in the interest of not risking a bigger sacrifice in the future.

The most attractive economic instrument available to control emissions at the global level is the execution of an

international carbon tax. Calculations for this tax can be based on the number of factories and their capacity to emit carbon dioxide and the number of automobiles and their capacity to emit gas in a given country. The proceeds generated from this tax could be pledged to the GEF or any other fund that finances environmental protection measures (Barrett, 1991, 49). Some exemptions could be granted to emitters of developing economies since they are late-comers to the emission club and they also lack alternate energy. This kind of fund-raising could expedite technology transfer to developing countries. The carbon tax funds can also be used to help the small island states in adopting to climate change or for contingency plans in times of meteorological events.

In summary, the best strategy available for international action with regard to emission control is the adoption of a protocol to the Climate Change Convention that prescribes targets and timetables. This protocol should also embody provisions to introduce an international carbon tax and a mechanism to enforce such a tax. Once the carbon tax is fixed, emission can be adjusted to a desirable level set by the international regulatory authority and thus ease the problem of global warming.

Chapter III: THEORETICAL AND POLITICAL PERSPECTIVES ON GLOBAL WARMING

3.1 Redefinitions of Security

"International politics is full of surprises" notes Booth (Booth, 1991, 534), while Waltz says that "not everything can go into one theory" (Waltz, 1986, 339). These two remarks truly echo the complex nature of the emerging international environmental politics and the limited capacity of theories of international relations to explain the politics of environmental issues such as global warming and climate change. Theories make a difference in understanding practical problems of international relations, although sometimes they fail to explain fully the characteristics, causes and consequences of the emerging new environmental issues for world politics (Carr 1939, 12-13).

The issue of global warming and climate change is no exception to this phenomenon. Until the late 1980s, environmental issues had a peripheral place in theories of international relations, or in security theories as explained in the dominant realist paradigm. Security theories were mostly confined to studying military-related external threats and protection of the state from such threats as a discrete actor. Therefore, a very low priority, if any, was attached to environmental issues as opposed to human aggression. Even if land-based environmental problems were recognized, unilateral solutions were advocated by realists in order to maximize

state control over such resources (Imber, 1994, 6). Such solutions are inappropriate for transboundary environmental problems such as global warming, where international cooperation and effective compliance with international law is indispensable. As the World Commission on Environment and Development (WCED) notes, "there are no military solutions to environmental problems" (WCED, 1987, 19).

As discussed in the preceding chapter, environmental insecurity posed by global warming is second to none as far as the most vulnerable SIDS are concerned. Nevertheless, conventional theories of security do not reflect the urgency and magnitude of climate change and sea-level rise or provide practicable solutions to such emerging environmental challenges to international system. Security theories are inadequate to offer meaningful insights to address emerging environmental issues in international relations (Imber, 1994, 5). Orthodox theories of security under the realist paradigm assumed that threats to national security were always external and arose from military-related "high politics" issues (Thomas, 1992, 121). The security threats perceived by states in this regard are, loss of independence and territorial integrity, as well as relative power position and autonomy.

The defensive build-up of military strength has been traditionally recognized as the most appropriate response to external threats. This narrowly defined interpretation of security has been challenged by writers in recent years. Far-

reaching changes are occurring in the natural environment which demand re-evaluation of the traditional definition of national security (CGG, 1995, 77). Thus according to Groom "The world is changing, and so must our conceptualization of it. Realism is no longer able to explain much human activity" (Groom, 1990, 10). These global developments call for a redefinition of security to include resource scarcity, environmental degradation, human needs, justice, equity, sustainable development, demographic issues and gender (Ibid., and Korany et al, 1993, 26).

According to Korany et al., besides state-centred security interests, there are important collective-security interests which require equal recognition. These include the physical survival of a people, national unity, a self-reliant economy less dependent on outside markets, and the material and ecological well-being of a population. It also includes the preservation of basic values, ideology and cultural identity (Ibid).

The traditional concept of security is too often preoccupied with state-centric interests and power relations, and confined to territorial concerns (independence and sovereignty) while neglecting other important aspects of security. For instance, human security, which is an integral part of the whole concept is either ignored or marginalized. Human security refers to a multi-dimensional approach to security emphasising such as "job security, income security,

health security, environmental security, and security from crime". Hence, "forgotten were the legitimate concerns of ordinary people who sought security in their daily lives" (UNDP, 1994, 22). Restrictive theories of security in international relations, therefore, overlook the human security threats arising from perceived "low political" factors such as disease, hunger, unemployment, crime, social conflict, political repression and ecological degradation. Especially with the advent of environmental issues, there emerged new forms of threats to human security which could equally threaten internal stability or regional security. Human security is not based on weapons but on human life and sustainable living. The CGG notes in its report on global governance that "in an increasingly interdependent world, old notions of territoriality, independence and non-intervention lose some of their meaning" (CGG, 1995, 70).

The transcendent nature of security also calls for widening the traditional emphasis on the security of states to include the security of the planet (CGG, 1995, 78). The increasing industrial waste and human activity on the earth during the last 200 years have been detrimental to the health of the planet, thereby adversely affecting the planet's basic life-support systems. In other words, the unsustainable use of natural resources and rapid increase of environmental pollution are reducing the habitual capacity of the planet. The situation is not only affecting the well-being of states

or societies but also threaten the whole survival of some states and their people, let alone future generations.

The new dimension of security threat added by environmental degradation such as global warming can be best explored by looking at the issue of climate change and sea-level rise. The increase in intensity and frequency of wind and rain storms is posing an immediate security crisis to the SIDS. Climatic events disrupt the development efforts of these states as the severity of storm surges destroy infrastructure and budgetary resources dwindle for reconstruction and rehabilitation. It has been reported that the storm surge drawn into the vortex of a cyclone can result in sea-level rises of one or two meters or even much more (Thomas, 1992, 125). In 1987, a severe storm that struck the Maldives flooded a number islands and destroyed large infrastructure and vegetation, which prompted the country to take the issue to the United Nations (Gayoom, 1987, 8). Again in 1988, it was reported that Kiribati and Tuvalu, two South Pacific island states were faced with saline intrusion into their fresh water, thus posing a threat to human survival (Thomas, 1992, 125).

Sea-level rise has been recognized as the greatest threat to national security faced by SIDS in the future. As mentioned in the previous chapter, the IPCC has predicted a one-meter rise in sea level by the year 2100 if current trends in the accumulation of greenhouse gases in the atmosphere continue. Such a rise in sea level would mean large-scale drowning of

low-lying island states like the Maldives and flooding of deltas or other coastal areas of the world. In explaining the extent of the security threat this poses, Hekstra notes:

> The map of the world would effectively be redrawn; many densely populated areas (with a total population of one billion people) could be flooded; .... and one-third of the world's croplands could be lost to production (quoted in Thomas, 1992, 124).

Furthermore, salt water intrusion and sea-inundation pose a more immediate threat to human security of the endangered islanders. Contamination of ground water with salinity can cause loss of vegetation, thereby reducing the growth of food crops and increasing the vulnerability of the islands to wind storms. Therefore, threatened islands may become uninhabitable long before tidal waves begin to wash the islands.

If the predictions of the IPCC come true, the SIDS would be the prime victims of the process of global warming. Thus these states are subject to a fate resulting from the actions of the industrialized countries. As the Maldivian Director of Environmental Affairs has said, the SIDS are least responsible for the enhanced greenhouse effect. These states are also least able to cope with the crisis financially and technologically and carry little influence in international relations. The cost of protective local measures such as dyke-building is estimated to cost US $ 1,800 per meter (Ibid); and it has been estimated that a country like the Maldives will have to spend 34.33% of its annual budget on environmental protection measures (OECD, 1992, 41). These states of course

not only lack financial resources to take such measures but also the necessary expertise and relevant scientific information to deal with such crises.

While no conventional theory of international relations is able to describe adequately the causes and responses to an environmental issue such as climate change and sea-level rise, this issue has become a major concern to the international community since one-fifth of the United Nations membership comprises environmentally endangered island states. These states are not threatened by military aggression but by a process of environmental degradation where there are no enemies to fight on a battle field (Prins, 1993, xv). Therefore, redefining of the concept of security is required to accommodate both the plight of SIDS and the security of the planet.

3.2 The Role of Non-State Actors and Global Warming

The critical argument raised by Keohane against realism for failing to acknowledge the role of non-state actors in international relations also has great relevance to the issue of global warming. As some analysts have argued, environmental concerns such as global warming have been "pushed onto international political agendas primarily because of the efforts of NGOs" (Thomas, 1992, 115 and also see Bergesen and Sydnes, 1992, 35). On the other hand, it is not governments but TNCs that have been identified as the largest potential sources of environmental degradation threatening the national

and human security of certain countries. Therefore, the issue of global warming challenges traditional theories of security and assumptions made in the realist paradigm about the actors involved in world politics. These emerging new issues which were traditionally regarded as "low politics" transform themselves into "high politics"; they involve multiple actors who are responsible for unsustainable patterns of rapid economic development, bringing ecological stress to the earth and breeding conflicts in the management of the global commons.

These new actors (NGOs) attempt to influence public policy formation through the articulation of scientific knowledge and the mobilization of public opinion. NGOs have been recognized by many analysts as instrumental in bringing environmental issues to the forefront of international attention. According to Bergesen and Sydnes, "by the late 1980s warning of global warming, from scientists and from green NGOS, had become too loud and extensive to be ignored by governments and politicians around the world "(Bargain and Sydnes, 1992, 35). Thus NGOs like Greenpeace International and the Climate Action Network have become catalysts, watchdogs and facilitators in shaping international regimes to address such problems like global warming. According to Tolbert, "NGOs, as the guardians of the environment, play a substantial role in the creation and implementation of the international law responding to the impending potential crisis of global warming" (Tolbert, 1991,

108).

Apart from NGOs, epistemic communities also deserve due credit for their instrumental role in shaping international policy. Epstemic communities include scientific researchers and institutions, environmental groups and scholarly commissions such as the WCED. They have actively promoted and influenced political leaders through their claims to authoritative knowledge and principled beliefs (Smith, 1994, 253). Coalitions of such actors can be a powerful force in hammering out bargains, hardening scientific consensus and developing legal concepts and new institutional frameworks (Tolbert, 1991, 108). For example, it was the Villach Conference of 1985 that pressed the issue of global warming and recommended a framework convention to address the issue (Tolbert, 1991, 99).

Realism assumes that international law is exclusively a product of states or institutions created by states. Nevertheless, the increasing interaction of non-state actors in global issues such as global warming demands a look beyond the facade of statehood to the individuals and groups that influence state behavior. David Tolbert argues that environmental NGOs play a more substantial role than NGOs in other issue areas (Tolbert 1991, 96). Nevertheless, NGOs' activities and their real impact on the processes of policy formation and implementation is difficult to measure as their activities take place more or less in informal circles.

However, the objectives of some of the NGOs have engendered criticism. There have been allegations that some NGOs pursue their own political agendas and may be biased towards certain issues or policy stands. For example, the Report published by the US-based WRI on emitters of GHGs (1990), was severely criticized by the Centre for Science and Environment in New Delhi. The Centre saw the report as supporting the position of the North on the issue of global warming which many developing countries see as "environmental colonialism". The Centre recalculated what it saw as the report's "faulty and prejudiced" data on net GHG emissions and reduced the Third World's contribution substantially from 45 per cent to 33 per cent (Smith, 1994, 257).

Nevertheless, in general international NGOs have adopted positions which seem to support their role on the issue of global warming as independent observers offering balanced views on critical issues that affect the world community. In this regard, Greenpeace International is an illustrative example. It has earned an international reputation as an environmental watchdog and a reliable scientific research organization. Their global public campaigns and advocacy activities on environmental issues such as global warming and nuclear testing have been widely acclaimed.

Greenpeace has also supported some state actors who will be adversely affected by global warming. It has offered scientific advice to the AOSIS group at the United Nations

(McMohan, 1995, 4). AOSIS is an informal lobby group comprising of 41 states, including 31 UN members, which called for an effective climate regime in the search for environmental security against the consequences of climate change (AOSIS memoir, 1994). Due to their relative lack of political influence, expertise and scientific knowledge on the issue of global warming, AOSIS sought scientific information and legal expertise from two NGOs, namely Greenpeace International and the FIELD (initially called CIEL). Indeed, it has been claimed that CIEL was instrumental in the formation of AOSIS in 1990 (McMohan, 1995, 5). Members of FIELD and Greenpeace International directly contributed to the policy positions of AOSIS during the climate negotiations that led to the adoption of the FCCC. Resource persons from these NGOs were invited to participate in some of the AOSIS meetings that discussed climate issues and prepared background papers on legal and scientific aspects of the issues for AOSIS. One analyst has described FIELD's close association with AOSIS as follows:

> "At briefings prior to the start of each negotiation session, CIEL (FIELD) would present their proposed text changes. They would be the first to take the floor, distributing their draft text, explaining the options and selling their ideas to the group before putting it over for discussion. Thus CIEL was provided with a great opportunity to direct the group's negotiating positions and strategies" (McMohan, 1995, 7).

These sessions were extremely useful to AOSIS members, who would otherwise have been unable to protect their interests and bargaining positions due to lack of access to scientific

knowledge and expert skills.

Certain environmental treaties also allow NGOs to participate on "almost the same status as governments in conferences of the (state) Parties.". Tolbert says this occurs through official observer status, or in some instances by NGO members serving in the delegations of states themselves (Tolbert, 1991, 102). A number of IGOs like UNEP also grant observer status to NGOs and this provides avenues for exerting influence over international legislation (Ibid). It is also noteworthy that the most influential scientific body that recommends action on combating global warming, the IPCC, has also involved over 60 NGOs in its work (Ibid).

Thus the important role played by NGOs in the climate negotiations, confirms that non-state actors, which are traditionally ignored in some theories of international relations, cannot be dismissed today. Their role may be limited to the tactics of lobbying and the dissemination of information, but their contribution to international issues cannot be marginalized even if formal UN rules categorically deny NGOs direct input into the process of policy formation. In fact, their impact on international environmental negotiations is both decisive and beneficial, given the disadvantaged position of weaker states adversely affected by global warming. The New Delhi Conference on "Global Warming and Climate Change: Perspectives from Developing Countries" (1989) acknowledged the "important role in the international

process" played by NGOs in "sensitizing public opinion and policy-makers to the dimensions of the climate problem and the needed responses" (quoted in Tolbert, 1991, 100). In this context it can be argued that NGOs exert substantial influence indirectly in the process of international law-making and regime-formation.

Likewise, the role of TNCs as non-state actors in contributing to global warming directly and influencing the process of international law making cannot be ignored. While TNCs are responsible for over 50 percent of all emissions of GHGs , they also act as strong pressure groups that lobby for the protection of their business interests against perceived environmental over-regulation (UNCTNCs, 1992, 2). TNCs in the global warming issue include industries involved in oil production, transport and electricity. They are responsible for emissions as extractors,. refiners and transporters of fossil fuels and as intermediate and final consumers of energy.

TNCs are powerful non-state actors that have capabilities to impede effective controls in combating global warming. For example, a study by the United Nations Centre for Transnational Corporations (UNCTNCs) points out that "historically, automobile producers in the US have discouraged both public transportation and non-fossil-fuel based transportation. In addition, vehicle manufactures continue to produce automobiles which are far less efficient than

available prototype" (UNCTNCs, 1993, 3). In some cases, TNCs have been discredited in many parts of the world as irresponsible polluters of the environment, particularly where there are a few stringent environmental regulations or too few enforcement mechanisms.

Due to their financial resources and the global scope of their industrial activities, TNCs have become key players in the world economy. It is the TNCs which are the primary sources that establish industrial standards for the production of technologies and exercise constraints on industrial policies through their knowledge and expertise. These corporations, exert substantial influence in shaping domestic and international policies by virtue of their economic power and access to information and technology (see the comment by UNCTNCs on its finding on the case study analysis of TNCs, 1992, 17). Evans in his analysis of domestic and international politics asserts that "transnational actors, unlike purely domestic ones, have the organizational and informational resources necessary to construct private alternatives to governmental accords" (Evans, 1992, 419).

The issue of global warming is truly an international issue that involves a number of actors and multiple interests. It shows the incapacity of conventional theories of international relations to address such complex issues and the need to look beyond the state-centric paradigm. The conflicts they create exceed the capacities of international institutions and

override traditional mechanisms to resolve crises. Environmental problems require a holistic approach that recognizes non-military threats and non-state actors. Therefore, the issue of global warming offers new insights for linking environmental degradation with human insecurity. These developments in turn call for a rethinking of traditional theories of international relations to reflect the emerging new issues of international environmental politics. It means "modifying conventional, contemporary political theory and practice" to address such new challenges in international relations (Prins, 1993, xiv).

While there is no established definition of security that employs all these aspects, the closest definition that may be cited is the definition of threat given by Richard Ullman:

> A threat to national security is an action or sequence of events that (i)threatens drastically and over a relatively brief span of time to degrade thequality of life for inhabitants of a state, or (ii) threatens significantly to narrow the range of policy choices available to the government of a state (quoted in Winnefeld and Morris, 1994, 8)

3.3 The Politics of Global Warming

Global warming and its impact on climate change presents decision-makers with many complex and challenging problems. Some analysts have argued that the challenges the issue has posed are the most important facing the international community in the 1990s (Smith, 1994, 249). Undoubtedly, without combating global warming, the very sources of livelihood of humanity could undergo unimaginable changes. It

could destroy ecosystems, disrupt economic and political orders and threaten international security. Although no country could deliberately dismiss the seriousness of the issue given the clear scientific consensus on its imminence, political progress to mitigate the crisis has been discouragingly slow due to a number of factors. These factors directly touch the questions of economic development and life style that exist in developed countries.

As the issue revolves around the domestic interests and economic factors and transcends political boundaries, the politics of global warming can be analyzed in the context of the international political economy. It holds great relevance to the argument made by some proponents of international political economy that linkages between politics and economics are closely intertwined (Murphy and Tooze, 1991, 1). Thus the political negotiations on the issue were dominated by economic factors such as the economic costs of emissions abatement and transfer of financial and technological resources from the North to the South. The largest emitter of greenhouse gases, the US, was unwilling to commit itself to any mandatory reduction of emissions because of the economic costs involved (Hatch, 1993, 1). The differences that exist between the fossil-fuel-based economies of the OPEC states and the environmentally-endangered AOSIS are again based on economic factors, as the OPEC economies would suffer from any reduction in fossil-fuel consumption in the industrialized countries.

The issue also demonstrates the interconnectedness of domestic and international politics. This can be illustrated by the US position on the issue at the climate negotiations. The US strongly opposed mandatory commitments to emissions reduction due to domestic industrial pressure. This resulted in a weaker climate regime. On the other hand, the US softened its stand on the issue and withdrew its plan to boycott UNCED largely as a result of the pressure exerted by the EC (Hatch, 1993, 27). International negotiations on the issue have been directly influenced by domestic political concerns such as unemployment and the erosion of comparative advantage. Finally, the numerous divisions within the OECD and the Group of 77, let alone the traditional North -South dichotomy, is a clear indication that domestic politics influence international politics and vice versa, and that economic concerns restrict political decisions.

The factors lead global warming to fall into an IPE perspective can be discussed by looking at the various issues that shape the politics of global warming. Susan Strange has noted that the defining characteristic of IPE is that, "it concerns the social, political and economic arrangements affecting the global system of production, exchange and distribution, and the mix of values reflected therein" (quoted in Murphy and Tooze, 1991, 2). The issue of global warming embodies these characteristics. It is a truly global issue that affects every state, although its effects vary from

country to country. It also demands a restructuring of the conventional modes of production based on economic growth theories in order to meet the demands of the South for resource and technology transfers. It also has an equity dimension. In fact, a long-lasting solution to the problem can only be devised through international cooperation between North and South. Failure to do so would undoubtedly undermine the evolving climate regime.

The politics of the issue of global warming have been shaped by the diverse interests of the negotiating parties of the climate regime and the perceived impacts in terms of costs and benefits. Consequently many impediments weakened the negotiation process. Governments do not perceive it to be in their best interest to cooperate on a specific issue that may undermine their economic interests (Paterson, 1992, 181). Nevertheless, for a transboundary problem like global warming, international cooperation is an imperative.

The politics of global warming is characterized by four distinctive political attributes: uncertainty, complexity, controversy and political diffuseness (Smith, 1994, 251). Uncertainty gained a foothold in the climate negotiations because there are a number of scientific factors such as the extent of GHGs emitted, what their real impacts are and would be, and the effectivess of the proposed solutions. On the other hand, it is not yet known what would be the political, economic and social impacts that may result from a particular

action. Complexity also abounds in global climate change politics. Indeed, there is no single solution to the problem and little data and experience are available on which to base policy. It also requires a mix of policies at all levels and the cooperation of multiple actors. Some of the issues, like the South's demand for resource transfers, are thorny issues for which no immediate solution can be found. Thus a lot of controversy also surrounds the issue of global warming. North and South remain divided as to who is primarily responsible for the situation and what causes the problem. The South sees the problem as resulting from the rapid development of the rich North which emits most of the emissions responsible for global warming (Smith, 1994, 251).

Finally, political diffuseness is another stumbling block in climate negotiations. There is no authoritative body that can enforce policy initiatives on sovereign states. Universal bodies like the UN are not trusted by developing countries, partly because countries like the US exert considerable influence on the organization (Smith, 1994, 252). In fact, the US kept a low profile during the climate negotiations, hardly taking any initiative to mobilize the international community in the interest of environmental protection.

The politics of global warming can best be understood by analyzing the issues that inhibit international cooperation. The lines of divisions include issues such as equity, differential cost/benefits between countries, the role of

science in the negotiations and sovereignty (Paterson, 1992, 185). These also include factors in North-South relations, and political conflicts within groups and countries.

3.4 The North - South Division

Global justice is a major argument often raised by developing countries. They maintain that most of the solutions to global warming lie in the developed North, whose 200 years of industrialization originally contributed to the accumulation of GHGs in the atmosphere. They also currently contribute three-fourths of energy-related emissions (Bergesen and Sydnes 1992, 41).

The South has stressed the need for resource transfers from North to South to finance climate-related measures. These transfers, developing countries insist, must be additional to existing overseas development aid. This additional transfer of resources is based on the principle that global climate measures are not implemented at the expense of social and economic development in the South (Bergesen and Sydnes, 1994, 42). These demands reflect the age-old premises of North-South relations since the Declaration of New International Economic Order (NIEO) in 1974 by the UN General Assembly and the deteriorating position of most developing countries in the international economy. Therefore, the global warming issue tends to be another negative factor in North-South relations. In fact the South sees a binding commitment on its side to stabilize or reduce its greenhouse gas emissions as another

hindrance to Third World development (Bergesen and Sydnes, 1992, 42). In the words of China's Deputy Minister for Science and Technology, "developed countries are the major polluters and they must accept moral responsibility and pay for it" (Smith, 1994, 251).

There are other conflicting issue-areas between North and South in the climate negotiations. The US and some European countries want to preserve the tropical forests in the South as sinks for carbon dioxide. In other words, they emphasize reforestation in the South as sinks that could absorb carbon dioxide. Commercial logging of these forests are seen as emissions of carbon dioxide by developing countries. The South objects to such claims as interference in internal affairs and as infringements of national sovereignty over natural resources (Bergesen and Sydnes, 1992, 42). The South sees economic development as more important than carbon sinks and demands technology transfer at no net cost if emissions are to be reduced (Brown, 1995). Some Southern states such as Brazil and Malaysia have argued that figures about carbon dioxide emissions from deforestation in their countries have been exaggerated by actors in the North. They argue that climate research has taken place mostly in the North and developing countries are under represented even in the IPCC (Ibid).

3.5 Micro Divisions

While there is a wide division between North and South on the question of global warming, there exist divisions within

each side that hinder real progress towards an effective climate regime. For instance, within the G-77 bloc of countries there are diverging positions between larger actors such as China and India and smaller actors, and between OPEC states and SIDS. China ranks as number three in the world in total energy consumption and accounts for approximately 11 per cent of total energy-related emissions of carbon dioxide (WRI, 1991, 17). While it is sympathetic to the demands of the most vulnerable states, China also has no alternative but to expand its economic development based on fossil-fuel industries as no clean technology is yet feasible (see analysis by future prospects in China by Bergesen and Sydnes, 1992, 43). On the other hand, the situation is aggravated when Northern coutries expand investments in China and accelerate trade with China without really helping to address the real issue in question which is GHG reduction.

The OPEC countries are resistant to any reduction in global fossil-fuel consumption as such measures would adversely affect their oil-based economies. In particular, the situation of oil producers in the Gulf is critical since they are completely petroleum-dependent and still hold large reserves (Bergesen and Sydnes, 1992, 43). The OPEC coalition headed by Saudi Arabia and supported by the US have vigorously lobbied against internationally agreed reductions of emissions, but support increased reforestation as sinks for absorbing carbon dioxide.

On the other hand, the most vulnerable group of countries to climate change within the G-77, the AOSIS states, have been intensively lobbying to set mandatory targets and timetables for emissions control. The group was instrumental in pushing stronger commitments for emission control in the climate negotiations. The alliance has demanded a 20 per cent reduction of carbon dioxide to the level of 1990 by the year 2005, which is commonly referred to as the "Toronto target". (Brown, 1995). Owing to their physical vulnerability to sea-level rise and storm surges, these countries are the ones most concerned about the impact of global warming as they fear inundation in the next century if a one-meter rise in sea level occurs, as predicted by the IPCC (Brown, 1995).

The divisions within the developed North are also based on domestic interests. The position of the US has been most critical in this respect. Being by far the largest emitter of GHGs and aware of the painful economic adjustments it would have to undergo, the US showed minimal interest in negotiating mandatory commitments for emissions control. Nevertheless, being the largest economy in the world, it holds the key to any future climate policy on the global level (Bergesen and Sydnes, 1992, 36). In the initial stage of the negotiations, the US strongly opposed European attempts to include concrete commitments. Finally it joined in the adoption of the climate convention only after having it watered down to satisfy its interests (Goldberg, 1993, 155).

The reasons for the US position on climate negotiations are clear. Its economy is based on large, continuous and relatively cheap supplies of fossil fuel, while energy consumption is twice as high as the Western European average (Bergesen and Sydnes, 1992, 37). Its coal reserves are abundant, one fourth of the world total, and sufficient to last over 200 years at current production levels (Ibid). The country's life style, built on individual consumerism and high mobility, is also not sustainable without continuous supplies of fossil fuels. Thus carbon dioxide stabilization is considered to be detrimental to economic growth. Further, it necessitates political intervention in the form of taxation which runs contrary to the dominant neo-classical economic philosophy of free-market policies (Ibid). These domestic factors, led to a policy of indifference on the part of the US, which stood by the argument of "scientific uncertainty" as a bargaining chip. US climate policy slightly softened after the change of the Bush Administration and the dismissal of White House Chief-of-Staff John Sununu. However, no major shifts in US policy have occurred under the Clinton Administration, as was evident during the Climate Conference held in Berlin in March, 1995.

The position of the European Union (EU) with regard to global warming and climate change has been more favorable than that of the US. Its emissions level is less than half of the US, although it still amounts to almost twice the world

average (Bergesen and Sydnes 1992, 39). The EU has advocated a global climate regime with considerable powers and has accepted an obligation on the part of industrialized countries to transfer additional resources to developing countries (Ibid). In addition, it has committed itself to stabilizing its carbon dioxide emissions to the level of 1990 by the end of this century. It has also recognized that market forces, technical innovation, regulation and standard-setting will not suffice. Therefore, the environmentally-oriented states (the governments of Denmark, Germany the Netherlands and with tactical support from others) within the Union, have lobbied for a proposed energy/carbon tax. Nevertheless, it is yet to gain currency as differences exist among the Community member-states which are based on economic conditions and energy supply systems. These differences run along transnational lines, as industrial lobbies have mobilized fierce resistance to the proposed taxation in some member-states. Their argument was that these environmental taxes will erode their comparative advantage and hence lead to unemployment in Europe (Ibid).

The more pro-environment and climate-friendly approach generally followed by the EU can be explained by analyzing the domestic and geopolitical interests of states. Environmental protection has been given high priority within the EU. This makes for an easier transition to an energy-efficient economy. It has been suggested that their positive approach to climate

negotiations may also be motivated by the anticipated opportunity to play a more important role in world politics, as Europe could fill the leadership vacuum created by the US due to its lack of interest in the issue (Bergesen and Sydnes, 1992, 41). Moreover, the environmental movement has a strong grassroots base in EU countries and Green Parties are well represented in several national parliaments as well as in the European Parliament.

The states of the former Eastern European bloc also had a different position within the North on the issue of climate change. These claimed to be economies in transition in the post-cold war era and demanded preferential treatment. The former Soviet Union is the second largest emitter in the world with a weakened economy that is heavily energy-intensive. Its level of per-capita emissions is well above the Western European average. Emissions are said to have declined slightly since 1988 but not equivalent to the fall in industrial production. The Eastern European states were skeptical about making any concrete commitments concerning future emissions, but left it to other governments to defend this position in public (Bergesen and Sydnes, 1992, 39). They claim that their transitional economic situation in the post-communist restructuring process deserved financial and technical support from the West (Ibid).

These divisions within the two major blocs in the international community based on economic and domestic

conditions truly illustrate the intertwined nature of politics and economics. It also demonstrates the interdependent character of domestic politics and international politics. The international community does not comprise a homogenous group, as the level of development, access to energy resources and vulnerability to climate change vary significantly among states. Therefore, the political features of the climate policy arena - uncertainty, complexity, controversy and political diffuseness - may not disappear quickly. Nevertheless, international cooperation is vital to solving these problems because of the transboundary and critical nature of the issue for which universal substantive agreement is indispensable. Given these constraints, the process of climate negotiations is expected to be contentious, slow and reactionary with ample room for polarization.

3.6 Conclusions

The issue of global warming truly highlights the need for a new world order based on a new definition of the concept of security and an effective mechanism to govern the global atmospheric commons. The new concept of security requires a re-examination of the plight of the planet and humans. Although traditional theories of international relations such as realism hold some relevance to the evolving international crisis, there is the need to expand their visions beyond state-centred interests and military-related threats to include environmental threats and the problems of protecting

the global commons from climate change.

The issue also has demonstrated that international cooperation is the cornerstone in devising solutions to global problems and states have to make some compromises in the interest of the welfare of the international community. For all humans have a right to a secure existence and all states, big or small, have an obligation to protect that right. Therefore, as the WCED recommended, the concept of security must be enlarged beyond traditional definitions to incorporate the tragedy of the global commons and the threats resulting from environmental degradation (WCED, 1987, 29). Environmental stress such as scarcity of water can lead to conflicts, while sea-level rise and subsequent migrations can destabilize regional security. This leads to the conclusion that national security has to include three equally important components: political, economic and environmental concerns.

The issue of climate change and sea-level rise has also shown that we live in an increasingly interdependent world and problems of such a complex world cannot be solved by merely a powerful state or by a cabal of state actors. The participation of non-state actors is needed as well. Indeed, it was epistemic communities and the NGOs which highlighted the problem of climate change and brought the matter to the attention of the world community. They also have become guardians of the environment by filling the vacuum created by the inactivity of states in addressing environmental issues,

due to the influence exerted by powerful economic forces such as TNCs. Thus the role of non-state actors in international relations today cannot be ignored and provisions must be made to accommodate their contribution to world politics, as recommended by the CGG in its recent report on global governance (CGG, 1995, 339). The need for interaction of multiple actors and recognition of new threats to security calls for a holistic approach to address the issue.

The politics of global warming also echoes the conflicting interests of nation-states and the thorny division between North and South. The issue of global warming also offers new insights beyond the traditional explanation of IPE by recognizing that without the inclusion of environmental issues, no adequate explanation of the changing international political economy can be provided.

Chapter IV: INTERNATIONAL RESPONSES AND REGIME FORMATION

4.1 Political Implications of Global Warming

There are enormous political and legal implications that can result from the crisis of global warming. Rising sea levels could sink low-lying small island states such as the Maldives before the end of the next century (Gayoom, 1992, 01). The problem may wipe out many states, making their peoples environmental refugees, and challenging the international community to handle an unprecedented and tragic situation. It would be a fatal consequence not of their own making but resulting from the irresponsible actions of others. This raises urgent and serious questions concerning state responsibility in international law, particularly for those acts which are not yet prohibited by international law. There is no effective law that addresses such a unique problem as sea-level rise, nor are there any effective institutions yet established to deal with such a crisis.

It is clear that the greatest losers will be states having low-lying islands and coastal zones. If these endangered states are drowned, what will happen to the the nationhood of these people and sovereignty of these states? Even if environmental refugees are rehabilitated, how will the resulting economic and political implications be addressed? Will the owners of the new land allow the displaced refugees to form a sovereign state within their own territory, or can they be accommodated in the new state with autonomy for self-

governance? Also, who will bear the rehabilitation and compensation costs? The pertinent question is: why should SIDS be subject to the actions of others? Would it not be a violation of their legitimate rights to a secure existence and a denial of the human rights of their citizens?

Another important factor is the reluctance on the part of the developed countries to act prudently. This has caused great concern to environmentalists and endangered states. As we saw in the previous Chapter, the industrialized countries so far have failed to make binding commitments for setting targets to reduce carbon dioxide levels and any timetables for action due to the perceived socio-economic costs involved. Furthermore, uncertainty, financial sacrifice and fear of "free riders" also restrict remedial actions. Nevertheless, some countries have made unilateral commitments by introducing carbon taxes to reduce emissions. Other countries fear that unilateral decisions may place them at a disadvantage as they may lose their competitiveness in international markets unless universal compliance is assured.

Countries also hold different views on the amount of carbon dioxide emissions to be reduced and how reductions should be distributed. For example, the US is worried about its costs of abatement, while developing countries are concerned that any commitment on their part would be an impediment to their living standards. In the US it has been estimated to cost 2 per cent of GDP to reduce carbon emissions by 50 per cent by

the middle of the next century (OECD, 1992, 6). The target set by the famous Toronto Conference in 1988 has been a benchmark that countries often refer to in this regard. The "Toronto target" sets a 20 percent reduction of carbon dioxide at 1988 levels by 2005 (Pearce, 1991, 20). The target proposed by AOSIS in their draft protocol to FCCC submitted to the COP1 in March, 1995 was also based on this target (FIELD, October 1994, 1). According to Cline, if the most optimistic model of carbon emissions proves to be right, a tax of $ 40 per ton would be sufficient to reduce carbon emissions by 20 percent from 1990 levels (Cline, 1992, 369).

On moral and rational grounds there are a number of reasons why the most vulnerable countries have to be protected. First, if current scientific predictions become a reality, rising sea levels can sink the territories of low-lying states as early as within the next 50 years. These islands, although insignificant in terms of their contribution to the global economy, contain large foreign investments which have become indispensable to international trade. The off-shore banking facilities and the transhipment port services offered by some of these small countries are important services to the expansion of world trade. These islands are also locations for flourishing global tourism. The unique recreational values and scientific features of these islands, if lost, will never be regained. The unpolluted crystal-clear waters, the rich marine gardens and noise-free environment are part of the world's

common heritage.

On the question of biodiversity, these islands have much to offer as they house a number of undiscovered species and plants that could have great value to humankind. For example, American scientists working in the Maldives announced in March 1995, that a unique marine sponge found in Maldivian waters may potentially provide a cure for cancer (Aafathis, March 1995). In fact, there is much to be discovered in the seabeds of the island states for various field researches including medicine. Most of these islands are also dependent on the rich fishing grounds surrounding them. Any change to climate can endanger the diet of island peoples and cause drastic reductions in world and regional fish stocks.

These countries arguably have the right to seek protection from environmental insecurity under the United Nations Charter, which calls for the protection and security of all its members. Article I (1) of the Charter calls for effective collective measures for the prevention and removal of threats to the peace. Certainly, the threat of climate change is a cause for concern which may lead to breaches of peace. Nevertheless, the language of the fifty-year old Charter does not make mention of any threats arising from environmental factors. Therefore, it requires revision to recognize environmental treats, and to make new commitments to address such threats which are expected to dominate international agendas in the twenty-first century.

Both the Rio Declaration of 1992 and the FCCC do throw some light on the principle of good neighborliness, whereby the endangered states can hold industrialized countries responsible under customary international law. Principle 2 of the Rio Declaration grants sovereign rights to states for exploiting their own resources while ensuring "that activities within their jurisdiction or control do not cause damage to the environment of other states or areas beyond the limits of national jurisdiction" (Rio Declaration, 1992). Principle 7 further adds to the principle by acknowledging the "responsibility that they (developed countries) bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command". Of course, all these principles are non-binding and action is intended on a voluntary basis at national, not global levels, thus restricting enforcement capability (Ibid).

The text of the FCCC in one of its preambular paragraphs reaffirmed states' responsibility for avoiding environmental damage to other states, but omitted the "polluter pays" principle mentioned in the Rio Declaration. However, it recognized the vulnerability of SIDS and referred to the provision made for settling disputes arising between states. Article 3(3) made reference to the need to adopt a "precautionary approach" to climate change by calling upon member-states not to use the argument of scientific

uncertainty as a reason for postponing measures in the face of threats of irreversible damage.

The issue of global warming requires costly compromises, structural adjustments to the industrialized economies and intensive cooperation among heterogenous countries if catastrophic consequences are to be avoided. This in turn implies that a major diplomatic battle remains to be fought. The endangered islands lack the capacity to adapt to climate change due to technological and financial constraints. For example, a study by the OECD found that a sea- level rise of one meter would cost 34.33 percent of the annual GNP of the Maldives for protection measures (OECD, 1992, 41).

Indeed, there is a strong case for SIDS to voice their concerns at international fora. In fact, SIDS like the Maldives are already holding the international community responsible for their plight. A petition signed by 74% of the Maldives population over 10 years of age calling for international action to save the Maldives was presented by the President of the country to UNCED in 1992. He also announced that his country's endeavor to establish an international organization, the Green Cross/Crescent, was supported by Switzerland (Gayoom, 1992, 10). It was the first organization of its kind established to facilitate relief work for potential environmental disasters resulting from climate change.

According to Finger, an opinion poll conducted by the US

Gallup Institute in June 1992 discovered that majority of the respondents questioned in various countries held the North rather than the South solely responsible for global environmental problems (Finger, 1993, 47). However, as noted before, it would be very difficult to hold any country or group of countries responsible for the environmental crisis, given that no one would have promoted destruction except by way of lack of knowledge, foresight or alternatives (Hildyard, 1993, 30). Therefore, the struggle for the protection of the most vulnerable states from global climate change will be a long and hard battle.

The principles of sovereignty and the right to development impede the progress of international environmental law. In upholding these principles, international environmental laws are weakened. The lack of an effective policing authority to prevent the spillover effects of transboundary environmental problems is the greatest drawback in the present international system. Similarly, unilateral actions by states, as in the case of the 1995 fisheries dispute between Canada and European Union, can have adverse consequences. As the CGG points out, the principle of national jurisdiction can hardly be used to protect areas that do not fall within it (CGG, 1995, 215). Therefore, international cooperation and global partnership in using the global commons is the only way in which global warming can be averted. And mobilizing public opinion at the grassroots level in the industrialized states can be the most

effective weapon in changing their policies.

4.2 International Responses to Global Warming

The proverb "necessity is the mother of invention" can best explain the international responses that have been generated to address the issue of global warming and climate change. A number of climatic events around the world ranging from droughts to storms have triggered concern that patterns of climate have been changing and that the human-induced greenhouse effect may be responsible for the change. The scientific community expressed concern about the dire consequences that the world may face if human interference in the natural weather system continued to prevail. Environmental NGOs began to mobilize public support to push the issue onto the agendas of decision-makers. This was underscored by the scientific consensus which built up as more evidence began to surface regarding global warming. According to Paterson,

> Since 1988 in particular, it has been increasingly perceived by the international community that the problem of global warming warrants a serious international response. Because of the truly global nature of the problem, and the fact that responding is likely to affect large sectors of all economies, global warming arguably presents a great challenge to the international system as it currently function (Paterson, 1992, 155).

To summarise the history of these developments, the international community first began to study climate-related issues with the establishment of the International Meteorological Organization in 1853. Until the replacement of this organization in 1947 by the WMO, research in the field was concerned solely with monitoring weather conditions at

high altitude (Paterson, 1992, 173). The first International Geophysical Year in 1957 marked a rebirth of interest in climate studies as a plan was drawn to develop understanding of the earth's atmosphere. The next breakthrough event came when countries met in 1972 in the Stockholm Conference on the Human Environment, which marked the recognition of environmental issues as a global problem. Since then, the issue of climate change became increasingly politicized and a series of meetings were held on how to respond to the issue (Paterson, 1992, 172). Finally, at UNCED held in Rio de Janeiro in June 1992, world leaders adopted the FCCC to address the issue of global warming. The following sections analyze important features of these events.

4.3 Regime-Formation

The formation or initiation of an international regime to address the issue of global warming can be best explained by the epistemic communities approach to regime theory. An international environmental regime is defined as "a system of norms or rules that are specified by a multilateral legal instrument among states to regulate national actions on a given issue" (Porter and Brown, 1991, 20). The kind of regime formed on global environmental problems is normally in the form of convention or if an agreement is negotiated in anticipation of later elaborating texts, framework convention. The Climate Convention is a framework convention since it lacks mandatory actions and specific objectives and its text

is still in the process of further elaboration. A framework convention assumes that there is an incomplete regime in the process of formation; thus one or more protocols which spell out the specific binding obligations of the parties will be later added to the convention.

The climate regime fits quite well into the epistemic communities model of regime-formation. This model describes the formation of a regime as having its roots in scientific research on a given problem. In other words, it emphasizes international learning as a factor influencing the evolution of a regime (Porter and Brown, 1991, 24). The pressure exerted on the international community after the Villach Conference in 1985 and the Toronto Conference in 1988 produced the necessary impetus for the establishment of an important scientific body, the IPCC, comprising 300 scientists (see the comment by Paterson, 1992, 179).

The scientific evidence and scientific consensus generated on the issue of the enhanced greenhouse effect and global warming cannot be disputed as far as regime-formation is concerned (see comment by Porter and Brown on this point, 1991, 25). At the same time, it should also be noted that although scientific elites played a supportive role in the initiation of a climate regime, this has been weakened by the conflicting interests of governments and private parties who also exert considerable influence over the interpretation of scientific findings. This was evident in the fact that the

climate regime lacked effectiveness in terms of mandatory targets and specific obligations. Therefore, scientific evidence cannot escape the features that characterize the international system such as diverging economic and political interests, domestic pressures, and the private interests of powerful non-state actors such as TNCs. Nevertheless, as Porter and Brown point out, increasing scientific knowledge, the rise of pro-environmentalist public opinion, and the emergence of environmental policy have all given birth to the climate regime (Ibid, 26)

International efforts towards establishing an international climate regime began in 1985 when a meeting held in Villach, Austria, recommended the first global treaty to deal with the growing crisis. A follow-up meeting was held in Bellagio, Italy, in 1987, at which initial predictions of climate change and its impacts were presented by scientists.

The initial catalyst that generated momentum towards the realization of an international regime to address the question of climate change was the IPCC. This was a scientific body constituted by the WMO and UNEP in November 1988. It was charged by the United Nations General Assembly (UNGA) with the task of preparing a comprehensive review of options and recommendations in response to global warming (Plant, 1991, 168). The IPCC compiled three reports in 1990 on the issue, in which it assessed the crisis, and suggested response strategies (Paterson, 1992, 179).

The next important event that shaped the process of regime formation was the Toronto Conference held in February 1988 entitled "The Changing Atmosphere: Implications for Global Security." In the keynote address, Canadian Prime Minister Mulroney called for a concerted international effort to develop by 1992 an international accord or elements for the protection of the atmosphere. The outcome of the Conference was a call for a reduction of annual carbon dioxide emissions to the levels of 1988 by 20% by the year 2005 (Goldberg, 1993, 155). The conference led to a "Meeting of Legal and Policy Experts" in Ottawa whose terms of reference included developing a legal and institutional framework for dealing with existing and emerging atmospheric problems. The meeting made progress towards a convention on climate change, suggesting a framework approach which Susskind has called a convention-protocol approach (Susskind, 1994, 36). The negotiations were supposed to follow two steps, as in the Vienna Convention on the Protection of Ozone Layer. This approach initially focuses on reviewing scientific evidence and drafting a framework convention; later the signatories focus on the preparation of detailed protocols.

In November 1989, a representative group of small island states met in the Maldives at a conference known as the Small States Conference on Sea-Level Rise. The Conference adopted what was called the "Male' Declaration on Global Warming and Sea Level Rise". It called for negotiations for a framework

convention on climate change to start as soon as possible after the adoption of the interim report of the IPCC (Male' Declaration, 1989). This was the first international initiative taken by the states most prone to the crisis, but it received no coverage in the world media, nor was it given attention by the industrialized countries (Thomas, 1992, 125).

The last conference to make recommendations for activating negotiations towards drafting a framework convention was the Second World Climate Conference held in Geneva in 1990. The conference reviewed and approved the IPCC reports. The Ministerial Declaration that was adopted at this conference called for commencing negotiations with the objective of completing it in time for signature at UNCED.

Finally, the real foundation for establishing a legal regime to address the question was laid when the UNGA established the INC on a Framework Convention on Climate Change in December 1990 (Goldberg, 1993, 157). It was charged with the preparation of an effective framework convention on climate change. The Committee held five working sessions before it could finally adopt the Convention in time for signature at the UNCED in June 1992.

The consensus approach pursued in drafting the Convention, however, eroded its effectiveness. Heated debates and conflicting divisions characterized the negotiation process. The complexity and multiplicity of the issues constrained substantial progress, particularly when discussions were

pressed for time. "When disputes could not be resolved, the negotiators often used ambiguous language" (Antrim and Chasek quoted in Chasek, 1994, 46). The US was noted as a staunch opponent to the binding commitments while the rest of the OECD countries were more favorable to it. There were divisions within G-77 which demonstrated mixed positions with regard to mandatory commitments. Larger developing countries like China demanded that industrialized countries make binding commitments to reduce emissions of GHGs, while they be given preferential treatment in the interest of their lagging development. The OPEC countries 77 were indifferent to the issue of binding commitments, while AOSIS countries relentlessly lobbied for it at the negotiations. Micro-divisions within G-77 also weakened the group's bargaining position at the climate negotiations.

The participation of developing countries was funded by a voluntary fund established by INC and contributed by developed countries. However, the participation of small developing countries was said to be more or less symbolic since delegates lacked necessary skills and expertise to meaningfully contribute to the negotiations. Several informal sessions that took the shape of seminars were held to provide necessary background on specific issues to these delegates. Moreover, NGOs provided delegates with background documentation and served with a daily bulletin that reported on the progress of the negotiations.

This lack of meaningful participation by many small developing countries leads to the conclusion that a few key parties dominated the discussions. According to Pulvenis, this factor contributed to "considerable imbalances between states as to the effectiveness of their (small states) representation" (Pulvenis, 1994, 83). Nevertheless, some countries pursued a collective strategy in their representation by channeling their actions through interest groups like AOSIS. In commenting on the positions of various interest groups at the negotiations, Pulvenis noted that alliances were rather fluid during negotiations and shifted positions to fall in line with the changing trends of the negotiations.

Issues took shape in a negotiating text which came from written proposals made by participants. These issues were compiled and edited into a single negotiating text by the INC Secretariat. At the First Session of the INC, two Working Groups were established, each of which was headed by co-chairman. Working Group I dealt with "commitments" while Working Group II dealt with "mechanisms". The work of these Groups were based on formal and informal procedures. As Chasek notes, formal negotiations are often followed by informal negotiations which were held in "a more open and interactive" manner (Chasek, 1994, 48).

As the deadline of the UNCED drew closer, the chairman of the INC took drastic actions in the interest of concluding the

Convention in time for signature at the UNCED in June 1992. He disbanded the first two Working Groups and formed three new Working Groups with designated chairmen to head each. The chairman of the INC also introduced a new text which aroused considerable controversy. According to Pulvenis, even then the negotiations were bogged down once discussions commenced. This urged him to take sweeping actions:

> "He convened around him a small group of delegates- mainly the officers of the Committee and chairmen of the regional groups, but also several that he selected on his own judgement. This small group met behind closed doors on 6-7 may 1992. No other delegation was allowed to attend, not even in the capacity of mute observer" (Pulvenis, 1994, 86).

Once this text was finalized at the closed-door session it was submitted to general committee for adoption. It was watered down at the eleventh hour to accommodate the conflicting interests of the US and other opponents. This move was criticized by developing countries. As the delegate of Malaysia put it:

"We have a text in which key parts have been dictated to us on a take-it-or-leave-it basis, in a manner that we perceive as another manifestation of the so-called new world order" (quoted in FEI, 1992, 13).

Therefore, when it was finally adopted it did not contain any binding commitments for emissions control and important elements of the negotiations such as financial assistance to developing countries and technology transfers were only vaguely mentioned.

The forum that gave birth to what is in effect a toothless convention on climate change was the UNCED in 1992, at which

there were 154 states signatories. The UNCED marked a breakthrough in setting a course towards the formation of an international regime for addressing the question of climate change, although it fell short of the high expectations that the climate change crisis had generated. It also provided the opportunity for the leaders of big and small countries to raise their concerns and to exchange information. The event was nonetheless very successful in creating awareness about global warming, and led to the adoption of a soft law on the environment known as the Rio Declaration and the FCCC.

The Rio Declaration was a set of general principles which outlined the broad course of action that the international community should take in protecting the atmospheric environment. Being a non-binding document, it lacked clout in terms of its effectiveness to address environmental issues of global concern such as climate change. It was a weak document, having no commitments at all except vague promises by states that had no legal power to influence decisions relating to climate change. In terms of significance its only strength was that it was adopted with consensus without any bracketed texts.

In its original form (known as the Earth Charter), it commanded high hopes, but when it came to the stage of adoption its significance was substantially eroded (Finger, 1993, 37). In fact, it contained no substantive rules to mitigate the process of global climate change. For instance,

no measures were mentioned about emission control or the valuing of public goods such as air and water. Of course, it recognized the vulnerability of some states to environmental degradation, but it made no specific mention of these countries or how they could be helped (Rio Declaration, Principle 6, 1992). Financial assistance and technology transfer were merely mentioned as slogans, like sustainable development, and the Declaration made no mention of commitments as to the kind of technology and amount of money, or alternatives that would be made available to SIDS (Rio Declaration, Principles 7 & 9, 1992).

Nevertheless, there were some positive aspects that shed light on the issue of climate change, although very narrowly defined. These included the recognition of intergenerational equity, reduction of differential standards of living, acknowledgement of the responsibility for environmental strain, elimination of unsustainable patterns of production and consumption, and the call for environmental measures addressing transboundary problems based on international consensus (Rio Declaration, Principles 3, 5, 7, and 12, 1992). It also called for the development of national laws regarding liability and compensation for the victims of pollution (Rio Declaration, Principles 13 and 16, 1992). Most importantly it extended the scope for further development of international law on environmental issues (Rio Declaration, Principle 27, 1992).

Perhaps the most striking points in the Rio Declaration were the calls for the adoption of a precautionary approach, the conduct of environmental impact assessment, and the urge for the promotion of the "polluter pays" principle (Rio Declaration, Principles 15, 17 and 16, 1992). All of this reaffirmed the need for a new global partnership based on dialogue and cooperation.

4.4 Strengths and Weaknesses of the FCCC

The FCCC was thus one of the most important agreements concluded at UNCED. It paved the way for the initiation of the first international regime on global warming. A number of preparatory negotiations were held before the adoption of this convention. Like many other environmental conventions, it contained mostly general statements of concern as a first step towards an effective regime formation. Its strength was the provision embodied for further negotiations and adoption of additional protocols as the need arises, to tighten the terms of references in line with increasing scientific certainty (FCCC, Article 15 [1,2&3], 1992). To this effect, a protocol has already been proposed by the most vulnerable states to global climate change, the small island states. This proposal was submitted to the First Meeting of the Parties to the Convention held in Berlin in March/April 1995.

The climate change convention thus strengthened cooperation between countries in the area of environment, and recognized global warming as the most pressing environmental problem. The

international community took approximately fifteen months to conclude the convention, although areas of disagreement were left to be resolved at the implementation stage (Goldberg, 1993, 150). The objective of the convention is to achieve stabilization of GHG concentrations in the atmosphere at a level that would prevent hazardous anthropogenic interference with the climate system (FCCC, Article 2, 1992).

The convention has come under severe criticism for failing to incorporate many important measures that are urgently required to address the mitigation process. Most importantly, it lacks legally binding commitments to reduce emissions of greenhouse gases. Similarly, it has not defined clear targets or timetables for controlling emissions. These gaps undermine its position as an effective regime for addressing the problem of global warming.

The FCCC nonetheless is recognized as a process in motion towards establishing an effective regime in the future. It has clear objectives, substantive obligations and an interest in financially and technically helping the most affected countries. Most importantly, it contains procedures for its own review and strengthening (FCCC, Articles 2, 4.1[c] & 4[3], 1992) . Article 7 of the Convention establishes a governing body known as the Conference of the Parties (COP) which should meet at least once every year. It is empowered to review progress and make necessary amendments to the convention (FCCC, Article 7, 1992). The locus of the regime is a

secretariat, which is responsible for the coordination and administration of the convention (FCCC, Article 8, 1992). There is also an advisory body known as the "Subsidiary Body for Scientific and Technical Advice", which is charged with the important function of monitoring compliance. However, no sanctions are prescribed for violations (FCCC, Article 9, 1992).

Since the convention contains no binding obligations nor clear guidelines on penalties for those who violate agreed principles on climate change, the most vulnerable states and environmental NGOs have demanded more speedy and definitive commitments. The convention is not only narrowly defined, it is also short-sighted. For example, it does not mention any plans about emissions levels beyond the year 2000.

The only general commitment it demands from the parties is the periodic review reports about national action plans and the optional measures implemented in reducing emissions (FCCC, Article 4.1 [a & b], 1992). Accordingly, governments will need to formulate national climate-change policies, and work out legal and institutional frameworks for their implementation. However, the convention itself leaves to the discretion of each party to decide what measures it will take in this regard. The deadline for most of the developed countries to submit their national reports in this regard was September 21, 1994. Many of the countries honoured their obligation to submit progress reports, but the Climate Change Bulletin casts

doubts as to the implementation of policy responses and the fine-tuning of national legislation to accommodate the problems that the convention seeks to address (Sundraraman, 1994).

Another ambiguous and non-binding commitment made by the developed countries to developing countries is the terms of financial assistance and technology transfer. Article 11 of the convention defines a financing mechanism for the "provision of financial resources on a grant or concessional basis, including the transfer of technology" (FCCC, Article 11, 1992). The Conference of the Parties, which is the central decision-making body, is to supervise and guide the management of finance (FCCC, Article 7, 1992). The developed countries are obligated by Article 4 to finance developing country parties' national reports as well as the "incremental costs" to be incurred by developing countries in implementing the other provisions of Article 4 (FCCC, article 4.3, 1992).

According to Goldberg, incremental costs are costs in excess of those that would have been incurred had the party not undertaken a particular action to implement the convention (Goldberg, 1993, 166). Undoubtedly financing was one of the most contentious issues raised by the convention. The UNCED Secretariat has calculated that approximately US $ 70 billion (in addition to the present development assistance of US $ 50 billion from North to South) will be needed to implement UNCED's Program of Action, Agenda 21 (Finger, 1993, 37). In

Article 4 (3), it made mention of two important concepts with regard to financing known as "new and additional finance" and "incremental costs". These two concepts have sparked strong debate as to their meaning and obligations. This is partly because additionality and incrementality of funds are very sensitive issues that the beneficiary states take seriously. However, opinion remains divided between the donors and recipients as to states' responsibility to shoulder the costs of human-induced global environmental change.

According to Jordan and Werksman, additionality describes the origins of the financial resources needed to solve global environmental problems, while incrementality determines the total size of those resources needed to address a particular area of concern (Jordan and Werksman, 1994, 01). The concepts appear to be interlocking; for the greater the incremental costs, the more additional resources will be required. On the other hand, the more additionality that is provided, the greater the "total" incremental cost that can be met. These concepts tend to have different meanings in different contexts. The first context is that of regime negotiations where bargains are struck between countries to produce international law and policy. In this regard, finance can help to lubricate the process of diplomacy. The second context is the more drawn-out process of operational decision-making (ie., the implementation of international agreements) where implementation of programs are drawn up, individual projects

are identified and ranked, and finance begins to flow (Ibid).

Moreover, a clear division along North-South lines emerges on financial commitments. Donors tend to have a minimal interpretation. For example, transfers meant a price to be paid for enlisting the support of the South in tackling common problems. Contrary to this interpretation, the developing states seek to advance a maximal interpretation of "additionality" and "incrementality" by arguing that "new" environmentally-related transfers are a rightful and legitimate means to address the inequalities inherent in the operation of the world economy (Ibid, 1994, 4). These very divergent views are not easily reconcilable. In short, the task of balancing the interpretation has to be worked out between the Conference of the Parties to the convention and the Global Environment Facility (GEF), the operational arm for financial matters. The GEF is a temporary institutional body established under the auspices of the World Bank as the institutional arm of the finance to support environmental projects. It is supposed to be administered jointly by the World Bank and UNDP. However, thc GEF was criticized by developing countries for being more responsive to the interests of developed countries. Some limited changes were introduced in 1994 to the Fund in the form of restructuring its operations. Nevertheless, these changes fell short of the expectations of the developing countries, particularly the SIDS. The institution attempts to distance itself from

financing non-global environmental projects, that is, those that are restricted to local interests and produce no benefit in a global context. Developing countries have demanded greater transparency in the operations of GEF-financed projects. They have also pressed for greater democratization of the institution, favoring a double-majority voting mechanism modelled after the Montreal Protocol Fund.

4.5 Post-FCCC Developments

The FCCC came into force on March 21, 1994. To the dismay of many environmentally concerned citizens, compliance has been poor. In fact, there have been contrary developments, since many industrialized countries have backed off from their previous tacit commitments. Carbon emissions from fossil fuels have increased by 3 per cent in Western Europe and by 5 per cent in North America since 1990 (Flavin and Tunali, 1995, 13). According to some analysts, the trend in growth of global carbon emissions is now at 2 to 3 per cent (Ibid). The independent evaluation of the review reports submitted by the Group of Seven industrialized countries pursuant to the convention found that "many parties were not on track to fulfilling their domestic and international commitments" (US Climate Action Network [USCAN] and Climate Network Europe [CNE], 1995, 1). The evaluation also found that the first communications reveal national policies that are extremely deficient. If the present trend prevails, it is projected that emissions will increase by 60 per cent within the next two

decades, compared with its reduction by the same amount as called for by IPCC (Ibid). The treaty has thus had little effect in reality. These developments have occurred despite mounting evidence of climate change and records of losses incurred in many parts of the world due to storms and floods.

For example, world insurance companies have suffered a series of unprecedented losses due to climatic events. According to the Executive Director of the UNEP Elizabeth Dowdeswell:

> The fact that a growing number of insurance companies believe that climate change poses a serious risk should be a warning to governments, who must make a cost-benefit analysis when they decide how to respond this threat (quoted in Williams, 1995, 3).

Some insurers even attended the Berlin Conference, 1995 (COP1) as observers, which was a clear indication that some TNCs are adversely affected by the crisis and so are ready to play an active role in the climate negotiations.

Meanwhile, the developed countries have come up with various strategies to avoid strict abatement measures by taking refuge in the vague and non-binding language of the FCCC (Flavin and Tunali, 1995, 12). Similarly, the developing countries have declined to adopt any significant climate goals and even "have expressed growing hostility to the entire process" according to Flavin and Tunali (Flavin and Tunali, 1995, 11).

There have nonetheless been a few pilot projects launched under the "joint implementation" program envisaged in the

FCCC. However, the effectiveness of these programs in curbing emissions is yet to be realized. Joint implementation is a provision entailed in the FCCC. Developed countries can invest in projects carried out in developing countries that would help abatement of emissions like replacing inefficient energy systems (Flavin and Tunali, 1995, 16). Some countries including the US are very favorable to this mechanism, while Denmark and Germany are opposed to it until further guidelines are developed and rich countries demonstrate firm commitments to dealing with the climate problem. Similarly, some leading developing countries such as China, India and Brazil are critical of this mechanism as such programs would reduce pressure on developed countries to take action at home. Flavin and Tunali argue that the "idea of trading off such efforts against industrial country commitments is delusional" (Ibid, 17).

The contribution of the GEF to emissions control through its various projects has also been extremely discouraging. It was primarily charged with mobilizing funding for such measures as programs that improve energy efficiency and promotion of non-fossil fuel energy use in developing countries. It was reported that a total of US $280 million funding went to climate-related projects, while this amount was dwarfed by the $20 billion that the World Bank and public-sector lenders plan to provide to the energy and transport sectors of developing countries over the next three years,

much of it for fossil-fuel-based systems (Flavin and Tunali, 1995, 18). Flavin and Tunali notes that "remarkably, the World Bank has no official policy on greenhouse warming, and does not consider the climate-related effects of its loans" (Ibid). These developments translate into some kind of a mockery of the FCCC. Unless all these institutions put their houses in order to harmonize their activities with the objectives of FCCC, stabilization of the climate will be unrealizable.

The long-awaited COP1 held in Berlin in March 1995 also ended where it began. Not only did it repeat the same North-South confrontation on the issue, it also failed to adopt the proposed protocol of the AOSIS which reiterated in a timely manner the "Toronto Target". The diplomatic paralysis at this conference too was caused by the developed countries, who reiterated the same rhetoric, arguing that there was too much scientific uncertainty to adopt costly commitments. Even so, it would be an exaggeration to note that COP1 was a total failure. It at least resulted in committing the parties to intensifying negotiations towards achieving climate goals such as setting targets and timetables for emissions control in 1997 (Secretariat for FCCC [Berlin Mandate, III], 1995, 8).

The COP1 was the first conference held pursuant to the convention for reviewing the state of the climate. Two texts were tabled for the meeting, known as the "AOSIS Protocol" and the "German Paper", both of which basically described effective measures to be taken to ease the climate crisis.

After extensive deliberations, the conference failed to adopt any of these proposals, but adopted a final document known as the "Berlin Mandate". This acknowledged the commitment of developed countries to return to 1990 levels of emissions by the year 2000 as inadequate, and instead established a process that could outline appropriate action for the period beyond 2000. It will not introduce any new commitments for developing countries, but only for developed countries. The process will be undertaken by an ad hoc working group which will hold meetings as necessary to produce a protocol by the year 1997, in time for COP3 to be held in Japan. Therefore, the efforts of environmental activists and AOSIS were not entirely wasted as the Berlin Mandate itself made reference to the AOSIS protocol. In fact, the international community can never afford to totally dismiss climate-change arguments as episodic events continue to unfold with renewed intensity.

4.6 Conclusions

Global warming and its impact on climate change is undoubtedly an issue with fatal consequences. The consequences also include political implications that are of utmost concern to endangered states and which could jeopardize world security and peace. For the issue threatens the environmental security of SIDS and causes great stress to the international system in terms of coping with possible migrations of environmental refugees. There is no mechanism as yet that could address such a challenging crisis although the international community is

in the process of building an environmental regime to deal with climate threats.

It was the scientific community that was instrumental in bringing the issue to the attention of the international community, and generating progress towards a solution to the problem by developing a consensus based on improved findings. The international community's reaction to this scientific consensus and to NGO pressures has so far been marked by a loosely-worded and ill-defined convention. This response came in the form of a framework which sets the stage for a gradual build-up of actions as circumstances necessitate. This incremental approach to climate change is reflective of the underlying constraints resulting from an international system comprised of competing states with conflicting interests and varied conditions of development. Therefore, what is necessary to overcome such constraints is international cooperation and political will, particularly on the part of powerful states.

The climate convention has so far had little effect on reducing global emissions. Furthermore, the First Conference of the Parties held in Berlin failed to strengthen it with specific mandatory targets and timetables for emissions control. Even if the negotiations finally arrive at some targets and timetables, some analysts argue that they would not help ease the problem. According to these critics, there is no effective way to monitor compliance. Moreover, they also question whether the release of emissions from various sources

can be checked accurately given the complexity of the processes involved (Victor and Salt, 1994, 9).

The Berlin Mandate, however, recognized the need to consider the long-term impacts beyond 2000, to strengthen the commitments of developing countries, and expand transfers to developing countries. Nevertheless, it does not make any mention of contingency plans to deal with the unfolding climatic events and assisting the most vulnerable states to take preventive measures. There is also no trust fund or interim agency set up that could deal with a sudden crisis resulting from climate change. The FCCC also contains no clarification of the penalties to parties that violate the convention. Therefore, enforcement of and compliance with the convention is very much left to states. Finally there is no independent body to monitor emissions of GHGs by parties to the convention.

It is also saddening to note that the European Union, which initially posed as the world's climate forerunner, is now backsliding on its negotiating position (Flavin and Tunali, 1995, 14). This highlights not only double standards in their positions but also their indifference to treaty compliance and enforcement. Nevertheless, the growth of climate activism within AOSIS, and on the part of financially vulnerable insurance companies, provides cause for optimism. For these parties have renewed their efforts to strengthen the FCCC in the wake of deteriorating climate conditions.

The present stalemate of the convention points to another important factor. Disgruntled climate activists may pursue alternative ways of raising their concerns by resorting to violence. The marginalized climatic lobby may resort to "environmental terrorism". For example, anti-nuclear demonstrations against France in Australia in August 1995 recently broke into fierce violence and even the French Consulate was attacked.

As mentioned in the previous chapter, the issue of global warming requires a holistic approach. The North and South need to collaborate, while all actors including financial institutions like the World Bank should cooperate to execute policies that are climate-friendly. The ad hoc negotiations on the Berlin Mandate need to take up the issues discussed above in search of an effective climate regime that could ensure environmental security for endangered states.

Chapter V: REACTIONS OF SIDS TO GLOBAL WARMING AND SEA-LEVEL RISE

5.1 Background to Environmental Diplomacy of SIDS

> While small island developing states are among those that contribute least to global climate change and sea level rise, they are among those that would suffer most from the adverse effects of such phenomena and could in some cases become uninhabitable. Therefore, they are among those particularly vulnerable states that need assistance under United Nations Framework Convention on Climate Change, including adaptation measures and mitigation efforts. -UN Report of the Global Conference on the Sustainable Development of Small Island Developing States (Report of SIDS Conference, April/May, 1994, 3)-

This statement clearly reflects the vulnerable position of SIDS with regard to global warming and climate change. Having been recognized as the frontline states in the situation, SIDS themselves have become the most active group attempting to establish an effective regime to mitigate the crisis of global warming. However, being the weakest group within the international community, this group lacked the political clout required to achieve regime goals. The convention made mention of the unique position of small island states, and expressed vaguely the desire to help alleviate the crisis faced by these states. It said that the developed countries should assist the most vulnerable countries to adapt to the adverse effects of climate change. However, to date nothing substantial has been done to fulfill this intention.

Having realized the plight of SIDS in the process of global warming and its impact of climate change, it was the President of the Maldives who took the issue to the international

community in October 1987. He addressed the United Nations Special Debate on Issues of Environment and Development at the UN General Assembly (Interview with Alison Drayton, August 1995). He was urged to take the issue to the UN after the unprecedented storm surges in the Maldives in 1987 that caused widespread damage to infrastructure estimated at around US$ 30 million (Gayoom, 1995, 4). President Gayoom also brought the matter to the attention of Commonwealth countries when he addressed the Vancouver Summit in 1987. It was the relentless efforts of the President Gayoom at various international fora, that "forcefully brought the issue of global warming, climate change and sea level rise to the attention of the international community" (Report of Small States Conference, 1989, 2).

The first collective reaction from SIDS to the issue came from what was called the "Small States Conference on Sea-Level Rise" held in the Maldives in November 1989 at the initiation of the Government of the Maldives. A representative group from fourteen states in the Caribbean, Indian Ocean, Mediterranean and South Pacific regions met in the Maldives to discuss and to plan out a strategy to address the issue and to protect small island states from the danger posed by global warming, climate change and sea-level rise. The Conference adopted what was called the "Male' Declaration on Global Warming and Sea-Level Rise". It called for international negotiations towards a framework convention on climate change to start as soon as

possible after the adoption of the interim report of the IPCC (Male' Declaration, 1989). The Declaration further stated that:

> "In view of the fact that the overloading of the atmosphere with greenhouse gases occurred primarily through the actions of the industrialized nations during the past two hundred years, these nations now have a moral obligation to initiate on an urgent basis, international action to stabilize and subsequently reduce emissions of greenhouse gases and to sponsor, as a matter of priority, an urgent world wide program of action to combat the serious implications of climate change, global warming and sea level rise" (Male' Declaration, 1989, 1)

The Conference further decided to develop a program of action within small states for the cooperation and exchange of information on strategies and policies to address the problem and to establish an Action Group to oversee the implementation of the decisions of the Conference as well as follow up actions. It was also decided to mount a campaign to increase awareness in the international community of the plight of small states with regard to sea-level rise (Male' Declaration, 1989, 2-3).

The Conference was successful to some extent in mobilizing the efforts of small island states and set in motion a collective approach to address the common concern of small states. However, as Thomas points out, it did not have much of an impact on the international scene and received virtually no coverage on the world media in the North (Thomas, 1992, 125). On the other hand, little effort was made to implement the decisions of the Conference and it was later overshadowed when the international community began negotiations on a

convention. The Small States Conference nonetheless set a precedent in addressing the growing concern over climate change among SIDS. Another meeting was convened in Majuro in the Marshall Islands by the South Pacific Regional Environment Program (SPREP) which also produced a similar declaration (McMohan, 1995, 4). Again, in 1990, the Caribbean Ministers of Environment met in Kingston, Jamaica prior to Second World Climate Conference (SWCC) and concluded a Ministerial Declaration (Ibid, 5). According to McMohan, it was decided at this meeting that the Pacific island states would be invited to join the Caribbean Community (CARICOM) to form a collective group.

All these meetings generated a positive momentum to pave the way for the initiation of an informal lobby group which eventually mobilized the efforts of SIDS and gave birth to the Alliance of Small Island States at the SWCC held in Geneva in November 1990.

5.2 Formation of AOSIS

The AOSIS was formed out of the need for the development of a collective approach to advance the interests of a group of states which increasingly felt that their cause could be furthered only through a unified body with political weight. The SIDS began to realize that they had a common cause, although the states have varied interests and diverse characteristics. The idea of an alliance was rooted in the Small States Conference, where delegates informally discussed

it. Eventually however, it originated at the SWCC as a result of the initiative of the Secretariat of CARICOM with assistance from the SPREP and the CIEL (Drayton, 1993, 1). According to Drayton, the intention of the movement was to build on the Male' Declaration Action Group and to strengthen their voice within the international legal process. The name of the movement was suggested by Lincoln Mayers, Minister of Environment of Trinidad and Tobago.

The AOSIS describes itself as "a group of developing countries which share common objectives on environmental and sustainable development matters ..... and comprise small island and low lying coastal developing states which are particularly vulnerable to the adverse consequences of climate change such as sea level rise, coral bleaching and the increased frequency and intensity of tropical storms" (AOSIS Memoir, 1994, 1). The Alliance operates as an informal lobby group or as an ad hoc coalition within the UN. It holds meetings when the need arises and the chairing state acts as a coordinator in facilitating relations and correspondence among member states. There is a Coordinating Bureau comprising of the Chairman and two Vice-Chairmen. The First Chairman of the Alliance was the Permanent Representative of Vanuatu to the UN, Mr. Robert Van Lierop who was replaced in early 1994 by the current Chairperson, Mrs. Annette des Iles, the Permanent Representative of Trinidad and Tobago to the UN. There is no official mandate for the body nor a statute that

guides its work. The Alliance, therefore, enjoys a high degree of flexibility. Some delegates of the member states see this as a strength of the Alliance while others are critical of its fluidity.

According to Drayton, the aim of the AOSIS initially was "to act together to ensure that the small islands' position is fully represented within the INC as a whole and also within the regional groupings and the Group of 77" (Drayton, 1993, 1). The Alliance's objectives thus were based on six principles which are pursued at the climate negotiations. These included immediate cuts in emissions by industrialized countries; a preventive approach based on the precautionary principle; new and equitable funding mechanisms and recognition of small island states as a special geo-political grouping; the transfer of clean technology on equitable basis; the recognition of polluter pays principle; and the commitment to energy conservation, efficiency and development of renewable sources of energy (Ibid, 2-3).

The Alliance usually meets at the UN Headquarters in New York besides venues of the INC meetings and the UNCED held in Rio de Janeiro. During the UNCED, the AOSIS got a major boost when it finally managed to hold an AOSIS Summit attended by at least nineteen Heads of States or Governments of member-states, joined by Heads of Delegations of other member-states accredited to UNCED. Before this Summit, meetings of AOSIS were held at ambassadorial or senior official levels. The

Summit paid a special tribute to the President of the Maldives for his initiation of Small States Conference; commended the Government of Trinidad and Tobago for the important initiative taken at the SWCC which led to the formation of the Alliance; and also commended the Government of Malta for the initiative in 1988 which resulted in the adoption of UN General Assembly Resolution 43/53 on the protection of global climate and the proposal for a framework convention on climate change (AOSIS Summit Declaration, 1992, 1).

The Summit expressed its appreciation to the G-77 for sympathizing with AOSIS' position and also welcomed the recognition extended to the AOSIS as a special interest group during the INC negotiations. It also appealed to the international community to recall that the special conditions and threat which led to that recognition still exist. The Summit further noted that "their needs, concerns and interests assigned relatively low priorities within the UN system" and expressed serious concern that the text of the FCCC "lacks explicit, specific and meaningful commitments by developed countries" (AOSIS Summit Declaration 1992, 2). Finally, the Summit renewed its efforts to advance AOSIS interests by assuring adequate representation on international bodies and drawing greater responsiveness to their concerns.

Undoubtedly, the Summit marked a regeneration of the Alliance and exemplified the commitment of the member-states to renew their efforts to further their cause on environmental

security. However, at the Summit no decision was reached concerning the formalizing of the Alliance or defining a more precise mandate for its work besides loosely expressing its goals. This may be due to the fact that the Alliance is a sub-grouping within the G-77 united with a restrictived objective. Moreover, some delegates feel that by enlarging its focus it may invite unnecessary divisions within the Alliance and so undermine its very cause (Interview with an AOSIS diplomat, August 1, 1995). However, in 1995 the Alliance took an active interest in the issue of French nuclear testing in the South Pacific and the transhipment of nuclear/radioactive wastes, against which the Chairperson of the Alliance made statements of concern. This move suggests that the Alliance is broadening its vision to enlarge its interests to other areas of concern to SIDS. The Alliance also has been active in the area of sustainable development of small island states after the UN Global Conference on the Sustainable Development of SIDS held in Barbados from April 26 to May 6, 1994 (SIDS Conference).

Some delegates of AOSIS member countries feel that the Alliance cannot strengthen itself unless it adopts a more formalized structure. One delegate pointed out to the frequent absenteeism of some states at AOSIS meetings as a clear manifestation of either lack of priority or interest in the Alliance (Interview with a diplomat, August 3, 1995). Another diplomat from the Singapore Mission said that they do not follow closely the activities of AOSIS and the country has not

even ratified the FCCC as yet (Interview with a diplomat, August 4, 1995).

Therefore, it could be said that members of the Alliance do not attach equal importance to it or give priority to its work. Nevertheless, the Alliance appears to have grown in strength. For example, it reached consensus on the issue of transshipment of hazardous wastes at the NPT Conference (Non-Proliferation Treaty) held in May 1995. It has also had considerable success in terms of unifying its members as a cohesive group, and raising its concerns at the climate negotiations by winning recognition in the FCCC as a group deserving special consideration.

The ultimate success of the Alliance remains to be assessed, however, depending on the results of its efforts to establish an effective climate regime. Of course, the small island states are at the mercy of the emission- producing countries for being politically insignificant and economically marginal in terms of global trade. It is expected to be a long and hard fought-battle against the reactionary economic interests of the industrialized countries, but not without hope: as President of the Maldives has said, "whatever our fate tomorrow will be yours the day after" (Gayoom, 1995, 10).

5.3 The Role of AOSIS in Establishing an Effective Climate Regime

The SIDS formed an Alliance primarily to promote and to protect their interests in the climate negotiations. They

participated actively as a collective group in the negotiation process that led to the adoption of FCCC at the UNCED. Their role in inscribing effective measures in the convention cannot be marginalized as the Alliance possessed substantial voting weight as a group comprising 31 UN members, almost one sixth of the UN. The Alliance based its negotiations on the six principles mentioned before; of these emissions reduction was the most focused element.

The active role pursued by the AOSIS in the climate negotiations also marked a shift in the traditional thinking about states' involvement in international politics. Traditionally marginalized small states are now becoming important participants in the discussion of global concerns.

In the preparation for the First Meeting of INC, the Alliance sought a permanent representative (PR) of the group who could attend all the INC meetings. Pursuant to this request it was the Prime Minister of Vanuatu who made available his PR to the UN who became the first Chairman of the Alliance and led the AOSIS group. The PR of Vanuatu was a qualified lawyer himself and took a keen interest in mobilizing the efforts of the Alliance and to lead the AOSIS negotiating team. Ambassador Robert Van Lierop of Vanuatu also became the group's candidate to chair Working Group II (Legal and Institutional Mechanisms) of the INC/FCCC. According to the ambassador of Trinidad and Tobago (current Chairperson), Mrs. Annette des Iles, it was Ambassador Van Lierop's

diplomatic skill and negotiating capability that brought many successes to the Alliance (Iles, 1994, 2). Another observer of the role of Ambassador Van Lierop noted that he was quite competent as a lawyer by profession in the US and acted with substantial discretion as a "freelance diplomat", which gave him ample opportunity to actively promote the cause of the Alliance. His departure from the Alliance was felt badly within the Alliance since it lacked another person of that calibre. The ambassador was instrumental in cultivating interest and unity among the members (Interview with an NGO repsentative, August 2, 1995).

The Alliance faced a number of constraints in advancing SIDS interests at the climate negotiations. These include lack of indigenous capability for scientific research and legal expertise. In this, the Alliance was assisted by information and technical advice from competent NGOs, namely CIEL and Greenpeace International. The CIEL provided the legal expertise while Greenpeace provided the necessary scientific information. Many NGOs, particularly in the developed countries, were very supportive of the cause of AOSIS and rendered extensive cooperation in raising awareness about their plight.

The Alliance kept a very cohesive and unified position throughout the five INC sessions which led to the adoption of the of FCCC at the UNCED. The unifying factor of the group was the common concern over sea-level rise. The group always held

prior discussions and consultations with resource persons before going into INC meetings. This practice was established in order to outline collective bargaining positions and strategies to protect their interests. According to McMohan, it was a very useful practice as many delegations of the Alliance lacked access to necessary expertise and scientific knowledge relating to the issues discussed at the negotiations (McMohan, 1995, 7).

As the negotiations progressed, AOSIS was confronted with a number of opposing groups within the G-77. Initially the larger states within G-77 feared that the formation of AOSIS might become another splinter group that could weaken the collective power of the developing countries. But they were reassured about the genuine cause of AOSIS efforts and expressed a firm desire to remain within G-77. The OPEC coalition within G-77 was another group that felt uneasy with the bargaining position of the AOSIS as their demand for reduction in fossil-fuel consumptions have a direct bearing on their economies. As for AOSIS states, the issue is not only a matter of economic interest but of survival.

As the negotiations at INC sessions progressed, AOSIS positions were increasingly challenged by powerful states. The US built its arguments along the line of scientific uncertainty and the painful economic costs it would have to forego in making compromises. Therefore, when the text of the FCCC reached a consensus stage it was heavily watered down

against the interests of the AOSIS. In fact, the Alliance expressed its disappointment to this effect at the AOSIS Summit held during UNCED. When the convention was finally adopted at UNCED, it embodied a number of shortcomings which were viewed by AOSIS as "inherent cracks" in its becoming an effective regime. The convention failed to specify clear targets and timetables for emissions control, and made no mention of the precise obligations the developed countries should meet in honouring their commitments. It was also quite short-sighted since the convention did not look beyond the year 2000. Finally, the demands of the developing countries such as financial and technology transfers were only vaguely mentioned.

Having been disappointed in the first round of negotiations that led to the adoption of the FCCC, the Alliance did not lose momentum. Indeed, they intensified their lobbying efforts by requesting countries to ratify the convention. When the FCCC eventually came into force in March 1994, the Alliance seized the opportunity to prepare for the COP1 (March 28-April 7, 1995) in order to strengthen the convention. In this regard, they were quick to propose a draft protocol to the convention which was to be considered at the COP1. The Alliance also launched a massive campaign in order to promote this protocol. It held talks with their counterparts within G-77 and undertook a promotional tour of six European capitals in February 1995. The tour was funded and coordinated by a

group of Northern NGOs. According to the Report of the AOSIS team, they were warmly received in most of the capitals where a number of NGOs and media welcomed them in addition to the governments. The Report noted that the promotional trip was highly successful, and in particular made headway in Denmark and Austria in winning their support for the AOSIS Protocol (Report of the AOSIS Team, 1995, 11).

5.4 AOSIS Protocol

Initially the AOSIS Protocol was submitted to the Climate Secretariat in September 1994, six months ahead of the COP1 scheduled to be held in Berlin. It was circulated to parties of the convention for consideration. The primary aim of the AOSIS Protocol was to build upon the 1992 UN FCCC by strengthening the specific commitments of the developed state parties to reduce their emissions of carbon dioxide. It required the developed country parties to adopt specific targets and timetables for the greenhouse gases, and provide for a mechanism for the coordination of specific measures designed to reduce greenhouse gas emissions (FIELD, 1994, 2).

The most important point raised in the draft protocol is the specific commitment required of developed country parties to the Protocol (those included in Annex I of the convention) to reduce their emissions of carbon dioxide at least by 20 percent of the 1990 levels by 2005, as well as the establishment of timetables for controlling emissions of other greenhouse gases. The carbon dioxide target and timetable

that would be established by the Protocol is often referred to as the "Toronto Target" after the 1988 conferenece. The other notable amendments presented are the acknowledgement of the need for a long-term perspective that is responsive to changing circumstances, and the specific identification of carbon dioxide as the most prominent GHG. The other gases were to be left out to be dealt with in a collective-approach form later.

Although this protocol looks progressive, it has retained a number of weaknesses from the original convention. It is intended to complement and not supplant the convention, as one commentator has criticized (FIELD, 1994, 6). Much of its text is drawn from the convention's consensus language in the text or from other widely accepted international agreements. Also, it has not touched on the most pressing issue between the North and South transfer of technology. It did, though slightly modify the clause by adding that the "best available technologies are expeditiously transferred to developing counties" under "fair and most favorable conditions". According to FIELD, this language is borrowed from the Montreal Protocol on Substances that Deplete the Ozone Layer.

In terms of its effectiveness, it thus looks unable to strengthen the existing treaty regime. It made no mention of penalties for polluters nor of any contingency plans to help countries which are already suffering from natural calamities, like the Maldives. In sum, the Protocol seems to bear "milk

teeth" to begin biting for the legitimate rights of endangered states.

Unfortunately, the Protocol did not make any break-through at COP1 and failed to get adopted. As anticipated, stiff opposition from the OPEC Coalition and some OECD states blocked its way. The reaction of these countries seemed to suggest that the AOSIS Protocol was too ambitious and not timely to be adopted (see remarks by various states at the COP1, Earth Negotiations Bulletin, April 10, 1995 1-8). The divisions within the Conference reflected the same old skeptical arguments based on economic defensiveness and scientific uncertainty (UN Climate Change Bulletin, Second Quarter 1995, 1). The AOSIS countries expressed disappointments about the fate of the Protocol, while OECD countries felt 1997 was the appropriate time for adoption of a Protocol. Finally, the Conference resulted in a document known as the Berlin Mandate. This called for an ad hoc working group open to all parties to begin negotiations for a protocol to be completed in 1997. The Mandate also made reference to the AOSIS Protocol as a document to be included for its consideration. The ad hoc working group is scheduled to begin its negotiations in late August 1995.

5.5 Constraints and Prospects of AOSIS

The AOSIS faces a number of constraints in its attempt at establishing an effective climate regime in search of environmental security. As noted earlier, the individual

members lack significant political influence in the international arena due to their being small countries or least developed countries. These countries also lack the scientific capability and legal expertise required to effectively present their case in the climate negotiations. The members are totally dependent on outside sources for scientific and legal assistance. This is the biggest constraint hampering the Alliance. According to one delegate from AOSIS, only one or two scientists belonging to small island states sit on the IPCC (Interview with an AOSIS diplomat, August 4, 1995). Thus, the Alliance is very much handicapped in terms of scientific and legal expertise.

Resource constraints are another factor that restricts the role of AOSIS in climate related activities. Most of the Missions of the member states at the UN are under-staffed and so are unable to devote much time for AOSIS activities. In fact, very few members have both the financial and human resources to afford greater promotional and lobbying activities. For example, the Maldives is one of the countries which attaches the highest priority in its foreign policy to the issue of climate change. Yet it is unable to take up a leading role within AOSIS due to resource constraints such as lack of skilled negotiators and staff at its UN Mission.

Lack of human resource within the Alliance is one reason for its dependence on charismatic personalities for leadership. For example, some observers have noted that the

Alliance is not the same as it was under Van Lierop (Interviews with NGO representative and AOSIS diplomat, August 1995). Moreover, when activist Permanent Representatives complete their tenure of office, there is no certainty that their successors would follow their predecessors' footsteps. For instance, I was advised by the Vanuatu Mission in New York to contact the former PR of Vanuatu to get background information about the evolution of AOSIS. I was further informed that the relevant documents also can be obtained from him. The current PR of Vanuatu seemed to take a low profile, unlike his predecessor.

Financial constraints also restrict the efforts of AOSIS countries in their search for environmental security. These states are not usually represented at the climate meetings held outside New York since many do not have missions in other UN centers such as Geneva. The promotional tour for the AOSIS Protocol undertaken to European countries prior to COP1 also was funded by Northern NGOs. Likewise, many of their activities are subject to the availability of resources which largely curtail the role of the Alliance in climate-related activities.

Another constraining factor is the diverse interests of the members and the heterogeneous characteristics of the group. There are few common interests among the members other than climate concerns. There are few trade or scientific links between the states. Member-states enjoy more close links

within their regions and are sometimes under the influence of dominant regional states, like Australia within the South Pacific Forum (Interview with an NGO representative, August 1995). The island states in the South Pacific and the Caribbean have a regional organization that coordinates the activities of states, whereas those in the Indian Ocean do not. The states that belong to regional groupings give precedence to decisions adopted at the regional level, and synchronize those decisions with policies followed within the Alliance.

These regional organizations also have varying priorities in their agendas. For example, the CARICOM states seemed to be more concerned about issues of sustainable development such as eco-tourism whereas South Pacific states such as Samoa, Solomon Islands and the Federated States of Micronesia (FSM) are more concerned about climate issues (Interview with an AOSIS diplomat). As a matter of fact, the South Pacific countries comprised the AOSIS team that went on the promotional tour of Europe. The degree of interest attached to AOSIS by Trinidad and Tobago in the Caribbean is also displayed by the fact that their Ambassador (the current Chairperson of AOSIS, Mrs. Annette des Iles) was busy with another committee at the UN in New York which prevented her from attending the COP1 in Berlin where the AOSIS Protocol was discussed.

There are other differences that distance states from one

another across the regions. For example, some relatively developed members, namely, Cyprus, Malta and Singapore, do not take much interest in the Alliance but appear to be "free riders". On the other hand, some low-lying coral atoll states are deeply committed to establishing as early as possible an effective climate regime since they are most vulnerable to sea-level rise than hilly oceanic states. Development conditions also differs from country to country. For instance, Papua New Guinea (PNG) has a resource-based economy while Barbados has a service-based economy. Some states are dependent on fossil-fuel production as well, although their share in terms of global production is negligible. For example, the economy of Trinidad and Tobago greatly benefits from petroleum exports while Singapore's economy relies highly on fossil-fuel energy consumption. The service-based economies are more dependent on foreign markets and are susceptible to influence from these markets.

These inherent constraints do not necessarily divide the Alliance but certainly weaken it. They need to be overcome in intensifying its struggle against the reactionary forces of vested economic interests. The Alliance has already proved that it would not fall apart easily despite many obstacles that stand in its way and has lived up to its expectation since its inception in 1990. (This point was clear from all the interviewees.) The fact that the Alliance has remained intact without a formalized structure suggests ample prospects

for further cooperation among the members and wider scope for its cause.

A number of factors account for the success of the Alliance. It has remained as a cohesive group, winning recognition in the FCCC as a unique group of states requiring special status (Article 8 a & b, FCCC, 1992). Since its inception, its membership has grown and proved to be one of the few alliances that brings together states with diverse interests and across regions. It has comprehensively raised its concern in international fora and has generated awareness in the international community about the plight of its member-states and their demands for environmental security. It has won the sympathy of many states within the G-77 and the more environmentally-oriented European states. Excellent collaborations also have been established with many well-known Northern NGOs, especially Greenpeace International and FIELD, which are very supportive of its cause.

The submission of a protocol to the FCCC at COP1 at Berlin can be viewed as a major breakthrough for the efforts of the Alliance despite not been adopted. Nevertheless, the Berlin Mandate did make reference to the Protocol and decided to include it for future consideration at the negotiations of the ad hoc group.

Prospects seem to be brighter for the AOSIS in getting its demands for binding targets and timetables for emission control. With the increasing climatic events that are

unfolding in AOSIS member-states and throughout the world, it is likely that its voice will become much stronger in future climate negotiations. Already the Alliance has substantial voting weight since it has 31 UN members. Almost all the decisions in the Alliance are taken on a consensus basis and hence there is little room for divisions within the Alliance, although not all members take equal interest in the group. The member states are united by a single cause: the threats to their survival from sea-level rise. Moreover, there is no way out of this threat other than pursuing a collective struggle to seek environmental security. Undisputedly, individual or bilateral efforts cannot find adequate solutions to such a global issue, nor can a regional group in isolation achieve a desirable goal.

5.6 Case Study of the Maldives

> "We are told that as a result of global warming and sea level rise, mycountry, the Maldives may some time during the next century disappear from the face of the earth"- President Gayoom

The above statement truly echoed the plight of small island states which are being endangered by sea-level rise and climate change resulting from global warming. It was a plea made by the President of the Maldives at the UNCED held in Brazil in June 1992. (Gayoom, 1992, 1)

The Maldive Islands, situated in the heart of the Indian Ocean has emerged into the limelight of the world media as the prime victim of global warming. It is the world's lowest-lying nation (McFarlan, 1991, 501). The entire country barely

averages 2 meters above sea level and so is believed to be the most vulnerable country to sea-level rise. A series of storm surges and flooding that were experienced by the country on April 10-13, 1987, unprecedented in its known history awakened the country to this fateful issue of global warming. The Maldives is a small coral-atoll nation with an estimated population of 245,900 living on 200 inhabited islands. In terms of development, it falls into the category of least developed, with per capita income of US$ 703.5 (1993) (MPHRE, 1994, i). Tourism and fishing are the mainstay of the economy.

The Republic of Maldives has already begun experiencing the consequences of climate change (Gayoom, 1987, 8). They made this claim after experiencing a series of meteorological events that has struck the country since 1987. In April 1987, unusual waves struck the whole archipelago, causing the sea-level to rise to the highest point ever evidenced in the country. One quarter of the main island, Male', which houses a quarter of the nation's population, was inundated by salt water, and 30 percent of the newly-reclaimed land was completely washed away (DIB, 1990, 2). The damage incurred to infrastructure was estimated at around US$ 30 million (Gayoom, 1995, 4). Along the full length of the archipelago, several islands from many atolls were extensively flooded or inundated, damaging breakwaters, harbors, fishing boats, causeways, houses and other properties. Beaches throughout the country were damaged, placing at risk one of the country's

chief income-generating resources, tourism.

Another storm that ransacked the country in 1990 similarly caused extensive damages to the fragile infrastructures of the islands. Most recently, in October 1994, the country had a heavy rainfall that flooded many islands, particularly the capital, causing a lot of damage to houses and goods stored in warehouses. According to the Maldives News Bulletin (MNB), this was the heaviest rainfall (184.5 millimeters) ever recorded for a single day in any part of the country for the past 27 years (MNB, 30 Oct., 1994).

The events occurring in the Maldives, which is the flattest land on earth (McFarlan, 1991, 501), are suspected to be connected to global warming, as they are unprecedented in its known history (Gayoom, 1992, 9). The country has become an experimental laboratory in analyzing the consequences of global warming, although no research has been able to prove conclusively that the country is suffering from global warming. A number of international institutions, including WMO, have installed research facilities in the country to observe the climatic events in the Maldives.

Studies have been conducted to analyze the events of 1987, but so far no researcher was able to confirm whether the event had any correlation to the question of climate change. One analyst says that the positivity of the correlation has to be treated with extreme caution as evidence is lacking to fully support it. Harangozo concluded that the flooding and damages

occurred due to the lack of sea defenses and swells generated by southern hemisphere (Harangozo, 1992, 99). He is of the view that reclaimed lands and the deepening of the inner harbors were instrumental in causing damages. However, many people in the Maldives believe that the event raises suspicion about the effects of climate change, as the country had not experienced such events before and these events have become frequent with further intensification (interview with Shihab, Dec., 1994).

As mentioned before, one-meter rise of sea level by the year 2030 would mean an unendurable calamity for the Maldives, whose 1190 islands barely rise over 2 meters above the mean sea-level. Storms can generate long distance swells which could cause widespread flooding of reclaimed areas, erosion of coastal areas and destruction to the sea shores. In fact in 1992 the government announced that islanders from four inhabited islands will be transferred in due course since theses islands have become inhabitable due to erosion of sea shores.

The country is thus quite vulnerable to a number of natural hazards. However, it lacks indigenous research capability to carry out research on the environmental dangers it faces. It also has limited resources and institutional capacity adequately to deal with sudden unexpected episodic events. Sea-level rise has become the greatest concern for the country's survival throughout the next century. The dangers it

poses include loss of land and investment, displacement of people, depletion of aquifers, destruction of reefs and depletion of fish stocks.

As the Maldives realized the potential impacts of global warming on the country, it has not been idly waiting for solutions to its problems to come from outside. Rather, it has been actively exploring ways and means of safeguarding its future and environmental security. It has left no stone unturned in efforts to raise the plight of small island states before the world community. Of course a small country like Maldives, with limited resources and little political influence cannot do much to ease the problem all by itself.

At the domestic level, a number of actions were taken to address the issue of environmental degradation. A ministry to coordinate and implement activities and issues relating to the environment was established, and an Environmental Action Plan was launched in 1987. The Action Plan was aimed at helping the government to maintain and improve the environment of the country and to make plans towards sustainable development (National Report of Maldives to UNCED, 1992, 32). The Government also made a request to UNEP in 1988 for assistance in carrying out research on the potential threats faced by the Maldives.

The issue of global warming and the potential threats posed to the Maldives have been raised by the President of Maldives at international fora such as the United Nations, the

Commonwealth and South Asian Association of Regional Cooperation (SAARC). A conference of small states on sea-level rise, the first of its kind, was held in the Maldives in 1989. A number of small states attended and established Action Groups in the Caribbean, South Pacific, Mediterranean and the Indian Ocean to address the issue of global warming. A presidential delegation also attended the UNCED where the Maldives received a lot of publicity because of its proneness to consequences of global warming.

The Maldives has also been a key voice in the AOSIS. To enhance further its commitment to international cooperation in the field of environmental protection, it also signed the Vienna Convention for the Protection of the Ozone Layer, the Montreal Protocol on the Substances that Deplete the Ozone Layer and the Basel Convention on the Control of Transboundary Movement of Hazardous Waste and Their Disposal.

It is predicted that the entire 1190 islands will sink under water by the turn of the twenty-first century if IPCC predictions are proved true and the current warming trend persists. However, one analyst argues that coral islands like the Maldives may not disappear even if sea levels rise. According to Warrick, coral reefs have the capacity to grow in response to sea level changes up to a point, and mangroves play an important role in land maintenance. However he notes that it is critical to understand the dynamic response of coral and mangroves to continuous changes in water depth,

temperature, salinity and pollution levels (Warrick, 1993, 16). These arguments can be valid if the growth of corals is faster than the rise of sea level caused by increasing global warming. It is not known whether any study has been done to verify the pace of coral growth and sea-level rise.

Much has been done by the people of the Maldives but much still remains to be done in order to ensure its survival and to sustain the country for future generations with its natural features.

5:7 Conclusions

As the preceding discussion illustrated, the SIDS have broken the silence in international relations. It has emerged as a special interest group within the G-77 leading a high profiled environmental diplomacy aimed at seeking environmental security from climate change and sea-level rise. Being the frontline states in the climate crisis, they are convinced that their people, land, culture, livelihood, development and existence is at stake. Therefore, they have mobilized efforts to adopt a collective approach to the issue by forming an informal lobby group within the UN (AOSIS) to press for their environmental security. Since 1987, the SIDS have been exploring all possible means to address the problem.

The AOSIS was instrumental in pushing for tougher measures in FCCC but failed to win substantial gains for two reasons. Firstly, the Alliance still lacks the political power to exert influence on the process of international decision making;

secondly, the scientific uncertainty inherent in the problem provided a bargaining chip for the fossil-fuel-based coalition to weaken AOSIS' position.

A number of weaknesses inherent in the Alliance also either weaken its effectiveness or restrict its role in seeking its goals. These include resource constraints, lack of commitment by some members, geo-political factors, lack of institutional capacity for research and diversity of interests among members. These obstacles need to be overcome in order to make the AOSIS an effective lobby group. However, the AOSIS has been very successful in building a coalition with environmental NGOs in the developed countries some of which have been very supportive of its cause.

The SIDS need to intensify their efforts on a number of fronts. Firstly, the AOSIS needs to strengthen itself with uniform policies and greater cohesiveness. Secondly, it needs to win support from G-77 countries to which the group also belongs. Thirdly, success of the efforts of the Alliance depends on how it could convince the industrialized countries about its plight and the theory of global warming.

It is note-worthy that within its life-span of five years, the Alliance has grown in strength and has been enlarging its focus beyond climate-related issues to other areas such as sustainable development. Some states are deeply committed to enhancing its role within the international community and have been developing indigenous capabilities for scientific

research and legal expertise. For example, FSM and Nauru have now acquired legal advisors, while PNG has been successful in developing a scientific capability for research on climate change. The Alliance has thus set a precedent as a role-model in mobilizing the efforts of small countries in the international system, raising their profile and strengthening their bargaining power.

Climate objectives cannot be achieved overnight given the complex nature of the international system and the divergent interests of states. On the other hand, the SIDS which are already falling prey to climate change do not have the luxury of time to wait until conclusive evidence is found and actions taken accordingly.

The case study of the so-called sinking island state of the Maldives is representative of the plight of all SIDS. It portrays how vulnerable these countries are to the climate crisis. It has also shown the incapacity of the people and the governments of SIDS to deal with such crises on their own. The physical structures of the islands of the Maldives and climatic events experienced by the country provide circumstantial evidence to the fact that it is the coral-island states which are most vulnerable to climate change and sea-level rise within the SIDS. Therefore, it is understandable why the Maldives has been a forerunner in international environmental diplomacy about climate change.

The analysis of the situation of the Maldives has clearly

shown how security and environment are inextricably linked and development and environment intertwined. The increasing intensity and frequency of tropical storms have become a constraining factor on infrastructure development while insurance companies have been withdrawing insurance coverage to investments in the Maldives. Rising sea levels are also eroding the coastal zones and submerging islands into the sea. In addition, the erosion of beaches is badly hurting the tourist industry in the Maldives and warming of the seas are dislocating fish stocks which may ultimately deprive the people of their very livelihood. The islanders of the Maldives may sooner or later become environmental refugees as "boat people", either dying in the sea or trying illegally to enter other countries.

Therefore, the issue of climate change and sea-level rise is expected to bring untold human suffering to the innocent communities living in SIDS. And the unfolding episodic events further raise the suspicion that the process that would eventually do away with these states are already on the march. Failure to act now to mitigate the crisis will soon seal off their fate as "lost paradises" swollen by the emissions of GHGs released by industrialized countries. This grave situation demands a reorienting of policies of economic development to preserving the global commons and equal distribution of their benefits to all states and future generations. It also warrants rethinking of security theories

in order to reflect the unique environmental problems faced by SIDS.

Chapter VI: CONCLUSIONS

This thesis has looked at the relationship between global warming and SIDS and the political implications resulting from climate change. It has also analyzed the urgency and the threats as well as the challenges posed by global warming for SIDS. Furthermore, it analyzed the international responses and the environmental diplomacy of SIDS in their search of environmental security.

It has been clear from the study that there is considerable evidence that the earth's surface is warming at an alarming rate and its impacts are being experienced around the world. For example, the year 1995 has not only been the warmest year on record (CBC, Sept. 19, 1995), but has also witnessed a number of episodic events that have confirmed the theory of global warming. According to the theory, human-induced greenhouse effect is warming the surface of the earth beyond natural adjustments of the environment and adaptability of ecosystems. The so-called floods of the century in Europe, the heat waves in India and the US, the breaking of gigantic ice bergs in the polar regions, the worst floods and forest fires in Canada, and the record-breaking hurricanes in the Caribbean, have all strengthened the credibility of this theory. According to the New York Times, "experts are now more confident than before that global climate change is indeed in progress and that at least some of the warming is due to human action, specially the burning of coal, oil and wood, which

release carbon dioxide into the atmosphere (Globe and Mail, Sept. 19, 1995, A8).

Nevertheless, skeptics taking refuge in the inherent scientific uncertainty of the issue have continued to argue that it is still premature to establish a correlation between the human-induced greenhouse effect and unfolding climatic events. For this minority of skeptics, there is inadequate scientific data. On the other hand, the latest IPCC Report (1995) released in draft form, points out that "even if atmospheric concentrations of GHGs were stabilized immediately .... the world would still warm up about 1 to 3.5 degrees, resulting in some degree of climate dislocation (Ibid).

With growing impatience among environmentalists and SIDS, it is imperative that a "no-regret" strategy be adopted by taking the maximum precautionary measures. This would involve clear, binding commitments in place of the current remedial approach. The latter, which is marked by procrastination, runs the risk of bringing about an economic and human catastrophe. Moreover, the issue is a transboundary problem for which collective action is required. On the other hand, such actions, will place some countries at a comparative disadvantage in global trade. Therefore, the international community must act prudently to strengthen the current climate regime by adopting mandatory commitments for emissions control as a first step. The focus of the FCCC should be extended beyond short-term actions to a long-term strategy. In its

current text, the Convention has only short-sighted vision and makes no mention of action beyond the year 2000.

The lack of "teeth" in the Convention has already resulted in its failure to meet its objective, namely the "stabilization of GHGs concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (FCCC, 1992, Article 2). In the absence of binding targets and time tables for emissions reduction, the industrialized countries pledged to decrease emissions of carbon dioxide to the 1990 levels by the end of 1990s. Even this voluntary commitment required by the Convention was not complied with by many industrialized countries. This has become evident from the country reports submitted to the Climate Secretariat, which revealed deficient national policies that fell short of expected commitments (US Climate Action Network and Climate Network Europe, 1995, 1). On the contrary, it was reported that many countries have projected substantial increases in emissions if tougher measures are not enacted (Ibid). These contradictory outcomes are mainly due to the failure of the convention to employ strong binding measures to reduce emissions rather than voluntary actions by industrialized states.

Even the first post-UNCED climate conference held in Berlin (March-April 1995), failed to highlight lagging national commitments. The protocol to the FCCC submitted by the AOSIS calling for mandatory targets and timetables was rejected.

This left the entire regulatory process without any enforcement mechanisms which in turn reflected a lack of political will to act prudently amid renewed warnings from the IPCC. In addition to the lack of commitments to control emissions of GHGs, certain multilateral institutions like the World Bank continue to support projects that promote combustion economies. It was reported that climate-friendly projects annually receive only 5 per cent of GEF funds compared with the amount assigned to carbon dioxide producing projects (Earth Island Journal, 1995, 25). Meanwhile, the International Energy Agency has predicted an increase of 50 percent in carbon dioxide emissions over the next 15 years, further challenging the effectiveness of the current climate regime. It can therefore, be argued that the FCCC falls short of achieving its objectives.

The environmental threats posed by global warming cannot be addressed in the manner explained in the traditional theories of security. Military expansion and increases in defense capability by means of acquiring destructive weapons or concluding security pacts with major powers are not compatible strategies with environmental threats such as sea-level rise. Environmental threats such as climate change and sea-level rise call for a rethinking of security theories which would reflect the new emerging realities. Solutions to transboundary environmental problems like global warming can be mitigated only through multilateral action and through increased

international cooperation. Clearly, the issue of global warming calls for a new world order based on global partnership and equitable management of global commons such as through the regulation of the atmosphere for the benefit of all states and future generations.

In the wake of world-wide climate events no country seems to openly deny the fact that action is required more urgently than ever. However, because economic factors continue to shape the politics of the issue, progress towards this goal has been slow. States differ on the question of measures needed to be taken to address the issue depending on domestic pressures and developmental conditions.

The issue of global warming also clearly demonstrates the close link between domestic and international politics on the one hand, and the intertwined nature of economics and politics on the other. Powerful domestic economic lobbies such as the oil and gas industries in the US were able to exert pressure on politicians and national delegations to defend local economic interests against stringent GHG control measures. TNCs lobbied strongly against mandatory commitments on emissions reduction. Thus the position of the US delegation at the climate negotiations was shaped by domestic pressures and formidable economic interests.

It is also interesting to note that despite the dominance of reactionary pressures exerted by businesses and fossil-fuel-based coalitions or TNCs, environmental NGOs were

successful in gaining high diplomatic profile in international relations for global warming. In other words, environmental NGOs were instrumental in counter-balancing the pressure of industrial lobbies. Indeed, NGOs have become important actors in world politics as catalysts for proactive change on environmental protection issues.

The coalition of SIDS has emerged as significant actors because its members will be adversely affected by the issue of global warming. These countries already bear the adverse impacts of global warming. They are the most vulnerable victims of the crisis: their territories are only a few meters above sea level; they are located in close proximity to storm paths; their livelihoods depend on resources derived mostly from the seas; their lack of financial resources and scientific and technological capabilities prevent them from adapting themselves to the changes; and their political weakness impairs their ability to influence the process of international decision-making. In fact, their very survival is at stake. Between 1970 to 1989 half of the countries that were hardest hit by natural disasters were small island states (Report of the Barbados Conference, 1994, 12). As the first chairman of AOSIS Van Lierop has said, that the proof for their vulnerability will kill them (quoted in Leatherman, 1993, 53).

The account of damage reported concerning the recent (September 1995) hurricane disaster in the Caribbean would

suffice to explain the extent of vulnerability of SIDS to uproars of episodic events resulting from climate change. It appeared as if these island states were robbed of their development, which took many years to build. For instance, Antigua and Barbuda suffered $300 million in damage while St. Kitts and Navis lost three-quarters of their buildings. Severe damages to cash crops in Dominica almost caused the country to lose its entire banana plantation which paralysed one of its economic mainstays. In St. Martin and Haiti, beach hotels were ruined and many boats capsized, causing added setbacks to their stagnating economies.

With the growing awareness of the climate crisis the SIDS have vested considerable effort in environmental diplomacy. Subsequently, they have made substantial strides in search of environmental security. Their voice is now heard loud and clear at climate negotiations and yields substantial voting weight at international fora through the AOSIS.

6:1 Strategies for SIDS

Much has been done by the SIDS in relation to climate change and sea-level rise. But much more remains to be done in order to attain the goal of environmental security. Prospects for pragmatic action is not as bright as it should have been given the urgency of the problem. However, pursuit of a well-planned strategy in a multi-faceted approach could give some lead to achieving their climatic goals such as setting binding national targets and timetables for emissions control.

A three-dimensional strategy can be recommended for SIDS in seeking these objectives: firstly, putting their own house in order for strengthening the AOSIS coalition in terms of becoming a more productive and effective body as a bargaining force in climate negotiations: secondly, launching an intensive international campaign against global warming for raising awareness about the issue as well as lobbying international decision-making processes to strengthen the current climate regime: and thirdly, renewing efforts to set up an international mechanism that would cater for contingency plans to deal with sudden climate changes.

A number of avenues exist for the AOSIS to strengthen its effectiveness. Though it has remained intact and continues to grow in numbers since its inception in November 1990, AOSIS has inherent cracks. Few countries take a keen interest in the Alliance and contribute to its cause seriously. Two-thirds of the member states appear to enjoy a "free ride" in the Alliance. Therefore, uniform policies need to be devised to foster more unity and commitment within the Alliance itself. The Alliance also lacks dynamic leadership without which cooperation would be difficult to achieve among countries having divergent of interests and characteristics. It was evident from the research that the South Pacific member-states take more interest in the promotion of the Alliance than even the current AOSIS Chairman who is from the Caribbean (Trinidad and Tobago). A few better-off countries like Malta also keep

a low profile in the Alliance while Singapore has not even ratified the FCCC. Therefore, in order to make the Alliance more cohesive, member-states need to strengthen cooperation within the Alliance and take measures such as the ratification of FCCC and the Montreal Protocol.

The members of the Alliance also seem to be more loyal to their own regional organizations and give precedence in their commitments to such organizations. For instance, South Pacific member-states take greater interest in the SPREP, while Caribbean members see CARICOM as their immediate platform for adopting joint stands on climate negotiations before coming to the AOSIS (interviews with AOSIS diplomats and NGOs representatives at the UN, August 1995). Such practices may not necessarily undermine unity within the Alliance but may weaken its effectiveness. Therefore, member states need to equally commit themselves to the objectives of the Alliance, particularly in dealing with climate issues. The Alliance was formed in the first place due to the inadequacy of these regional organizations to promote such global interests.

Lack of institutional capacity and capability for indigenous scientific research is another factor that inhibits the effectiveness of the Alliance. Currently the focal point of the Alliance is its chairperson who acts as a coordinator facilitating correspondence and meetings. There are no guidelines that define the duties of the Coordinating Bureau but it often acts when the need arises. Neither is there any

set of rules on how the chairmanship should be rotated or on what his/her functions are. This factor gives a lot of leverage to the incumbent to act at her/his discretion and to organize activities only when circumstances warrant them. These kinds of loose commitments are inadequate to deal with a formidable task such as striking effective bargains in climate negotiations; for example, mandatory timetables and quotas for reducing national GHG emissions as well as sanctions and monitoring compliance.

Therefore, it would be in the best interest of the Alliance to formalize the organization with a designated secretariat. A secretariat is of paramount importance to strengthen the Alliance because such a body may be put in charge of the collection and dissemination of information and the conduct of research. It can also monitor meteorological events that are experienced by member-states and disseminate recorded information globally in a timely manner. Collection of information about the issue, monitoring the changing conditions of the climate and supervision of compliance of the existing climate laws are some of the important functions that the secretariat may attempt to execute. It can also help build institutional capacity to implement policies and strategies that are needed for achieving climate objectives. Having such a secretariat can not only serve administrative coordination within the Alliance, but also help foster relations with environmental NGOs in various countries.

The Program of Action adopted by the Barbados Conference called for establishing a SIDS Net. The primary purpose of this Net is facilitation of communication and exchange of information relevant to SIDS for sustainable development. If a secretariat could be established for AOSIS, it could act as a coordinator for this Net as well. Such a Net is of crucial importance to the development of SIDS as it could help to disseminate weather information and play the role of a research center or data bank. Presently, the AOSIS has neither the capacity nor the resources to perform such functions. If AOSIS could develop an arm for research and exchange of information, member-states would be in a better position to effectively lobby for their interests armed with more facts. For example, it would have been easy to conduct indigenous research on the vulnerability of the SIDS to climate change if not to assess and publicize the hurricane damages suffered by the Caribbean states in September 1995. Such verified information could be utilized by the AOSIS states as a bargaining tool in the climate negotiations.

When the question of formalizing AOSIS was raised in my interviews with some AOSIS diplomats, their reactions were somewhat mixed. Some feared that such moves may undermine the flexibility of the Alliance with a potential to weaken the solidarity of the Alliance. Others pointed out the lack of resources. Nevertheless, there appears to be less progress as long as the Alliance remains loosely-knit body based on

voluntary efforts by a few interested members seriously concerned about the plight of SIDS. If it takes on a formalized structure, all members will be obliged to take necessary action and to follow approved joint policies. However, it would be in the AOSIS' best interests not to enlarge its goals beyond environmental concerns since this may invite unwanted divisions within the organization. Resources for setting up a secretariat can be sought from donor agencies like the UNDP and the GEF. If not, collective funding can be raised by the members themselves through assessed contributions. If NGOs like FIELD and Greenpeace can raise funds to run global environmental campaigns, there is no reason why a 41-member state body could not mobilize funds for such an important purpose. If climate change and sea-level rise are the greatest security threats to be faced by the AOSIS states in the future,. it is imperative that states attach high priority in their development policies and allocate some resources for addressing the issue. For even if developed countries are not receptive to their proposals, it is incumbent upon the member-states of the AOSIS to adopt a self-help approach instead of relying solely on others for a solution.

The second approach for the SIDS to follow in their search for environmental security is the intensification of a global campaign against global warming. Currently the AOSIS confines its efforts only to international environmental diplomacy and

does not go beyond state interactions at political meetings. This is inadequate to counteract the pressure brought on developed states by the fossil-fuel industrial interests.

Therefore, besides governments, the AOSIS should begin to lobby businesses and industries which are the root sources of opposition to GHG emissions control. Already a window of opportunity exists for the AOSIS to reach out to businesses and industries through the insurance companies, which are harmed and concerned about the economic consequences of the impacts of global warming. Some businesses are on the verge of bankruptcy due to the claims resulting from adverse climatic events that erode their profitability (e.g. claims resulting from a hurricane hitting a five-star hotel along a coastal beach). The AOSIS could build a coalition with insurance companies to lobby governments of industrialized states on the need to recognize the SIDS' plight. Alternatively, AOSIS can also reach the shareholders of fossil-fuel-based industries to awaken them to the plight of SIDS. Greater media coverage and public awareness building in the industrialized about the issue can also be organized by the AOSIS.

Such measures may help to influence the thinking of shareholders and voters who could in turn exercise their voting power to influence climate-unfriendly policies adopted by companies and governments. The promotional tour undertaken by the AOSIS to a few European countries prior to the Berlin Conference to promote the AOSIS Protocol is a good example for

such activities. This tour was funded by environmental NGOs from developed countries and was made in response to an invitation extended to AOSIS by NGOs.

Another approach that could strengthen the international campaign could be the building of a partnership with pro-environment grassroots organizations and NGOs in the industrialized countries. As discussed previously, the AOSIS has already established good relationships with a number of environmental organizations in developed countries. However, most of the time it is these NGOs which take the initiative to make proposals to the AOSIS, rather than AOSIS itself tapping every opportunity that may be available. This may be due to the fact that the AOSIS itself is composed of state actors who find it difficult to deal with NGOs which may pursue certain hidden agendas that may not necessarily be in the best interest of AOSIS members. However, with careful cooperation with pro-environment NGOs, there is no reason for the AOSIS to hesitate on taking maximum advantage from the links with NGOs in view of their common interests.

For instance, AOSIS could seek assistance from NGOs in developed countries to arrange campaigning tours to industrialized countries. Such trips can be utilized to hold public fora to raise awareness about the issue and the threats posed to SIDS. In particular, it would be an ideal opportunity for AOSIS to lobby the annual G-7 Summits of industrialized countries. The alternate Summit organized by NGOs and held in

conjunction with G-7 Summit, known as People's Summits or P-7, could be an ideal platform for the AOSIS to spread their campaign.

Guest speeches by AOSIS spokesperson at parliaments in developed countries are another avenue for AOSIS to convey their message to policy makers in developed countries. The address delivered by the Vice Chairman of AOSIS (Ambassador Slade of Western Samoa) in May 1995 is a good example of such an action. Ambassador Slade flew to Ottawa in response to an invitation extended by the Canadian Parliament rather than the Alliance's initiative. Such activities at national levels could help to counteract the pressure of industrial lobbyists.

The third strategy recommended to AOSIS for dealing with the environmental crisis resulting from climate change is devising contingency plans. As noted above, sudden climatic events such as hurricane disasters are already jeopardizing the developmental efforts of SIDS. Therefore, some kind of contingency plans are urgently required to facilitate disaster relief assistance for victims of climate change. Unfortunately, the FCCC makes no mention of any measures in this regard; nor have the present climate negotiations addressed this aspect. During the FCCC negotiations, the AOSIS raised the issue of setting up a trust fund to facilitate disaster relief efforts to victims of climate change. However, the proposal did not receive support from the industrialized states at the negotiations and so was left out of the agenda.

However, the AOSIS should not lose sight of this proposal as this may be a good means that could bring about relief. Contributions to this fund can be raised through the enforcement of economic instruments like carbon taxes in the industrialized countries. This fund could also serve the most vulnerable countries in terms of adopting protection measures. The present lending policies of the GEF, which favors climate-related projects, tends to exclude the SIDS although they are most vulnerable to climate crises. The AOSIS should renew its efforts to gain its fare share from the Fund.

The implementation of these recommendations may not be easy given obvious obstacles, nevertheless, they may provide food for thought or a way of reconceptualizing the environmental security dilemma faced by SIDS.

Climate change and sea-level rise will likely become the root cause of friction in international relations in the future. The issue tends not only to undermine international security and but also to cost international community irreversible consequences. Therefore, the SIDS should take climate change in the context of a threat to their national security posed by the economic activities of the industrialized countries. The meteorological events that are being experienced by some of these countries must be treated as provocations. It is indisputedly the responsibility of the international community to protect states irrespective of their size and economic status from any danger, be it

annihilation from nuclear war or climate change. Indeed, the SIDS have become environmental laboratory for consequences of climate change and they represent a microcosm of the fate of the world tomorrow.

Contributions to Global Warming by Greenhouse Gases
(percent of global warming)

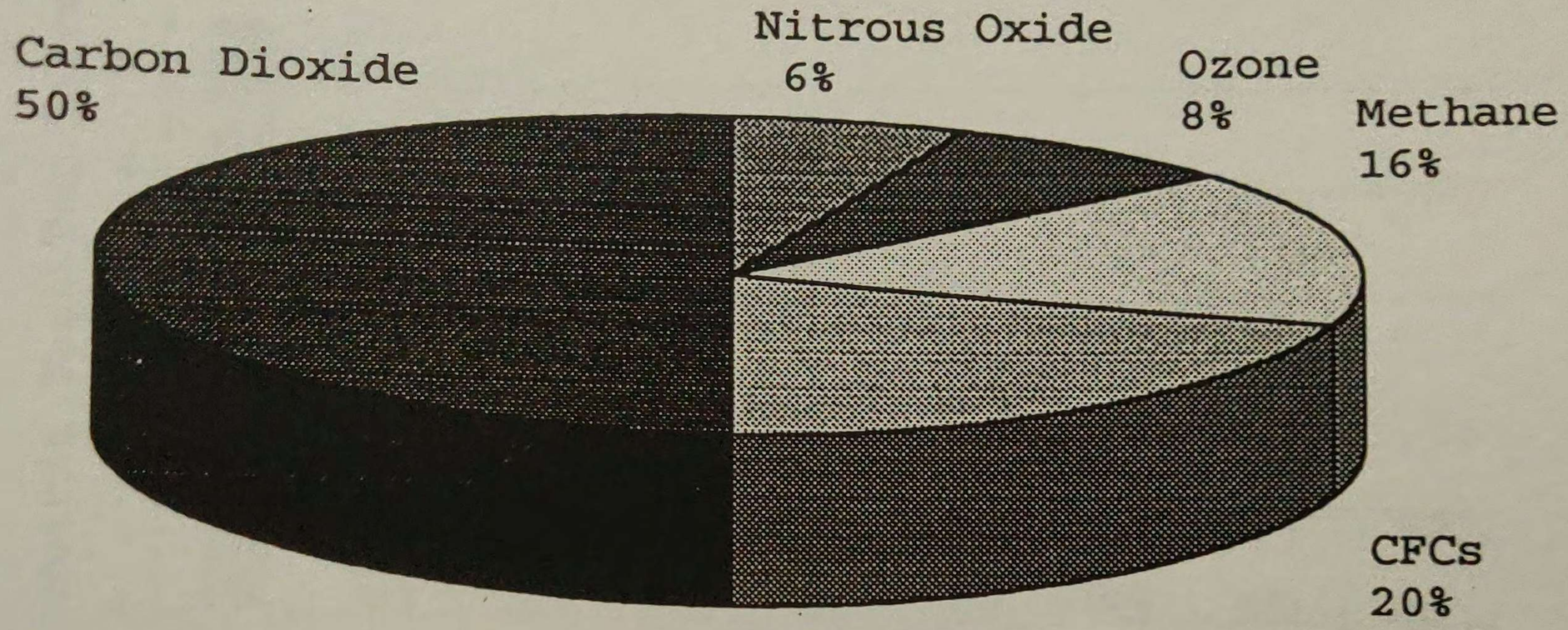


Figure 2.1

Contributions to Global Warming by Human Activity
(percent of global warming)

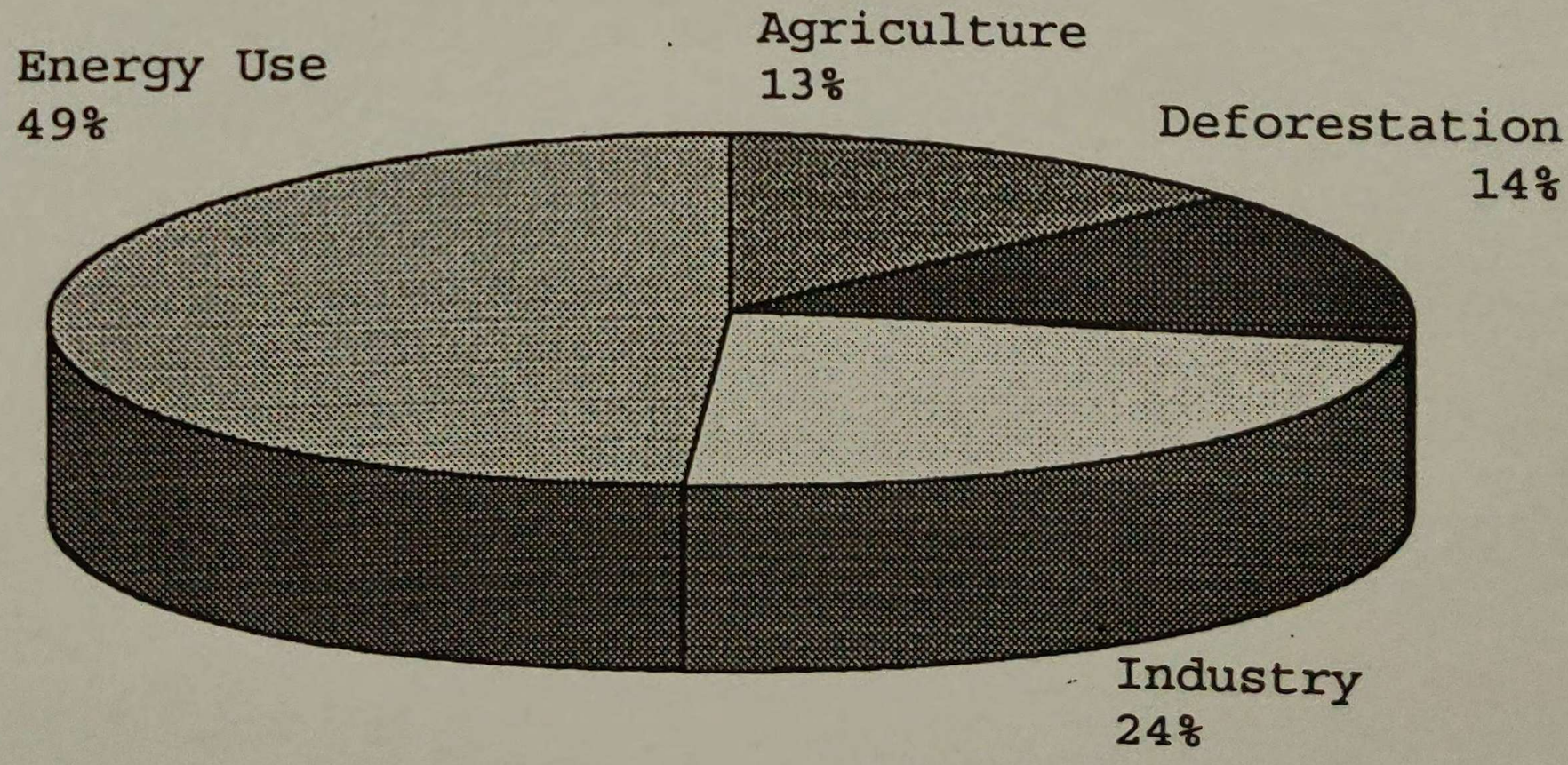
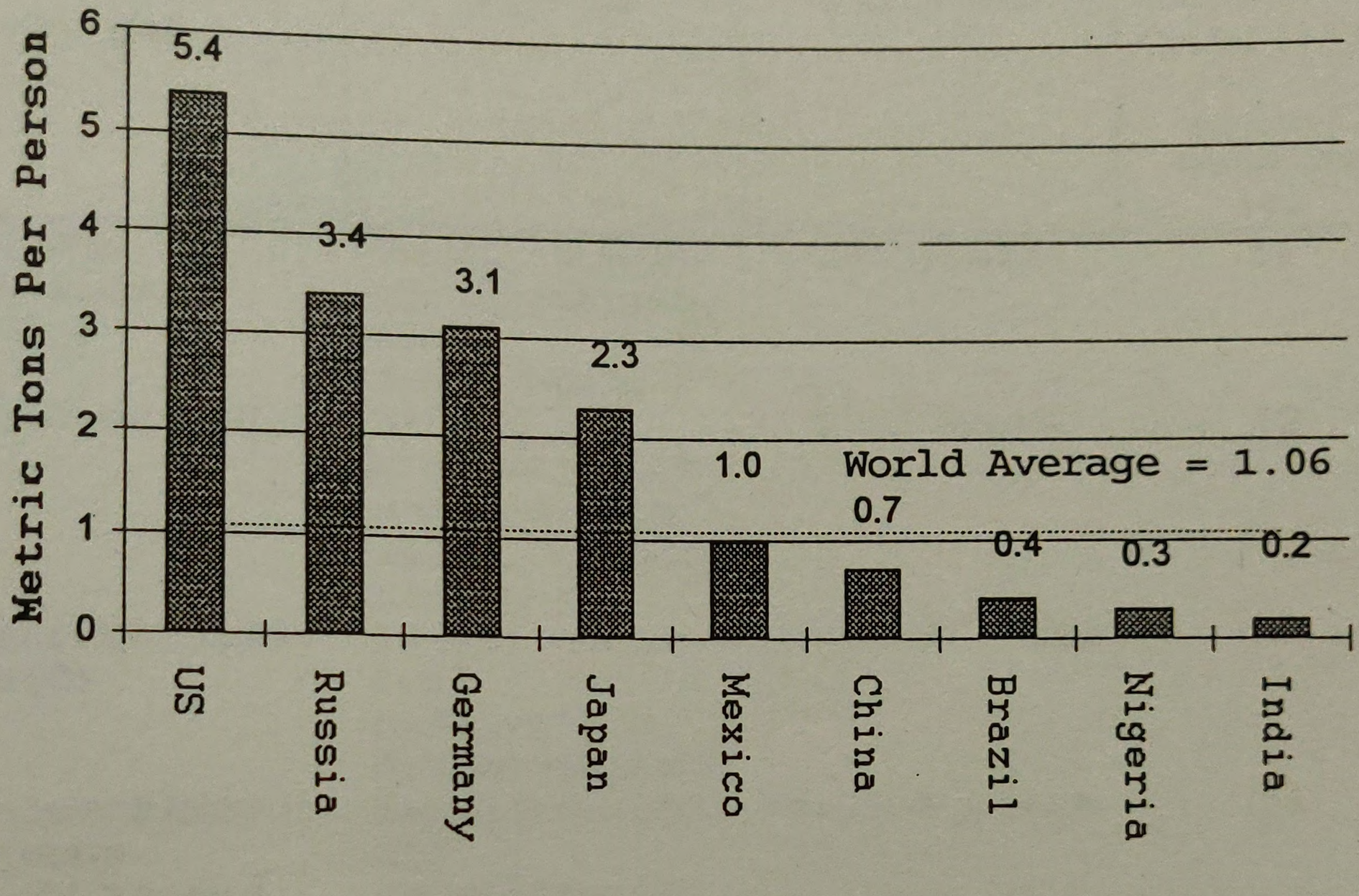


Figure 2.2

Source: WRI in collaboration with the UNEP and the UNDP, World Resources 1990-91,1990

Appendix II

Carbon Emissions Per Capita From Fossil Fuel Burning, Selected Countries, 1993



Source: Flavin and Tunali,World Watch, March/April 1995,17

Table 3.3: List of GHGs, their sources, lifespan and contributing percent

Greenhouse gas	Sources	Lifespan	Current Contribution to global warming (%)
Carbon dioxide (CO_2)	Fossil fuels, deforestation, soil destruction	500 years	54
Methane (CH_4)	Cattle, biomass, rice, paddies, gas leaks, mining, termites	7-10 years	12
Nitrous oxide (N_2O)	Fossil fuels, soil cultivation, deforestation	140-190 years	6
Chlorofluorocarbons (CFC 11 and CFC 12)	Refrigeration, air conditioning, aerosols, foam blowing, solvents	65-110 years	21
Ozone and other trace gases	Photochemical processes; cars, power plants, solvents	Hours to days in upper troposphere	8

Source: Francesca Lyman, The Greenhouse Trap, WRI, 1990 given in Environmental Almanac, 1993, 270

Fifty Countries with the Highest Greenhouse Gas Net Emissions, 1987

Country	Green House Gases					
	GHG Index Rank	Carbon Dioxide	Methane	CFCs (a)	Total	Percent of Total
United States	1	540,000	130,000	350,000	1,000,000	17.6
U.S.S.R.	2	450,000	60,000	180,000	690,000	12.0
Brazil	3	560,000	28,000	16,000	610,000	10.5
China	4	260,000	90,000	32,000	380,000	6.6
India	5	130,000	98,000	700	230,000	3.9
Japan	6	110,000	12,000	100,000	220,000	3.9
Germany Fed.Rep.	7	79,000	8,000	75,000	160,000	2.8
United Kingdom	8	69,000	14,000	71,000	150,000	2.7
Indonesia	9	110,000	19,000	9,500	140,000	2.4
France	10	41,000	13,000	69,000	120,000	2.1
Italy	11	45,000	5,800	71,000	120,000	2.1
Canada	12	48,000	33,000	36,000	120,000	2.0
Mexico	13	49,000	20,000	9,100	78,000	1.4
Myanmar	14	68,000	9,000	0	77,000	1.3
Poland	15	56,000	7,400	13,000	76,000	1.3
Spain	16	21,000	4,200	48,000	73,000	1.3
Columbia	17	60,000	4,100	5,200	69,000	1.2
Thailand	18	48,000	16,000	3,500	67,000	1.2
Australia	19	28,000	14,000	21,000	63,000	1.1
German Dem. Rep.	20	39,000	2,100	20,000	62,000	1.1
Nigeria	21	32,000	3,100	18,000	53,000	0.9
South Africa	22	34,000	7,800	5,400	47,000	0.8
Cote d'lvoire	23	44,000	550	2,000	47,000	0.8
Netherlands	24	16,000	8,800	18,000	43,000	0.7
Saudi Arabia	25	20,000	15,000	6,600	42,000	0.7
Philippines	26	34,000	6,700	0	40,000	0.7
Lao People's Dem. Rep.	27	37,000	1,000	0	38,000	0.7
Viet Nam	28	28,000	10,000	0	38,000	0.7
Czechoslovakia	29	29,000	2,200	2,700	33,000	0.6
Iran	30	17,000	6,400	9,000	33,000	0.6
Argentina	31	13,000	12,000	5,500	31,000	0.5
Korea Rep.	32	21,000	2,900	5,400	29,000	0.5
Turkey	33	16,000	3,600	9,200	29,000	0.5

Romania	34	25,000	3,100	0	28,000	0.5
Venezuela	35	19,000	4,700	3,200	27,000	0.5
Yugoslavia	36	15,000	2,800	8,200	26,000	0.4
Malaysia	37	22,000	1,400	2,500	26,000	0.4
Belgium	38	12,000	1,200	12,000	25,000	0.4
Algeria	39	8,400	12,000	4,100	25,000	0.4
Peru	40	22,000	870	0	23,000	0.4
Bangladesh	41	2,300	20,000	0	22,000	0.4
Ecuador	42	19,000	570	1,700	21,000	0.4
Greece	43	7,000	1,100	12,000	20,000	0.4
Korea Dem. People's Rep.	44	18,000	2,300	0	20,000	0.3
Portugal	45	3,700	1,000	13,000	17,000	0.3
Egypt	46	9,000	3,100	5,100	17,000	0.3
Bulgaria	47	15,000	660	1,600	17,000	0.3
Austria	48	6,500	960	9,100	17,000	0.3
Zaire	49	16,000	790	0	16,000	0.3
Cameroon	50	16,000	580	0	16,000	0.3

Source: Chapter 24, ``Atmosphere and Climate,'' Table 24.2
World Resources 1990-91

Note: a. Chlorofluorocarbons

Appendix V

ALLIANCE OF SMALL ISLAND STATES (AOSIS)

As of 25 April 1994

ATLANTIC
Cape Verde
Guinea-Bissau
SaoTome and Principe

CARIBBEAN
Antigua and Barbuda
Micronesia
Bahamas
Barbados
Belize
Cuba
Dominica
Grenada
Guyana
Jamaica
St. Kitts and Nevis
St. Lucia
St. Vincent and the Grenadines
Suriname
Trinidad and Tobago

INDIAN OCEAN
Comoros
Maldives
Mauritius
Seychelles

MEDITERRANEAN
Cyprus
Malta

PACIFIC
Cook Islands*
Federated States of

Fiji
Kiribati*
Marshall Islands
Nauru*
Papua New Guinea
Samoa
Solomon Islands
Tonga*
Tuvalu*
Vanuatu

SOUTH CHINA SEA
Singapore

OBSERVERS*
American Samoa
Gaum
Netherlands Antilles
Niue
U.S. Virgin Islands

AOSIS is a group of developing countries which share common objectives on environmental and sustainable developing matters. The group was formed during the Second World Climate Conference in 1990 and comprise small island and low-lying coastal developing countries which are particulary vulnerable to the adverse consequences of climate change such as sea level rise, coral bleaching, and the increased frequency and intensity of tropical storms.

*Not Member of the United Nations.
Source: AOSIS Memo, April 25, 1994

DECLARATION BY THE HEADS OF STATE OR GOVERNMENT OF THE ALLIANCE OF SMALL ISLAND STATES (AOSIS) DURING THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT (UNCED)
Rio de Janeiro, 12 June 1992

The Heads of State or Government of the Alliance of Small Island States (AOSIS) met in Rio de Janeiro on 12 June 1992 during the United Nations Conference Environment and Development (UNCED).

The meeting was attended by H.E the Hon L. Erskine Sandiford, Prime Minister of Barbados; H.E. Mr. Antonio Mascarenhas Monteiro, President of Republic of Cape Verde; H.E the Hon. Geoffrey Arama Henry, Prime Minister of the Cook Islands; H.E. Dr. George Vassiliou, President of the Republic of Cyprus; H.E. Mr. Hugh Desmond Hoyte, President of the Cooperative Republic of Guyana; H.E. the Hon. Percival James Patterson, Prime Minister of Jamaica; H.E. Mr. Teatao Teannaki, Beretitenti (President) and Minister of Foreign Affairs and International Trade of the Republic of Kiribati; H.E. Mr. Maumoon Abdul Gayoom, President of the Republic of Maldives; H.E. the Hon. Edward Fenech Adami, Prime Minister of the Republic of Malta; H.E Mr. Amata Kabua, President of the Republic of Marchall Islands; H.E. Mr. Baily Olter, President of the Federated States of Micronesia; H.E. Mr. Bernard Dowiyogo, M.P., President of the Republic of Nauru; H.E. Sir Wiwa Korowi, Governor General of Papua New Guinea; H.E. the Right Hon. Dr. Kennedy A. Simmonds, Prime Minister of St. Kitts and Nevis; H.E. the Hon. Tofilau Eti Alesana, Prime Minister of the Independent State of Western Samoa; H.E. Mr. Miguel Anjos da Cuhna Lisboa Trovoada, President of the Democratic Republic of Sao Tome and Principe; H.E. The Hon. Solomon S. Mamaloni, Prime Minister of Solomon Islands; H.E. the Hon. Bikenibeu Paeniu, Prime Minister of Tuvalu; H.E. the Hon. Maxime Carlot Korman, Prime Minister of Vanuatu.

The meeting was also attended by the following Heads of Delegation of the AOSIS member countries and observers: H.E. Mr. Lionel Hurst, Permanent Representative of Antigua and Barbuda to the United Nations; H.E. the Hon. Mr. Edward Charles Carter, Minister of Health of the Bahamas; H.E. the Hon. Mr. M. Florencio Marin, Deputy Prime Minister of Belize; H.R. Mr. Said Hassan Said Hachim, Minister of Foreign Affairs of the Federal Islamic Republic of Comoros, H.E. Mr. Carlos Lage Davila, Vice President of the Council of Ministers of the Republic of Cuba; Mr. Felix Gregoire, Director of Forestry and Wildlife, Dominica; H. E. the Hon. Mr. Joeli Kalou, Minister of State for the Environment of the Republic of Fiji; H.E. Mr. Eugene M. Pursoo, Permanent Representative of the UN, H.E. Professor Ahmud Swalay Kasenally, Minister of State for the Environment and Quality of Life of Mauritius; H.E. Mr. Charles Flemming, Permanent Representative of St. Lucia to the United Nations; H.E. the Hon. Mr. Alpian Allen, Minister for

Health and the Environment, Economic Planning and External Relations of Seychelles; H.E. the Hon. Dr. Ahmad Mattar, Minister for the Environment of Singapore; H.E. the Hon. Dr. Lenny Saith, Minister for Planning and Development of the Republic of Trinidad and Tobago; Mr. Willian P. Coleman III, Chief of Staff and Chairman, Environmental Quality Commission of American Samoa; H.E. the Hon. Mr. Tama L. Posimani, Minister for Community Affairs and Environment of Niue.

The following special observers during the Conference, and guests were also in attendance: H.E. General Icao Bernardo Viera, President of the Council of State of the Republic of Guinea Bissau; Dr. Joelle M.M. de Jong Mercelina, Head of the Division of International Organizations, Foreign Relations Office of the Netherlands Antilles; Dr. Mostafa Tolba, Executive Director, United Nations Environment Program (UNEP); Dr. Noel Brown, UNEP Regional Director of North America; H.E. Mr. Tommy T.B. Koh, Chairman of the Main Committee of the United Nations Conference on Environment and Development (UNCED); Mr. Jean Ripert, Chairman, International Negotiating Committee for a Framework Convention on Climate Change (INC); Mr. Michael Zammit-Cutajar, INC Executive Secretary, Mr. Byron Blake, Director, Economics and Industry Division of the Caribbean Community (CARICOM); Mr. Jeremia Tabai, Secretary General of the South Pacific Forum; Dr. Vili Fauvao, Director, South Pacific Regional Environment Program (SPREP); Foundation for International Law and Development (FIELD) and Greenpeace International.

The Heads of the State or Government:

expressed their great appreciation to the Government of Brazil for facilitating this important meeting during the UNCED, and for the overall arrangements made in hosting the Conference in Rio de Janeiro. They also warmly congratulated H.E. Mr. Fernando Collor de Mello, the President of Brazil, on his election as President of the Conference.

reviewed the evolution and growth of the AOSIS since the Group was first convened during the Second World Climate Conference held in Geneva, Switzerland from 5-7 November 1990.

paid a special tribute to H.E. Mr. Maumoon Abdul Gayoom, President of Maldives for the important initiative he took in convening the Small States Conference on Sea Level Rise in Male', Maldives from 14-18 November 1989. They also commended the Government of Trinidad and Tobago for the important initiative taken at the Second World Climate Conference which led to the formation of the Group as an ad hoc coalition. They also commended the Government of Malta for the initiative taken in 1988 which resulted in the adoption of United Nations General Assembly Resolution 43/53 on the protection of global climate and proposal for a framework convention on climate

change. They also expressed their deep appreciation to the Government of Vanuatu for the invaluable role played by its Permanent Representative to the UN in chairing the Group since the first meeting of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC) in February 1991. In doing so, they noted the progression of the aforementioned initiatives, and the transregional nature of the AOSIS and expressed the belief that this is one of the Group's Strengths.

expressed their appreciation to other countries, particularly developing countries and the G-77 as a group, for the understanding of the grave and serious threat posed to the future existence of the AOSIS member countries by sea level rise, coral leaching and the destruction of other ecological parameters, the increased frequency and intensity of tropical storms and other adverse effects of human induced climate change.

welcomed the recognition extended to the AOSIS as a special interest group during the INC negotiations and appealed to all members of the International community to recall that the special conditions and threat which led to that recognition still exist.

noted that despite recent advances in some areas, small island and low-lying coastal developing countries continue to see, in a general sense their needs, concerns, and interests assigned relatively low priorities within the United Nations system. They further noted that the role played by small island and low-lying coastal developing countries in the INC, and other negotiations leading to the UNCED underlines the positive and valid contributions which these countries can make in the process of strengthening international cooperation. In this regard, they expressed their intention to cooperate and collaborate further, particularly in environmental matters, with the aim of increasing awareness of their needs and concerns, and advancing their interests by amongst other things, assuring adequate representation of small island and low-lying coastal developing countries on relevant international bodies and organizations, and greater responsiveness to their needs, concerns, and interests.

further noted with great concern that in addition to the physical survival of small and low-lying coastal developing countries and their cultures as a consequence of their particular vulnerability to the adverse effects of human induced climate change, the security as well as the economies and ecologies of their countries are, for the most part, also vulnerable in other ways.

affirmed their belief that the economic and social development

of their countries is intrinsically linked to the international economic environment, and the economic and social development of all countries and reiterated their commitment at strengthening areas of cooperation, collaboration, and awareness with all countries, particularly developing countries within the G-77, and other countries within their respective geographic regional groups.

gratefully acknowledged the cooperation and assistance from the United Nations Environment Program (UNEP), the South Pacific Regional Environment Program (SPREP), the Caribbean Community (CARICOM), and various members of the NGO Community.

expressed their satisfaction that the text of the United nations Framework Convention on Climate Change (UNFCCC) was adopted by consensus on 9 may 1992 by the INC, and praised the tireless efforts in this regard by the chairman of the INC, and those of the bureau of the INC, and the members of the Secretariat.

reiterated the willingness of their Governments to accept the UNFCCC as what was achievable at this particular stage of a lengthy process, rather than what was desirable from the perspective of the AOSIS. While expressing their satisfaction that the text of the Convention was adopted by consensus, they also expressed their serious concern that the text lacks explicit, specific and meaningful commitments by developed countries to stabilize and then reduce their emissions of greenhouse gases, particularly carbon dioxide, within certain time frames. In this connection, they pledged their continued collective efforts to ensure that effective and equitable measures are taken to stabilize atmospheric concentrations of greenhouse gases in accordance with the guidelines provided by the Intergovernmental Panel on Climate Change (IPCC). They also expressed their satisfaction that a number of like-minded countries, both developed and developing, are in agreement on this point, and welcomed the statements that have been made by certain developed countries setting forth and renewing their own commitments to stabilize and subsequently reduce their CO2 emissions in accordance with specific targets and timetables. They also expressed the hope that the Convention would be universally adhered to, and through a sufficient number of early ratifications, enter into force at an early date and be sufficiently strengthened, including through appropriate protocols covering specific issues, in particular the limitation of CO2 emissions, to ensure that it effectively addresses the problem of human induced climate change and the adverse effects of such climate change.

stated further that the identification, development, and promotion of new and renewable sources of energy, and energy efficiency technologies would make a significant contribution

toward achieving the Objective of the UNFCCC. They, therefore, urged all states to consider taking measures to identify, develop, and promote new and renewable sources of energy, and energy efficiency technologies as an important way of effectively addressing the problem of human induced climate change, and its adverse effects.

decided that the AOSIS should continue to actively participate in the work of the INC throughout the period of the interim arrangements foreseen in the Resolution annexed to the convention, and should continue to actively function for any period thereafter as may be necessary to help ensure the effective and equitable operation of the Convention. In this regard, they stressed the urgent need for vulnerability assessments of small island and low-lying coastal developing countries, the development of effective costal zone management plans and methodologies, and financing of adaptation measures necessary to address the adverse effects of human induced climate change in accordance with Articles IV and XI of the Convention. In the latter connection, they welcomed the announcement made in New York on 1 May 1992 by a member of the private sector that it would contribute to the financial mechanism of the Convention funds specially designated for the small and low-lying coastal developing countries that are particularly vulnerable to the adverse effects of human induced climate change. They also urged others, including governments, to consider contributing to this innovative mechanism.

agreed that the AOSIS should continue to function in its present form as an ad hoc coalition of similarly situated and like-minded small island and low-lying coastal developing countries that are particularly vulnerable to the adverse effects of human induced climate change. They also agreed that the AOSIS should continue to work primarily through the Permanent Missions to the United nations of member countries in New York and through the regional coordinators or capitals of those members that do not belong to the United Nations.

further decided that their representatives should continue to develop and evolve the criteria for membership in the AOSIS based upon current criteria, the six (6) original AOSIS negotiating points, and other criteria which might evolve in the overall interests of the Group.

also decided to request that this Declaration be made an official document of the Conference, and be distributed as such.

concluded by thanking all of those who have contributed to whatever successes the Group has enjoyed, including governments, intergovernmental and international

organizations, NGOs, members of the private sector, and the international news media.

APPENDIX VII

SAMPLE OF QUESTIONNAIRE

For Key members of AOSIS

(1) What are the policies of your country with regard to global warming, climate change and ensuring environmental security?

(2) How does your country associate with or contribute to AOSIS in establishing an effective regime for global warming and climate change?

(3) What was the reaction of your country to the failure of AOSIS Protocol and how will your country intend to pursue the matter further?

(4) What are the prospects and constraints in achieving the goals of AOSIS in setting mandatory targets and timetable for emissions control?

(5) What are the best strategies that your country perceive as most effective in mitigating the issue of global warming and ensuring environmental security for small island states?

(6) Have your country experienced any meteorological events that raises suspicion as to potential impacts of global warming? Or what are the concerns of your country in this respect?

(7) If there are concerns in this respect how does your government plan to deal with such events or what measures the country has taken locally and globally to ensure protection of your environment?

(8) Do you have any further comments to make on any aspects of the issues discussed?

Questions for past and present chairmen of AOSIS

(9) Could you give some background to AOSIS, its evolution, objectives and activities?

(10) What is the role of AOSIS in establishing an international regime to address global warming?

(11) What are the strategies AOSIS have followed or plan to follow in ensuring environmental security for small

island states?

(12) What are the constraints and prospects for achieving the desired goals of AOSIS?

(13) What was the AOSIS's reaction to the failure of its protocol in the Berlin Conference and what are the future plans to pursue its goals?

(14) Any other comments.

Questions for NGOs

(15) How would you describe the role of AOSIS in establishing an effective international regime to address the issue of global warming?

(16) And how would you account for its success?

(17) What options or strategies are available for AOSIS in their search for environmental security?

Questions for the Maldives

(18) The Maldives has been often cited as one of the prime victims of global warming. What experiences has it undergone so far in this regard?

(19) What measures have been taken by the country locally and internationally to ensure its protection of environment?

(20) How would you describe the country's policies with regard to global warming and climate change?

(21) What have been the international responses to the Maldives' call for environmental protection?

(22) How does the country plan to deal with the crisis in the future?

(23) Any further comments on any aspects of the issue.

BIBLIOGRAPHY

Aafathis (daily in the Maldives), "Potential Cure for Cancer Found in Marine Sponge in the Maldives", Aafathis, March 5, 1994, Aafathis Press, Male'.

Abich, K.M.M., "Winners and Losers in Climate Change", Global Ecology, edited by W. Sachs, Fernwood Publishing, Halifax, 1993.

Alliance of Small Island States (AOSIS), Genesis of AOSIS, (informal paper) Publisher and date not known.

AOSIS, Declaration by the Heads of State or Governement of the AOSIS at the UNCED, Rio de Janeiro, June 12, 1992.

AOSIS, Memoir, March 13, 1995.

AOSIS, Memoir, April 25, 1994.

AOSIS, Report on the Trip by AOSIS Representatives to European Capitals, February 26 - March 3, 1995.

Banuri, T., "The Landscape of Diplomatic Conflicts," Global Ecology, edited by Sachs, Fernwood Publishing, Halifax, 1993.

Barrett, S., "Global Warming: Economics of a Carbon Tax", Blueprint 2, Pearce, D., (edition), Earthscan Publications Ltd., London, 1991.

Booth, R., and Starr, H., World Politics: The Menu for Choice, (Fourth edition), W.H. Freeman and Co., New York, 1992.

British Broadcasting Corporation (BBC), World News (Radio), October 1994.

Cable News Networks (CNN), "Hurricane Luis in the Caribbean", World News (TV), September 12, 1995.

Bergesen, H.O., "A Global Climate Regime - Mission Impossible?", Green Globe Yearbook 1995, 4th edition, edited by Bergesen, H.O., and Parmann, Oxford University Press, Oxford, 1995.

Bergesen, H.O., & Sydnes, A.K., "Protection of the Global Climate-Ecological Utopia or Just a Long Way to Go", Green Globe Yearbook, edited by Bergesen, H.O. et al, Oxford University Press, Oxford, 1992.

Brown, P., "Global Warming Summit at Risk", The Guardian (UK), March 25, 1995, (photocopy).

Candian Broadcating Corporation (CBC), Climate Change, Discovery Canada (TV Program), September 19, 1995.

Connell, J., and Lea, J., "'My Country Will Not Be There': Global Warming, Development and the Planning Response in Small Isalnd States", Cities, November 1992, Butterworth-Heinemann Ltd. pp 295-309.

Carr, E.H., The Twenty Years' Crisis 1919-1939, 2nd edition, Harper and Row Publishers, New York, 1964.

Chasek, P., "The Negotiating System of Environment and Development", Negotiating International Regimes; Lessons Learned from the UNCED (International Environmental Law and Policy Series), edited by Bertram, I., et al, Graham and Trotman Ltd., London, 1994.

Chasek, P., "The Story of the UNCED Process", Negotiating International Regimes; Lessons Learned from the UNCED (International Environmental Law and Policy Series), edited by Bertram, I., et al, Graham and Trotman Ltd., London, 1994.

Cline, W.R., The Economics of Global Warming, Institute of International Economics, New York, 1992.

Commission on Global Governance, Global Neighbourhood, Oxford University Press, Oxford, 1995.

Conference Secretariat of Small States Conference on Sea Level Rise (SSCSLR), Report, SSCSLR, Male', November 1989.

Dawson, D.K., "Climate Change-the Cause for Our Concern", Global Warming Issues in Asia, edited by Bhattacharya, S.C. et al, Asian Institute of Technology, Bangkok, 1994.

Drayton, A., The INC Negotiations, the GEF and AOSIS, (unpublished briefing paper) 1993.

Department of Information and Broadcasting (DIB), Maldives, Environment, DIB, Male', 1990.

Earth Island Journal, "Changing Climate, Changing Priorities", Earth Island Journal, Vol 10. No. 2 Spring 1995, Earth Island Institute, San Francisco.

Economic Instruments Collaborative (Canada), Achieving Atmospheric Quality Objectives through the Use of Economic Instrument, Economic Instrument Collaborative, 1993.

Environment Canada, A Matter of Degrees: a Primer on Global Warming, Minister of Supply and Services, Ottawa, 1993.

Evans, P.B., "Building an Integrative Approach to International and Domestic Politics", Double-edged Diplomacy: International Bargaining and Domestic Politics, edited by Putnam, R.D., University of California Press, Berkeley, 1993.

Finger, M., "Politics of the UNCED Process," Global Ecology, edited by Sachs, W., Fernwood Publishing, Halifax, 1993.

FIELD, Briefing Paper on the AOSIS Protocol, 1994, (photocopy).

Flavin, C., Confronting the Risks of Climate Change, (unpublished manuscript which is sheduled to appear in State of the World 1996 as Chapter 2) September 1995.

Flavin, C., and Tunali, O., "Getting Warmer: Looking for a Way Out of the Climate Impasse, World Watch, Vol. 8, No. 2, March/april 1995, World Institute, Washington.

Foley, G., Global Warming: Who is Taking the Heat, Panos Publications Ltd., London, 1991.

Freestone, D., "International Law and Sea level Rise." International Law and Global Climate Change, edited by Churchill, R.R., Graham and Trotman Ltd, London, 1991.

Friends of the Earth International (FEI) "No Targets, Dates: an Empty Climate Convention", Third World Resurgence, No. 24/25, August/September 1992, Third World Network, Penang.

Gayoom, M.A., Address by H.E. Mr. Maumoon Abdul gayoom, President of the Republic of Maldives at the UN Conference on Environment and Development, Rio de janeiro, June 12, 1992.

Gayoom, M.A, Address at the United Nations General Assembly on the Issues of Environment and Development, 19 Oct 1987.

Gayoom, M.A, Inaugural Address at the Small States Conference on Sea Level Rise, Male', 16 November 1989.

Gayoom, M.A., Keynote Address by H.E. Mr. Maumoon Abdul Gayoom, President of the republic of Maldives to the Second Municipal Leaders' Summit on Climate Change, Berlin, March 27, 1995.

New York Times Services, "Human Activity Indicated as Cause of Global warming", Globe and Mail (Canadian Daily), September 11, 1995.

Goldberg, D.M., "Negotiating the Framework Convention on Climate Change," Readings in International Environmental Law, compiled by VanderZwaag, D. and Kapanen, B., Dalhousie Law

School, Halifax, 1994.

Government of Canada, Minister of Supply and Services Canada (MSSC), Economic Instruments for Environmental Protection, Canada Communication Group, 1992.

Government of Canada, Canada's National Report on Climate Change, 1994.

Greenpeace International, "Introduction", Climate Campaign on homepage/www (internet), 1995.

Groom, A.J.R., "The Setting in World Society", Frameworks for International Cooperation, edited by Groom, A.J.R., and Taylor, P., St Martin's Press, New York, 1990

Harangozo, S.A., "Flooding in the Maldives and Its Implications for the Global Sea Level Rise Debate", Sea Level Changes: Determination and Effects, edited by Woodworth, P.L. et al, AGU Books Board,, Washington, 1992.

Hatch, M.T., "Domestic Politics and International Negotiations: the Politics of Global Warming in the US", Journal of Environment and Development, Summer 1993, University of California Press, Berkeley, 1993.

Hildyard, N., "Foxes in Charge of the chicken," Global Ecology, edited by Sachs, W., Fernwood Publishing, Halifax, 1993.

Hurrell, A., and Kingsbury.B., (ed.) The International Politics of the Environment, Clarendon Press, Oxford, 1992.

Iles, A.D., Statement made by Incoming Chairperson at the Handover Ceremony of AOSIS' Chairmanship, New York, December 1994.

Imber, M.F., Environment, Security and UN Reform, St. Martin's Press, New York, 1994.

Ince, M., The Rising Seas, Earthscan Publications Ltd, London, 1990.

Institute of Sustainable Development (ISSD), Conference on the Sustainable Development of Small Island Developing States" Earth Negotiations Bulletin (ENB), Vol. 8. No. 28, May 9, 1994, International Institute for Sustainable Development (IISD), Manitoba.

IPCC (WMO and UNEP), Climat Change: The IPCC Scientific Assessment, edited by Houghton, J.T. et al, Cambridge University Press, New York, 1990.

ISSD, "Summary of the UN Global Conference on Sustainable Development of Small Island Developing States", ENB, Vol. 5, No. 25, May 30, 1994, ISSD, Manitoba.

ISSD, "A Brief History of the Framework Convention on Climate Change", ENB, Vol. 12, No. 12, March 28, 1995, Manitoba.

ISSD, "Summary of the First Conference of the Parties for the Framework Convention on Climate Change: March 28 - April 7, 1995", ENB, Vol. 12, No. 21, April 10, 1995, Manitoba.

Jardine, K., "Berlin Summit Update", Greenlink, Vol. 3, No.2 1995, Greenpeace International, pp 10.

Jordan, A., and Werksman, J., "Additional Funds, Incremental Costs and the Global Environment," RECIEL, Vol 3, No. 2/3, 1994.

Knoepfel, P., "Environmental Policy", Encyclopedia of Government and Politics, Vol.2, edited by Hawkesworth, M.E. and M. Koyan, Routledge, London, 1992.

Keohane, R. O., Neorealism and its Critics, edited by Keohane, R. O., Columbia University Press, New York, 1986.

Korany, B., "Introduction", The Many Faces of National Security in the Arab World, edited by Korany, B., et al, Macmillan Press Ltd., London, 1993.

Lanchbery, J., and Victor, D., "The Role of Science in the Global Climate Negotiations", Green Globe Yearbook 1995, 4th edition, edited by Bergesen, H.O., and Parmann, Oxford University Press, Oxford, 1995.

Leatherman, S.P "Rising Sea Levels and Small Island States", Ecodecision, January 1994, pp 53-54.

Lechte, R.E., "Global Warming and small Island Nations", Ecodecision, January, 1994 pp 60-61.

Levi, B.G. et al (ed), Global Warming: Physics and Facts, American Institute of Physics, New York, 1992.

Liebermann, B. C., "Stratospheric Ozone Depletion and the Montreal Protocol: A Critical Analysis," Readings in Environmental Law, compiled by VanderZwaag, D. and Kapanen, B., Dalhousie Law School, Halifax, 1994.

Maldives News Bureau, Maldives News Bulletin, No.463, 30 October 1994,, Ministry of Information and Culture, Male'.

Markandya, A., "Global Warming: The Economics of Tradeable

Permits", Blueprint 2, edited by Pearce, D., Earthscan Publications Ltd., London, 1991.

Maundar, W.J., Dictionary of Global Climate Change, Chapman and Hall, New York, 1992.

McFarlan D., (ed.) Guinness Book of World Records, Bantam Book New York, 1991.

McMohan, V., Negotiating for Survival: Island States at the Climate Negotiations and Beyond, 1995 (unpublished paper)

Mlot, C., "Greenhouse Warming", Environment Almanac, edited by Hammond, A., World Resources Institute, Houghton Mifflin Co., 1992.

Moravcsik, A., "Introduction", Double Edged Diplomacy: International Bargaining and Domestic Politics, edited by Evans, P.B. et al, University of California Press, Berkeley, 1993.

Ministry of Planning and Environment (MPE) Maldives, National Report to UNCED, MPE, Male' 1992.

Ministry of Planning, Human Resources and Environment (MPHRE - Maldives), State of the Environment: Maldives, MPHRE, Male', 1994.

Munavvar, M., "Greenhouse Effect and Sea Level Rise: Threat to small Island States: A Perspective of International Legal Responsibility". Journal of the African Society of International and Comparative Law, Vol. 1, No.3 (photocopy).

Murphy, C.N. and Tooze, R., "Introduction", The New International Political Economy, edited by Murphy, C.N. and Tooze, R., Lynne Rienner Publications, Boulder, 1991.

Nicholls, N., "What's Happening to the Climate? Only Better Data will Tell", UN Climate Change Bulletin, Issue 5, 4th Quarter 1994 (internet edition), Interim Secretariat, Geneva.

Nordhaus, W.D., "Economic Approaches to Greenhouse Warming" in Dornbusch et al edition Economic Policy Responses, The MIT Press, Cambridge, 1993.

OECD, Global Warming: The Benefits of Emission Abatement, OECD, Paris, 1992.

OECD, Convention on Climate Change: Economic Aspects of Negotiations, OECD, Paris, 1992.

Ogawa, Y., "Economic Activity and the Greenhouse Effect"

edited by Dorfman, S.M., Economics of the Environment (3rd edition), W.W. Norton and Company, New York, 1993.

Ornas, A.H, and Lodgaard, S., The Environment and International Security, Research Program on Environment and International Security, Uppsala, 1992.

Pearce, D., Blueprint 2, Earthscan Publications Ltd., London, 1991.

Paterson, M., "Case Study of Global Warming", The Environment in International Relations, Royal Institute of International Affairs, London, 1993,

Paterson, M., "The Politics of Climate Change after UNCED", Rio: Unvelling the Consequences, edited by Thomas, C., Frank Cass, 1994.

Payne, A., "The Politics of Small States Security in the Pacific", The Journal of Commonwealth and Comparative Politics, Vol. 31, No. 2, July 1993, Frank Cass & Co. Ltd., London.

Pernetta, J., and Sestini, G., The Maldives and the Impact of Expected Climate Changes, United Nations Environment Program (UNEP), 1998.

Plant, G., "Institutional and Legal Responses to Global Warming," International Law and Global Climate Change, edited by Churchill R.R., Graham and Trotman Ltd., London, 1991.

Poter, G., and Brown, J.W., Global Environmental Politics, Westview Press, New York, 1992.

Poterba, J.M., "Tax Policy to Combat Global Warming: on Designing a carbon Tax" in Dornbusch et al edition, Economic Policy Responses, The MIT Press, Cambridge, 1993.

Princen, T., et al, Nongovernmental Organizations in World Environmental Politics, International Environmental Affairs, Vol.7, No.1, Winter 1995, University Press of New England, Hanover.

Prins, G., "Introduction", Threats Without Enemies, Earthscan Publications Ltd., London, 1993.

Pulvenis, J.F., "The Framework Convention on Climate Change", The Environment After Rio (International Environmental Law and Policy Series), edited by Campiglio, l. et al, Graham and Trotman Ltd., London, 1994.

Saravanamuttu, P., "Environment, Development and Security",

Rio: Unvelling the Consequences, edited by Thomas, C., Frank Cass, 1994.

Schelling, T.C., "Some Economics of Global Warming" in Dorfman et al edition Economics of the Environment (3rd edition), W.W. Norton and Company, New York, 1993.

Schol, A., "Introduction", Small States in International Relations, edited by Schol, A., et al, Almqvist & Wiksell, Stockholm, 1971.

Secretariat of FCCC, "'Berlin Mandate' Opens way for Post-2000 Commitments", Climate Change Bulletin, Issue 7, 2nd Quarter 1995, UNEP/WMO, Geneva.

Conference Secretariat of Small States Conference on Sea Level Rise, Report, November 14-18, 1989, Kurumba Village, Maldives.

Smith, T.B., "Global Climate Change in Asia: the Politics of Public Policy-Making and Science Agenda Setting", Science and Public Policy, Vol 21, No.4, August 1994, Beach Tree Publishing, London.

Smith, S., "The Environment on the Periphery of International Relations: An Introduction", Rio: Unvelling the Consequences, edited by Thomas, C., Frank Cass, 1994.

Sundararaman N., and Newcombe, K., UN Climate Change Bulletin, Climate Change Convention, Newcombe, K., Interim Secretariat of UN Issue 5, 4th October 1994, Geneva,

Susskind, L.E., Environmental Diplomacy: Negotiating More Effective Global Agreements, Oxford University Press, New York, 1994.

Sutton, P., and Payne, T., Politics, Security and Development in Small States, Allen and Unwin, London, 1987.

Suzuki, D., Speech at the People's Summit 1995, Halifax, June 17, 1995.

Thomas, C., The Environment in International Relations, Royal Institute of International Affairs, London, 1993.

Thomas, C., "Beyond UNCED: an Introduction", Rio: Unravelling the Consequences, edited by Thomas, C., Frank Cass, 1994.

Tolbert, D., "Global Climate Change and the Role of International Non-Governmental Organizations", International Law and Global Climate Change, edited by Churchill, R.R., and Freestone, D., 1991.

UN Centre on TNCs, Climate Change and TNCs, UN, New York, 1992.

UNDP, Human Development Report 1994, Oxford University Press, Oxford, 1994.

UNEP, Potential Impacts of Expected Climate Change on Coastal and Near-Shore Environment, UNEP, Nairobi, 1992.

United Nations Institute for Training and Research (UNITAR), Small States and Territories: Status and Problems, Arno Press, New York, 1971.

United Nations, Charter of the UN and Statute of the International Court of Justice, Department of Public Information (UN) New York.

UNCED, United Nations Framework Convention on Climate Change, UNCED, Rio de Janeiro, 1992.

UNCED, Rio Declaration, UNCED, Rio de Janeiro, 1992.

UN Global Conferenece on the Sustainable Development of Small Island Developing States (Barbados Confernece), Programme of Action for Small Island States, UN, Bridgetown, April/May 1994.

UN, Montreal Protocol on Substances that Deplete the Ozone Layer, September 16, 1987.

UN, Report of the Global Conferenece on the Sustainable Development of Small Island Developing States, UN, New York, April/May 1994.

UN Non-Governmental Liaison Service (UNNGLS) "Global Conference on the Sustainable Development of SIDS", E & D File, UNNGLS, Vol. 3, No. 4, May 1994, New York,

US Climate Action Network (USCAN) and Climate Network Europe (CNE), "Implementation of the Climate Treaty in G 7 Countries: Are the World Leaders Leading?", Independent NGO Evaluations of National Plans for Climate Change Mitigation: G 7 Countries, USCAN and CNE, Washington, June 1995.

Victor, D. G. and Salt, J. E., "From Rio to Berlin: Managing Climate Change", Environment, Vol. 36, No. 10, December 1994, Heldref Publications, Washington, pp 6-15 and 25-32.

Walsh, J., "Man the Dikes", Time, Feb. 13, 1995, Time canada Ltd., Toronto.

Waltz, K.N., Reflections on Theory of International Politics",

Neo-Realism and its Critics, edited by Keohane R. O., Columbia University Press, New York, 1986.

Warrick, R.A., (edited) Climate and Sea Level Change, Cambridge University Press, Cambridge, 1993.

Weber, P., "Reviving Coral Reefs", State of the World, Worldwatch Institute, New York, 1993.

Winnefeld, J.A., and Morris, M.E., Where Environmental Concerns and Security Strategies Meet, Rand Corporation, Santa Monica, 1994.

Wirth, D.A., and Lashof, D.A, "Beyond Vienna and Montreal: A Global Framework Convention on Greenhouse Gases", A Global Warming Forum, edited by Geyer, R.A., CRC Press, Boca Raton, 1992.

World Commission on Environment and Development (Brundtland Report), Our Common Future, Oxford University Press, Oxford, 1987.

WMO and UNEP, Climate Change: The IPCC Impacts Assessment, Tegart, W. J. M, et al (edited) Australian Government Publishing Service, Canberra, 1990.

WMO and UNEP, Climate Change: The IPCC Response Strategies, Island Press, Washington D.C., 1991.

World Resources Institute (WRI) "Atmosphere and Climate", World Resources 1992-3, WRI, New York, 1992.

WRI, "Atmosphere and Climate", World Resources 1990-1, WRI, New York, 1990.

WRI, Environment Almanac, Houghton Miffin Co., Boston, 1992.

....., Male' Declaration on Global Warming and Sea Level Rise, The Small States Conference on Sea Level Rise (SSCSLR), 18 Nov. 1989, Male'.

INTERVIEWS

Shihab, H., Deputy Minister, Ministry of Planning, Environment and Human Resources, The Maldives. December 12, 1994.

Rasheed, A., Second Secretary, Permanent Mission of The Maldives to the United Nations, November 2, 1994.

Carey, S.P., Second Secretary, Permanent Mission of The Commonwealth of The Bahamas to the UN, August 4, 1995.

Chasek, P.M., Editor, Earth Negotiations Bulletin, August 4, 1995.

Delaney, A.V., First Secretary, PNG Mission to the UN, Aygust 3, 1995.

Forde, J., Executive Officer, Consulate General of Guyana, New York, August 4, 1995.

Horoi, R.J., Ambassador and Permanent Representative of Solomon Islands to the UN, August 1, 1995.

Khaleel, A., First Secretary, Permanent Mission of the Maldives to the UN, August 1, 1995.

McCoy, M., Co-Chair and UN Representative, Citizens Network for Sustainable Development, New York, August 3, 1995.

McMahon, V., (independent observer) HABITAT, New York, August 4, 1995.

Nayeck, J., Second Secretary, Mauritius Mission to the UN, August 3, 1995.

Oodit, D., Chief SIDS Unit, UNDP Comission on Sustainable Development, New York, August 2, 1995.

Panuelo, D.W., Deputy Permanent Representative, Permanent Mission of the Federated States of Micrenesia to the UN, August 3, 1995.

Pierre, N., Sustainable Development Officer, SIDS Unit, UNDP Commision on Sustainable Development, August 2, 1995.

Prendergast, D.A., Counsellor, Permanent Mission of Jamaica to the UN, August 3, 1995.

Ramlal, R., second Secretary, Permanent Mission of Trinidad and Tobago to the UN, August 2, 1995.

Ronneberg, E., Counsellor, Permanent Mission of the Republic of the Marshall Islands to the UN, August 3, 1995.

Tan, C.T.S., First Secretary, Permanent Mission of Singapore to the UN, August 4, 1995.

Stewart, A.W., First Secretary, Permanent Mission of Samoa to the UN, August 1, 1995.