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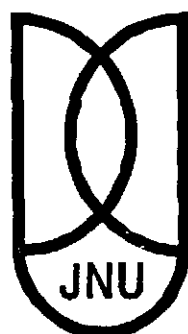
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& Ashok*

INDIA'S DIPLOMATIC STRATEGY IN CLIMATE CHANGE NEGOTIATIONS

*Dissertation submitted to Jawaharlal Nehru University in partial
fulfillment of the requirements for the award of the degree of*

MASTER OF PHILOSOPHY

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CERTIFICATE

This is to certify that the dissertation entitled, **India's Diplomatic Strategy in Climate Change Negotiations** submitted by **Chander Bhan Yadav** in partial fulfillment of the award of the degree of **Master of Philosophy (M. Phil)** is his original work and has not been submitted so far in part or in full, for any other degree or diploma of any university.

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PREFACE

Humankind's increased interaction with the earth has been causing grave environmental consequences. Uncontrolled economic activity, rapid population growth, and urbanization are primarily responsible for environmental damage. Since last few decades there has been widespread concern about the dangers of environmental damage worldwide. Environment moved from being the concern of a few scientists, administrators and conservation groups to being the focus of a mass movement. Consequently, public began to pressurise governments to address issues of environmental degradation and climate change. It was in 1972 that United Nations organised a conference on Human environment at Stockholm where the world leaders for the first time discussed collectively the problems related to environment and launched the United Nations Environment Programme (UNEP). This conference was dominated by North-South differences over global economic relations and environmental politics. Since then the concerns of developing nations like, food, shelter, potable water and population.

The second wave of environmental politics began in the last decade of 20th century. United Nations mandated Earth Summit and six conferences of Parties were held in different parts of world between 1995 to 2001. More recently in past decade issues in environmental negotiations have moved towards more precise contentions like climate change negotiations and issues like Clean Development Mechanisms, Global Environmental Facility, provision of Sinks dominated the course of these negotiations and remained as major discussion issues in all the climate change negotiations.

India becomes a major player in the ongoing process of climate change negotiations. It is about this background, an attempt is being made in the course of this dissertation to examine. The study examines, India's diplomatic strategy at the international level pertaining to these negotiations at the domestic levels, and its national policy formulation.

The study is descriptive and analytical in nature and also undertakes case study of non-governmental organisations. The study undertakes the background, structure, process and outcome of various climate change negotiations. Primary sources have been duly utilized as also interviews of Delhi based non-governmental representatives. Secondary sources have also been used extensively for the purpose of the study.

The dissertation is divided into five chapters. The first chapter titled 'Introduction: Background of Climate change and Environmental Negotiations' seeks to trace the history of environmental awareness and climate change negotiations and it also strife to explain the causes and consequences of climate change in scientific terms. Various events negotiations leading to Stockholm conference are discussed in detail. It further examines the issue in context of developing nations' problems and concerns.

The second chapter titled, 'Climate Change Negotiations from Stockholm to Rio : Domestic Milieu' examines the factors responsible towards the formulation of environmental policy in India it further unravel the discourse of international climate convention and towards extend India has been able to influence them.

The Third chapter titled, "Berlin to Hague : The Conference of Parties" seeks to evaluate India's position in all the six Conference

of Parties (COP I- VI) held between 1995-2001. It also further examines to what extent India has been able to advocate and articulate the cause of other developing nations vis-a-vis the developed nations. The various provisions of the conferences related to the issues like reduction of GHG emission norms, financial mechanism, sink provision have been critically analysed. An attempt has also been made to find out that how developed countries have tried to mould and manipulate these ambiguities of provisions in their own interests.

The fourth chapter titled "Role of NGOs: Case study of CSE/TERI in India's Climate Change Policy" strives to find out the advocacy role of NGOs on environmental issues, especially on climate change. These chapter in addition studies the interaction of Southern NGOs with the Northern environmental research groups and the consequent evaluation of global networking of environmental NGOs. Special emphasis has been given to the case of study of the Indian NGOs viz. CSE and TERI to show case the role of non state actors in climate negotiation. Their efforts in influencing Indian government's environmental policy and raising in public awareness programmes have been discussed in detail. Their coordination with other foreign NGOs is also discussed. Finally the efficacy of their activities has been analysed in a holistic approach. This is followed by the conclusion.

It is hoped that this work will be helpful in understanding the various contentious issues. That have erupted various climate change Negotiation in Indian context. Besides providing are refreshing analysis towards India's diplomatic assertion in negotiations. The work will help in addressing the emerging issues that are not too distant on the horizon of climate change negotiation.

ABBREVIATION

ADB	-	Asian Development Bank
AGBM	-	Adhoc Group on Berlin Mandate
AIJ	-	Activities Implemented Jointly
AOSIS	-	Association of Small Island States
CAN	-	Climate Action Network
CDM	-	Clean Development Mechanism
CHOGM	-	Commonwealth Heads Of Government Meetings
CO ₂	-	Carbon dioxide
COP	-	Conference of Parties
CSE	-	Centre for Science and Environment
CSIR	-	Centre for Scientific and Industrial Research
DOE	-	Department of Environment
DST	-	Department of Science and Technology
EAC	-	Expert advisory committee
ECOSOC	-	United Nations Economic and Social Council
ERU	-	Emission Reduction Unit
EU	-	European Union
UNFCCC	-	United Nations Framework Convention on Climate Change

GARP	-	Global Atmospheric Research Programme
GEF	-	Global Environmental Facility
GHG	-	Greenhouse Gas
H ₂ O	-	Hydrogen
ICSU	-	International Council of Scientific Union
IGY	-	International Geophysical Year
IMF	-	International Monetary Fund
IMO	-	International Meteorological Organisation
INC	-	Intergovernmental Negotiating Committee
JI	-	Joint Implementation
JUSCANZ	-	Japan, United States, Canada, Australia, and New Zealand
JUSSCANNZ	-	Japan, United States, Canada Australia, Norway, and New Zealand
MEA	-	Ministry of External Affairs
MOEF	-	Ministry of Environment and Forest
MOP	-	Ministry of Parties
NCEPC	-	National Committee on Environmental Planning and Coordination
NECP	-	National Committee on Environmental Planning
NGO	-	Non Governmental Organisation
ODA	-	Official Development Assistance

OECD	-	Organisation for Economic Cooperation and Development
OPEC	-	Organisation of Petroleum Exporting Countries
OEPC	-	Office of Environmental Planning Commission
PPF	-	Planet Protection Fund
PPMV	-	Parts Per Million by Volume
PREPCOM	-	Preparatory Meeting
SAARC	-	South Asian Association for Regional Cooperation
SB	-	Subsidiary Body
SBI	-	Subsidiary Body for Implementation
SBSTA	-	Subsidiary body for scientific and technological advice
SCEP	-	Study of Critical Environmental Problems
SIDA	-	Swedish International Development Aid
SMIC	-	Study of Man's Impact on Climate
SWCC	-	Second World Conference on Climate
TERI	-	Tata Energy Research Institute
TREAT	-	Teri Repository of Environmental Activities
UNCED	-	United Nations Conference on Environment and Development
UNCHE	-	United Nations Conference on Human and

Environment

UNEP	-	United Nations Environment Programme
UNGA	-	United Nations General Assembly
UNIDO	-	United Nations Industrial Development Organization
WAF	-	World Atmosphere Fund
WCC	-	World Climate Conference
WCED	-	World Commission on Environment and Development
WCP	-	World Climate Programme
WG	-	Working Group
WMO	-	World Meteorological Organisation
WRI	-	World Resources Institute
WWW	-	World Weather Watch

CHAPTER 1

CHAPTER 1

INTRODUCION : BACKGROUND OF CLIMATE CHANGE AND ENVIRONMENTAL NEGOTIATIONS

The Earth's climate patterns create and sustain the natural environment on which humans and all other species depend. The planets environmental zones- from equatorial forests to polar regions – and the wealth of species they contain result from the different climates that exist on Earth. In both traditional and technological societies essential activities, including agriculture and water resource management, are based on current climate patterns. Variations in these patterns, which occur naturally from year to year and over longer period of time, can cause disasters including drought, famine and floods affecting millions of people.

The Earth's climate patterns are governed by largely by average global temperature, which has been gradually rising for more than a century. This warming may be a natural temperature fluctuation, but greenhouse gases- released by industries over the past few years and increasing as a result of deforestation may have built up in the atmosphere to such an extent that they may be enhancing the warming effect induced by normal levels of naturally-occurring atmospheric greenhouse gases.

Enhanced greenhouse warming will not affect the planet evenly, and the time taken for the climate to respond to any warming will vary between different areas. In general, high latitude regions are expected to experience the greatest changes in temperature, and warming is likely to be greater in winter than in summer in these regions. Land

will warm more rapidly than oceans, and the effects on climate are likely to be delayed in areas influenced by deep seas.

Over the past decade, research has been carried out into the effect on human activities and natural ecosystems of possible future climatic conditions. The amount of water available for domestic use, agriculture, industry and generating hydro-electricity can be seriously affected by small change in temperature. Warmer temperatures are likely to increase winter rainfall in some middle and high latitude regions, but other areas may become drier - particularly in the summer.

Agriculture, in some regions could benefit from warmer temperatures and increased rainfall. However, changes in temperature, rainfall or soil moisture could severely reduce the productivity of marginal lands in areas such as the Sahel, and cause regional food shortages. Forests, which provide a variety of products from fuel to food, will also be affected by changes in temperature & rainfall.

Although the global warming issue has been raised periodically over the past 50 years, it has now caught the public's eye and promises to be premier environmental issue of the 1990's and beyond. It seems that there is some debate within the scientific community over whether it is serious one.

THE SCIENTIFIC BACKGROUND

The Earth's climate is not constant: temperatures and rainfall vary from year to year and fluctuate widely over much longer periods of time. Indeed, changes in the Earth's average annual temperature of 4-5°C brought about the onset and retreat of the Ice ages. And even since the past Ice Age, there have been periods when regional temperatures were much higher and much lower than at present.

Detailed analysis of temperature records of the past 100 years indicates that the global mean temperature has risen by 0.3-0.6°C¹. Changes in some of the Earth's physical features also suggests that global temperature is rising. Most Mountain glaciers have been retreating since the end of 19th Century and, during the 1980s (which included five of the warmest years on record), a decrease in planet's snow cover was recorded. There has also been an average rise of 1-2 mm per year in global sea level during the past 100 years, some of which is probably related to global warming². Because temperature variations of this magnitude have occurred before, it is not yet possible to say with certainty whether this recent global warming is 'natural' or caused by human activity.

GREENHOUSE EFFECT :

The Earth's climate is driven by Solar radiation. Solar radiation reaches the Earth's atmosphere in the amount of 1370 W.m⁻² (watts per square meter of energy). Approximately 30 percent of this energy is immediately reflected back into space, primarily by clouds. The remaining energy reaching the Earth's surface (whose area is four times its cross section) amounts to 240 W.m⁻² and is absorbed and reemitted³. The warming effect of the greenhouse gases in the atmosphere was first recognised in 1827 by the French Scientist Jean-Baptiste Fourier, best known for his contributions to Mathematics. He also pointed out the similarity between what happens in the atmosphere and in the glass of a greenhouse, which led to the name 'greenhouse effect'⁴. During the course of the nineteenth century experiments and observations were under taken to calculate the effect

¹ Mostafa K. Tolba, *Saving our Planet: Challenges & Hopes*,(London: Chapman & Hall, 1992), p. 28.

² UNEP: *The Impact of Climate Change*, UNET Nairobi, 1993, p 6.

³Rudiger Dornbusch, (ed.) *Global Warming: Economic Policy Response*; (Cambridge: The MIT Press, 1992), p. 8

⁴ John Houghton, *Global Warming: The Complete briefing*,(UK :Cambridge University Press, 1997), p. 12.

of the gases involved, and carbon dioxide (CO₂) and water vapour became recognised as the most important gases involved in the greenhouse effect. Subsequently, John Tyndall in England actually measured the absorption of infrared radiation by Carbon dioxide and water vapour and showed that these atmospheric constituents could significantly raise the Earth's surface temperature⁵. He also, suggested that a cause of the ice ages must be a decrease in the greenhouse effect of carbon dioxide⁶.

Meteorologists had already begun to cooperate across natural boundaries, recognising that their measurements would be far more useful if they were pooled. Two early attempts to set up networks of atmospheric monitoring stations were made, one by the Academia del Cimento in Florence, between 1645 and 1667, both inside and outside Italy, and one by the Meteorological Society of Mannheim, in 1780. The network of stations based in Mannheim included in the United States and one in Greenland ⁷. Both of these projects collapsed, however, the collapse of the one based in Mannheim being due to the French Revolutionary Wars.

The First International Meteorological Conference was held on 23 August 1853 in Brussels. This conference standardised Meteorological observations to be taken from ships, by establishing a set of instructions for how to take measurements, and a standard form for recording them⁸. This conference was organised at the initiative of a navel officers M.F. Maury of the United States Navy, the conference

⁵ Michael H. Glantz, (ed.) *Societal Responses to Regional Climatic Change*, (London: Westview Press, 1988), p. 12.

⁶ John Houghton, op cit., p 12.

⁷ Van J Miegham, "International Cooperation in Meteorology: An Historical, Review", Report of Proceedings of Symposium on International Cooperation in Meteorology, *International Association of Meteorology and Atmospheric Physics*. 1968, p. 110.

⁸ Marvin S. Soroos, "The Atmosphere as an International Common Property Resource", in S.S., Nadel (ed.) *Global Policy Studies: International, Interaction Towards Improving Public Policy*, (London : MacMillan, , 1991).p. 168.

was attended by people from ten countries⁹ and proposed for standardize land based observations. But these proposals were not taken up.

Almost twenty years later, at the Leipzig Conference of Meteorologists in 1872, it was proposed that an International Meteorological Organisation (IMO) be established and an official Congress be organised to establish the organisation involving government officials¹⁰. This conference also standardised land based meteorological observations, following up earlier suggestions. The Leipzig conference was attended primarily by meteorologists. Fifty-two directors of National Meteorological Services attended, along with other scientists¹¹. The new developments were due to 'increasing interests in meteorological research, greater recognition of the economic importance of climatic data and the development of the electric telegraph, which facilitated rapid collection and dissemination of observations'¹². This was due to increasing recognition that meteorologists could not enhance their knowledge satisfactorily within national borders, and needed to cooperate across countries.

The First International Meteorological Congress was held in September 1873 in Vienna. The Vienna Congress formally established IMO, which was then set up as an organisation over the following six years, through a series of meetings of the permanent committee established at Vienna. These meetings drew up a charter for the organisation, which was finalised at Utrecht in 1878, when the IMO was formally founded¹³. Van Viegam¹⁴ outlines five main stages of the IMO's

⁹ Van J. Miegham, op cit., p. 112.

¹⁰ Ibid. pp. 112.

¹¹ Ibid.

¹² Edith Brown Weiss "International Responses to Weather Modifications", *International Organization*, Vol. 29, 1975, pp. 805-26.

¹³ Van J. Miegham, op. cit., p. 113.

¹⁴ Ibid., pp. 111-20

existence. The first of these included the 'Preliminary' conferences of Brussels and Leipzig. The second was the 'Preparatory Phase', from 1873-1878, when the organisation was set up. The last three periods lasted from 1879-1914, 1919-1939, and 1946-1950 respectively.

During third period, the IMO coordinated the standardisation of measurements, and also organised a system of exchanging weather information between countries¹⁵.

Just before the turn of the century, it was realised that the concentration of carbon dioxide was probably increasing, as humanity took carbon out of the earth in the form of coal, petroleum or natural gas and burned it. It was a Swedish chemist, Svante Arrhenius, in 1896 who calculated the effect of an increasing concentration of greenhouse gases. He used S. Longley's measurements of infrared radiation from the moon as it passed through the atmosphere at different angles above the horizon and at different humidity's for his estimates of the atmospheric absorption due to both carbon dioxide and water vapour, and he combined these with independent measures of carbon dioxide to estimate its current optical depth. He estimated that doubling the concentration of carbon dioxide would increase the global average temperature by 5 to 6°C¹⁶, an estimate not too far from our present understanding. In the year 1940, G.S. Callender working in England, recognised that the consumption of fossil fuels contributes substantial quantities of CO₂ to the atmosphere and that this could lead to global warming through an enhancement of the greenhouse effect¹⁷.

¹⁵ Melinda L. Cain, "Carbon dioxide and climate: Monitoring and the Search for understanding" in D. Kay and K. Jacobson (eds), *Environmental Protection: The International Dimension*, (Osman: Allanheld, 1983), p. 80.

¹⁶ John Houghton, *op. cit.*, p.12.

¹⁷ Rudiger Dornbusch, *op. cit.*, p.7.

Nevertheless, the intriguing idea that humanity could raise the earth's temperature seems at first to have attracted surprisingly little attention in the scientific community and even less in the public media. It was treated in several papers and books in the 1920s and 1930s notably by biologist or ecologist who were more interested in the global carbon cycle and the squandering of a virtually irreplaceable natural resource of fossil fuels. The implication that climate could be impacted seems to have been of less interest or else utterly ignored. Meanwhile, technological advances such as the development of radio and aviation had made gathering meteorological data much easier, and had made governments more aware of the importance of such data for their economies¹⁸. As a result of this, the IMO became once more an intergovernmental body. The conference of Directors of the IMO decided in 1935 that future meetings of the IMO would involve governmental representatives and requested governments to send representatives from national meteorological offices¹⁹.

After Second World War, the process became more formalised when IMO was turned into World Meteorological Organisation (WMO). The newly formed United Nations had the effect of providing a new framework for international cooperation in various scientific and technical fields ²⁰. In 1947, the World Meteorological Convention was adopted, which established the WMO. The WMO began operating in 1951, and officially replaced the IMO.

The importance of the CO₂ climate issue was beginning to be recognised and addressed by a larger community by the 1950s and John Von Neumann wrote about the possibility of "Climate control"²¹. The first expression of concern about climate change which might be

¹⁸ Edith Borwn Weiss, op. cit., p. 810.

¹⁹ Ibid., p. 810.

²⁰ Melinda L. Cain. op. cit., p.80.

²¹ John Von Neumann, "Can We Survive technology"? *Fortune*, June 1955, pp. 106-8.

brought about by increasing greenhouse gases was in 1957, when Roger Revelle and Hans Suess, two scientists at the Scripps Institution of Oceanography, made a statement in an article in *Tellus* that "Human beings are now carrying out a large scale geophysical experiment"²² namely testing the greenhouse effect of CO₂ by actually changing its atmospheric testing concentration. They also pointed out that newly added carbon dioxide would probably remain in the atmosphere for many centuries because of the slowness with which the oceans could absorb it.²³

In 1963 the Conservation Foundation sponsored a meeting on this topic, and its report stated the situation more clearly than any before it: "It is estimated that a doubling of the carbon dioxide content of the atmosphere would produce a temperature size of 3.8 degrees (Celsius)"²⁴ though the time scale involved is left unspecified. It was during International Geophysical Year (IGY) Charles David Keeling, started monitoring of Carbon dioxide at the Mauna Kea Observatory in Hawaii and at the South Pole. These two stations have given best picture available of the rise of carbon dioxide from 1958 on ward. ²⁵

Although the greenhouse effect has been known for more than a century, it was not until the late 1960's that concern was voiced about the implications of global warming. The President's Science Advisory Committee (PSAC) published under the White House seal a report of its Environmental Pollution Panel entitled, "Restoring the Quality of Our Environment", 1965 had called the attention of the world to the distinct possibility that the earth could become warmer as a result of

²² R. Revelle, & H.E. Suess, "Carbon dioxide Exchange between Atmosphere and Ocean & the Question of an Increase of Atmospheric CO₂ during the past decades". *Tellus* (9) 1957. pp. 18-27.

²³ Ibid.

²⁴ "Implication of Rising Carbon dioxide Concentration of the Atmosphere", *The Conservation Foundation*, New York, 1963.

²⁵ C.D Keeling, A.F. Carker & W.G., "Mook, Seasonal, Latitudinal & secular variations in the abundance & isotopic ratios of atmosphere CO₂", *Journal of Geophysical Research*, Vol. 89. 1984, pp. 4615-28.

human activities, and handful of scientists on both sides of the Atlantic were beginning to develop a physical theory to explain the behavior of the complex system that determines climate.²⁶

Thus it was once thought that carbon dioxide is the only greenhouse gas whose atmospheric concentration is increasing as a result of human activities. Research over the past decades has, however, identified other gases, which are long lasting in the atmosphere and are also good absorbers of infrared radiation.

They are often referred to together as “greenhouse gases”, since the presence of all of them tends to warm the lower atmosphere. Some of the other gases in question are the chlorofluorocarbons (CFCs) used as propellants in spray cans and also in refrigerators and air conditioners, methane, nitrous oxide, water vapour and ozone. Since their concentrations in the atmosphere are increasing even more rapidly than carbon dioxide ²⁷ *it is expected that early in the next century the contributions of all those other gases to a global warming could nearly match that of carbon dioxide alone.* ²⁸

The climate system itself consists of five components: the atmosphere, the ocean, the cryosphere (ice & snow), the biosphere, and the geosphere. Each component plays an important role in determining the Earth’s climate. Thus most of the incoming solar radiation is absorbed at the surface and heat is transferred to the atmosphere, which transports the heat meridionally. The behavior of the atmosphere is governed by a number of factors, including turbulent transfer of heat, moisture, and momentum at the surface; latent heating associated with the condensation of hydrogen (H₂O); the

²⁶ President’s Science Advisory Committee(PSAC) “Restoring the Quality of Our Environment Report of the Environmental Pollution Panel”, *Washington, DC: PSAC, The White House*, 1965.

²⁷ R.A Rasmussen, and M.A.K., Khalil, “Atmospheric Trace Gases: Trends And Distributions Over The Last Decade”, *Science*, vol. 232, 1986, pp. 1623-24.

²⁸ V. Ramanathan, H.B. Singh. R.J. Cicerone, & J.T. Kiehl, “Trace Gas Trends And Their Potential Role in Climate Change”, *Journal of Geophysical Research*, Vol. 90, 1985, pp. 5547-66.

reflective and radiative properties of clouds; the greenhouse effect and many other factors, including atmospheric dust and aerosols, orbital parameters, and surface topography.

The most important anthropogenic gas is CO₂, with an atmospheric concentration of around 0.04 percent. Approximately 3 percent of the annual flux of carbon to the atmosphere is due to human activities; the rest is due to natural exchange with the oceans, soils, and plants. Historically, anthropogenic sources of greenhouse gases have been closely related to population growth and economic development—primarily the consumption of fossil fuels and the development of agriculture. As these activities have expanded, so have the levels of greenhouse gases. Thus when Keeling started his measurements during the IGY, the concentration at the South Pole and Mauna Loa were between 312 and 313 parts per million by volume (PPMV), and now it has climbed to about 345 PPMV.²⁹ Before the Industrial Revolution and the widespread burning of fossil fuels, and before we had embarked on large scale clearing of forests for agriculture in the nineteenth century, it is estimated from air samples trapped in ice cores that the concentration of carbon dioxide was 250 to 270 PPMV — that is an increase of 20 to 30 per cent in less than 200 years.³⁰ Hence there is no doubt at all that we have been raising the level of carbon dioxide in the atmosphere by our activities, both industrial and agricultural.

The success of the IGY led to much greater cooperation on Meteorology.³¹ This led WMO and International Council of Scientific Union (ICSU) to follow up a suggestion by the United Nation General Assembly (UNGA) to develop the World Weather Watch (WWW) and the

²⁹ R.H. Gammon, E.T. Sundquist, and P.J. Fraser, "History of Carbon dioxide in Atmosphere", In J.R. Trabalka (ed.), *Atmospheric Carbon dioxide and Global Carbon Cycle*. Report DOE/Er-0239. Washington, D.C.: US Department of Energy, 1985, pp. 25-62.

³⁰ Ibid.

³¹ Marvin S. Saroos, op. cit., p. 201.

Global Atmospheric Research Programme (GARP). The WWW was established in 1968, and was an extension and expansion of existing cooperative arrangements between countries to collect and distribute weaker information. The WWW organises the systematic observation, processing and transmission of Meteorological data between countries, which in turn makes modern weather forecasting possible.

GARP was created in 1967 by WMO and ICSU jointly, and is a coordinated research effort to understand the global weather system as a whole, and to develop the underlying scientific knowledge as a base for improving the services to be provided by WWW and the scientific understanding of climate.³² It has conducted several large-scale experiments, the most prominent of which has been the First GARP Global Experiment, which became known as the Global Weather Experiment.³³

The developments in greenhouse science by the beginning of 1970s were such that sufficient information was being gathered to make rigorous assessments of the state of knowledge about climate and any potential climate change possible. Simultaneously, the institutional developments, in particular within WMO and ICSU, laid the foundations for the organisation and coordination of further research in the development of a scientific consensus on global warming.

However, from the late 1960's as the first wave of modern environmentalism emerged, this technocratic image of climate as something to be controlled by human fades towards an image where humans are dependent on climate for their welfare, and are unable to manipulate it for their ends.³⁴ The 'turning point' in relation to awareness of climate issues and to the development of greenhouse

³² Melinda L. Cain, *op. cit.*, p. 81.

³³ *Ibid.*

³⁴ David M. Hart and David G. Victor, 'Scientific Elites and the Making of U.S Policy for Climate Change Research, 1957-74', *Social Studies of Science*, Vol. 23, 1993. pp. 666-69.

science were two studies undertaken in 1970 and 1971, the Study of Critical Environmental Problems (SCEP), and the Study of Man's Impact on climate (SMIC).³⁵

The SCEP held a month-long workshop in July 1970 in Williamstown, Massachusetts, and the SCEP report pointed out several possible implications of the rise of the CO₂ levels which had occurred since the Industrial Revolution. SMIC was organised as a conference by MIT and Swedish Scientific bodies in July 1971 in Wijk near Stockholm, at which thirty leading scientist from fourteen countries attended.³⁶

The report from SMIC stated bluntly on the question of Whether CO₂ rises would lead to climatic changes: 'We do not know yet'.³⁷ The 300 page report from this conference went into greater detail about the possible climatic effects, and was used as the major background paper on climate change issues at the 1972 UN Conference on the Human Environment.³⁸ Yet the question of global warming did not reach international headlines until the 1980's. Instead, during much of the post-world war II period, the international community if interested in climatic change at all was concerned with global cooling. Average global temperatures had decreased from 1945 to 1970, and this has initiated a spell of investigations into the prospects of a coming ice-age.

Prior to this, in an address at Glassboro (New Jersey) State College on 4 June 1968 President Lyndon B. Johnson called for Soviet American cooperation in the formation, with other nation, of an international

³⁵ Melinda L. Cain, op. cit., p. 91.

³⁶ Leiv Lunde, *Science or politics in the Global Greenhouse a Study of the Development Towards Scientific Consensus on Climate Change*. (Oslo: Fridtjof Nansens Institute, 1991), p. 65.

³⁷ Ibid., p. 67

³⁸ Willian W. Kellogg, "Mankind's Impact on Climate : The Evolution of an Awareness", *Climatic Change*. Vol. 10, 1987, p. 121.

council on the Human Environment.³⁹ On 22 July 1968, in an essay entitled "Thoughts on Progress Peaceful Coexistence and Intellectual Freedom, Russian academician A.D. Sakharov entered a strong and widely circulated plea for cooperation between the Soviet Union and the United States in coping with the global effects of environmental pollution and deterioration. The primary significance of these proposals was that they were made so that they could assume a comprehending and sympathetic audience of sufficient size and influence to justify the risk and effort involved.

The environmental concern was strongest among the more developed nations; Suspensions arose among Third World or less developed countries that the movement concealed a neo-imperialist scheme to retard their economic growth and to keep them subservient suppliers of underpriced raw materials and consumers of the industrial output of North-America, Western Europe, and Japan. Socialist ideologists did not resist the temptation to encourage this apprehension, or to blame capitalism and imperialism for the environmental degradation of the world. These differences became explicit at the Stockholm conference. Yet, even in the socialist and the Third World Countries there were individuals and groups, particularly among scientists, who were concerned that the issue was important to all mankind and that countries had an important stake in the presentation of the biosphere.

There is emulation among nations as among people. Rhetoric of resentment among the Third World Nations coexisted with conspicuous and too, often uncritical emulation of the Industrialised First World. Not all third world leaders favored replicating the West, and for some of them the harsh impact of western industrialism on the environment was something to be avoided. For example, Julius

³⁹ Lynton Keith, *International Environmental Policy: Emergence and Dimensions*, (London: Duke Universities Press, 1990), p. 47.

Nyerere of Tanzania rejected both western and Soviet-style industrialisation, favoring an indigenous, essentially rural economy. But during the years immediately preceding the Stockholm Conference, the example of new environmental Laws and agencies established in France, Sweden, the United Kingdom and the United States (among other countries) and the requests of the United Nations Preparatory Commission for status reports from all countries on environmental policy, made possession of an environmental policy a status symbol—evidence that a nation belonged among the more advanced or advancing states of the world and not among the backward nations.

CLIMATE CHANGE NEGOTIATION : THE GLOBAL CONTEXT

Official initiation of the conference began with a letter dated 20 May 1968 from the permanent representative of Sweden to the secretary general of the united nations “on the question of convening an international conference on the problems of human environment.”⁴⁰ The possibility of such a conference had been previously introduced by the Swedish delegation to the plenary session of the UN General Assembly on 13 December 1967.⁴¹ The Swedish proposal was referred to ECOSOC for consideration, and the UN Secretariat prepared a short paper outlining the activities of the United Nations Organisations and programs relevant to the human environment.⁴² On 30 July 1968 ECOSCO adopted Resolution 1346 (XLV) which requested that the United Nations proceed with plans for a conference.⁴³

⁴⁰ UN, ECOSOC, E/446/Add.1, in ECOSOC, Official Records, Forty fifth Session, 1968.

⁴¹ UN, General Assembly, Official Records, Twenty-Seventh Session, December 13, 1967.

⁴² UN, Report of the Secretary General, E/4553, July 11, 1968.

⁴³ UN, ECOSOC, Resolution 1346 (XLV), Forty fifth Session July 30, 1968, p.8

On 3 December 1968 the UN General Assembly took up agenda item 91, "The problems of the human environment" and after generally supportive discussion adopted Draft Resolution, 2398 (XXIII) without opposition, thereby setting in motion the preparatory efforts leading to the conference to be held in Stockholm in the summer of 1972. The objectives of the conference stated in the resolution were "to provide a framework for comprehensive consideration within the United Nations of the problems of the human environment in order to focus the attention of the governments and Public opinion on the importance and urgency of this question and also to identify those aspects of it that can only, or at best be solved through international cooperation and agreement...." The General Assembly requested the secretary-general, in consultation with the Advisory Committee on the Application of Science and Technology to Development (ACASTD), to submit through the ECOSOC to the General Assembly a report concerning the nature, scope, and progress of work being done in the field of human environment, the principle environmental problems facing developed and developing countries, the time and methods necessary to prepare for the conference, a possible date and place for its convening, and finally the range of financial implications for the United Nations.

On 26 May 1969 the secretary-general submitted his report to ECOSOC, then convened for its forty-seventh session.⁴⁴ The secretary general also reported the invitation of the government of Sweden to host the conference in Stockholm in June 1972. Following the endorsement of ECOSOC the report was brought before the General Assembly, which by Resolution 2581 (XXIV) on 15 December 1969

⁴⁴ UN, Secretary General, Problems of the Human Environment, Report, E/4667, May 26, 1969.

established the Preparatory Committee (PREPCOM) whose work would be essential to the success of the Stockholm Conference.⁴⁵

The twenty-seven nations Preparatory Committee together with alternatives and advisers, was too large actually to organise the conference. Therefore, a special staff was appointed under the direction of Maurice Strong, an official of the government of Canada, who was also designated as a secretary-general of the conference. A number of intergovernmental working groups were organised to develop proposals and bases for agreement on the major items of an agenda. One group was to prepare a draft of a Declaration on the Human Environment (membership identical to the full PREPCOM), and there were additional groups on marine pollution, soils, conservation and monitoring and surveillance.⁴⁶

The first session of the preparatory committee was held at the United Nation headquarters in New York 10-20 March 1970. The committee agreed that its main task would be to assist the secretary -general in the selection of topics and headings, for the conference as well as in the formulation of ideas, suggestions and proposals with regard to the content of its program.

At its second session, meeting in Geneva 8-19 February 1971, the Preparatory Committee considered a proposed agenda for the conference culminating in the adoption and signature of a Declaration on the Human Environment. The proposed agenda consisted of six main subjects considerations of which was divided among three main principles committees and which were subsequently the principal working divisions of the Stockholm Conference.

The PREPCOM held its third session in New York in September 1971 with the draft Declaration on the Human Environment being a major

⁴⁵ UN, General Assembly, Reports and other Document of PREPCOM A/conf. 48/ PC/17.

⁴⁶ UN Document, G.E.71-12626 June, 30, 1971, pp.3-4.

item on the agenda. On 22 December 1970 the secretary-general had invited governments to comment on the possible form and contents of a draft declaration that one of the intergovernmental working groups had been assigned the task of preparing for consideration by the full preparatory committee. There was substantial agreement among committee members that the declaration should be a document of universally recognised fundamental principles, recommended for action by individuals, national governments, and the international community. Pre conference approval of the declaration was accomplished at the Fourth Session of the PREPCOM, 6-10 March 1972, at which final arrangements for the conference were ratified.

On 5 June 1972, after more than two years of extensive preparation, the United Nations conference on the Human Environment opened its first plenary session at the Royal Opera House in Stockholm. Two conflicting viewpoints were present. From the perspective of the first, the primary concern of the conference was the human impact on the biophysical environment with emphasis on control of pollution and conservation of resources. The second viewpoint held social and economic development as the real issue. To bridge these differences, the concept was advanced that environmental protection was an essential element of social and economic development and as one of the participants in building the bridge observed, "One development had become a dimension of the problem, it quickly gained prominence."⁴⁷

In addressing the conference, Olof Palme, Prime Minister of Sweden, declared that his government attached "the greatest importance to the stress laid in the declaration upon the need for development." He found it "an inescapable fact that each individual in the industrialised countries draws, on the average, thirty times more heavily on the

⁴⁷ Hans H. Landsberg, "Can Stockholm Succeed?" *Science*, Vol. 176, May 19, 1972, p. 749.

limited resources of the earth than his fellow man in the developing countries.” And concluded that “these simple facts inevitably raise the question of quality, and within countries”.⁴⁸ Olof Plame blamed industrialised countries for ecological and economic exploration, particularly United States. Indira Gandhi, Prime Minister of India, found poverty the greatest polluter. She declared that “many of the advanced countries of today have reached their present affluence by their domination over other races and countries, the exploitation of their own masses and natural resources. They got a head start through sheer ruthlessness, undisturbed by the feelings of compassion or by abstract theories of freedom equality or justice”⁴⁹. Mrs. Gandhi’s opinion was widely shared among third world representatives and expressed most violently by China’s spokesman. Helena Z. Benitaz of the Philippines emphasised the injustice theme, asserting that; “A past age of domination has left in many counties of the so-called third world stunted and malformed economics perpetuating to this day the poverty of blighted, stagnant and benighted rural communities”⁵⁰.

A part of this preparatory process the key developing countries rapidly evolved their own distinctive approach to the Stockholm agenda. This was most coherently summed up in the ‘Founex Report’, which was produced by a group of developing country scientists and experts for the Stockholm conference, and was echoed, with remarkable solidarity, in political statements by developing countries in the run up to, and through, Stockholm⁵¹. Both the report and subsequent statements made clear a profound underlying worry in the developing countries that western concern about the environmental damage wrought by industrialisation could create pressures to slow industrial

⁴⁸ A Report “ What happened at Stockholm”, *Science and public Affairs*, September 28, 1972, p.44

⁴⁹ Ibid., p.36

⁵⁰ Ibid., p. 56

⁵¹ Tony Brenton, *The Greeing of Machiavelli: The Evolution of International Environmental Politic*, (London: Earth Scan, 1994), p. 37.

growth worldwide including the developing world. They were particularly concerned about the possibility of environmentally motivated restrictions on aid, investment or trade policies. In reaction they placed a heavy emphasis on sovereignty, and on the rights of countries to choose their own path of economic development, free from international interference, for environmental or other reasons. All this developmental twist given by the south to the environmental issue took the North by surprise. The developing countries held that if they were to achieve economic growth in a non-polluting global environment they would need extra funding from the west as well as the modern technologies which would assist economic growth while keeping pollution down. This extra Western help would be justified by the need to compensate them for the costs of meeting higher environmental standards, and should be in addition to existing aid flows.⁵² Thus Stockholm declaration was visibly the child of the North-South tensions.

To the extent that the developing nations were able to agree among themselves on the issues of environment and development, they were able to have a decisive influence on events. During the pre-conference preparation period they were able to obtain a definition of environmental problems which reflected their interests, and to guarantee consideration by the Stockholm conference on the issues of compensation and additionality. Because of their relative unity of outlook and because of the need to include them in any agreement, the developing states were able to win at Stockholm a broadened interpretation of compensation and to have legitimised the principle of additionality. At the 27th General Assembly, they were able to marshal their numerical strength to have their views officially adopted.

⁵² W. Rowland, *The Plot to Save the World*, (Toronto : Clark Irwin & Co.,1973), p. 46.

This consolidating of the political interests never fully materialised at Stockholm, but became effective in the 27th Session of General Assembly in the establishment of UNEP. The General Assembly accepted the Stockholm recommendations, with the developing countries predominating in the establishment of UNEP and the Governing Council. And the General Assembly instructed the council to give special consideration in the formulation of progress and priorities which might assist in accelerating the economic development of developing countries without environmental disruption.

The acceptance by the General Assembly of the Declaration of Principles and Recommendations for Action of the Stockholm Conference, however did not guarantee nor make automatic the implementation of the Stockholm recommendations. The recommendations did not carry the full force of international agreements and did not impose binding obligations on the participating nations. Implementation of the Stockholm recommendations for action depended upon the perceived interests and the cooperation capabilities of sovereign nation states.

The UNEP

The principal accomplishments of the Stockholm conference were two fold: the official recognition of the environment as a subject of general international concern and institutionalisation of that concept in the United Nations Environment Programme (UNEP).⁵³ Implementing the recommendation of Stockholm for a united nations environment programme, the UNGA on 15 December 1972, through Resolution 2997 (XXVII), established the necessary institutional and financial arrangements.⁵⁴ Thus founding of UNEP represented major shifts in the priority given to climatic issues by international organisations.

⁵³ UNEP, Na.78/5921-5000 (Nairobi) 1979.

⁵⁴ UN, Year Book of the United Nations, 1972 New York, United Nations, 1975, pp. 331-33.

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Climate impacts were 'central concerns'⁵⁵ as this change led to two developments. First there was a series of UN-sponsored conferences during the 1970s on climate related problems. Including the UN world food conference in 1974, the UN Water Conference in 1976, and the UN Desertification Conference in 1977.

Thus substantial cooperative research on potential climate changes began with a conference in Stockholm in July 1974, on the 'physical',⁵⁶ basis of climate and climate modelling.

The conference was organised by GARP. The recommendation of the WMO executive committee for an increased monitoring of CO₂ was followed up at its session in June 1977, where it set up a research and monitoring project to expand existing monitoring of CO₂.⁵⁷ The initiation of world climate programme had been endorsed by the UN Economic and Social Council (ECOSOC) and the UN Desertification Conference in 1977.⁵⁸

The developments came to a head when WMO in conjunction with other UN bodies and ICSU, convened the first World Climate Conference (WCC) in Geneva in February 1979. much of the discussion centered around the debate between the ice-age prophets and those who saw, global warming as being more important in the medium term. It seemed that a consensus was slowly building in favour of the latter view.

The final declaration agreed that:

We can say with some confidence that the burning of fossil fuels, deforestation and change of land use have increased the amount of carbon dioxide in the atmosphere... and it appears plausible that (this)

⁵⁵ Melinda L. Cain, op. cit., p. 82

⁵⁶ Leiv Lunde, op. cit., p. 64

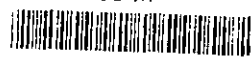
⁵⁷ Melinda L. Cain, op. cit., p. 82

⁵⁸ Ibid.

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can contribute to a gradual warming of the lower atmosphere, especially at high latitudes It is possible that same effects on a regional and global scale may ... become significant before the middle of the next century.⁵⁹

Later, in June 1979, the Eighth WMO Congress formally established the World Climate Programme (WCP) with endorsement of ECOSOC and WCC. The WCP was the first internationally coordinated programme of research into the world's climate system. The WCP provided the organisational framework within which much climate change research has operated. Possibly more importantly, it organised the Villach conference of 1985, in Austria, which began the process through which global warming became politicised⁶⁰. In October 1985, scientists from 29 countries met in Villach, under the WCP auspices, in order to review the then current state of scientific understanding about the green house effect. Two further workshop were held in Villach and Bellagio, Italy in 1987. The Villach Bellagio workshops were significant for two main reasons. Not only were global warming trends confirmed, but for the first time, policies to respond to climatic change were discussed in detail and agreed.⁶¹

Alongside these developments, the World Commission on Environment and Development (WCED) presented its report 'Our Common Future' (also known as the 'Brundtland Report' after the Norwegian Prime Minister Gro Harlem Brundtland, who chaired the commission) on 27 April 1987. This was a general report on environmental degradation and how it related to development issues. The commission had been

⁵⁹ WMO, 'The Declaration of the World Climate Conference', in "A Conference of Experts on Climate and Mankind, 12-13 February 1979", (Geneva: *World Meteorological Organization*. Publication No. 537, 1979). p. 717.

⁶⁰ J.P. Bruce, 'The World Climate Programme: Achievements and Challenges', in J. Jaeger and H.L. Ferguson (eds), *Climate change: Science, Impacts and Policy – Proceedings of the Second World Climate Conference*, (Cambridge: Cambridge University Press 1991), p 152.

⁶¹ Stewart Boyle & Jahn Ardill, *The Greenhouse Effect : A Practical Guide to the World's Changing Climate*, (Hodder & Stoughton: New English Library, 1989), p. 41.

set up by the UN in 1983. Regarding climate, its report reproduced the recommendations of the 1985 Villach conference, and in particular emphasised the 'urgent' necessity of increasing energy efficiency and shifting the fuel mix towards renewable.⁶²

The confidence expressed at Villach was based on a significant growth in both the scope and the complexity of climate research during the 1980's. The most important of these developments included much more realistic models of the atmosphere, and the consolidation of the realisation that other anthropogenic gases (CFCs, Methane, Nitrous oxide, tropospheric ozone) are radiatively important.⁶³ This had been realised in the mid-1970s by some scientists⁶⁴ but it was only by the 1980s that it was widely incorporated into models, or that its policy was realized.⁶⁵

The question of global warming subsequently entered the international agenda in 1988. In June 1988, the Toronto Conference on 'The Changing Atmosphere' was held. With over 300 participants from 48 countries, it was the first major international gathering to focus on global warming. The conference was hosted by Canadian government as response to WCED report.

The Toronto conference was the first major international conference on climate change to bring together representative of states, international organisations and non-governmental organisation. It proposed a world atmosphere fund (WAF) to protect the atmosphere, financed in part by

⁶² WCED, *Our common future*, Report of the World Commission on Environment and Development, (Oxford: Oxford University Press 1987), pp. 176-77.

⁶³ Thomas F. Malone, "The CO₂ Problem Revisited", in WMO Report of the International Conference on the Assessment of the role of Carbon dioxide and other greenhouse gases in Climate Variations and Associated Impacts, Villach, Austria, 9-15 October 1985, WMO Publication (no. 661). (Geneva: World Meteorological Organization 1986).

⁶⁴ V. Ramanathan "Greenhouse effect due to Chlorofluorocarbons: Climatic Implications" *Science*, Vol. 190, 1975, pp. 50-52.

⁶⁵ J. Jaeger "The History and Politics of Climate Change Science", in T.O. Riordan (ed.), *The Politics of Climate Change in Europe*, (Landon: Routledge, 1996), p. 54.

a levy on fossil fuel consumption of industrialised countries.⁶⁶ It also urged governments to enact national legislation for the protection of the atmosphere, and encouraged them to work towards global framework convention on climate change (FCCC).⁶⁷

The Toronto Conference also led to a series of international and intergovernmental conferences about global warming. These continued through to late 1990, and provide a great deal of the pressure and momentum which led to the formal negotiations which started in 1991. In September 1988, the issue first reached the UNGA, with Malta proposing that climate became part of the 'common heritage of mankind (sic).⁶⁸ By December of that year, the General Assembly had passed a resolution, endorsing the establishment of the Intergovernmental Panel on Climate Change (IPCC) and urging that the issue became a priority one, but withdrawing from the 'common heritage' concept towards an assertion that climate change was merely a 'common concern' of humanity.⁶⁹

The IPCC was established by UNEP and the WMO in 1988, to assess the scientific information and formulate realistic response strategic for the management of the climate change issue.⁷⁰

The IPCC first met on November 9-11 1988, in WMO office in Geneva. At the meeting it agreed its work programme and what its main tasks were. These were dedicated to be:⁷¹

- I. Assessment of available scientific information on climate change;
- II. Assessment of environmental and socio-economic impacts of climate change.

⁶⁶ WMO, *World Conference on the Changing Atmosphere* p. 298.

⁶⁷ *Ibid.*, 297.

⁶⁸ Matthew Paterson, *Global warming and global politics*, (London : Routledge, 1996), p. 35.

⁶⁹ *Ibid.*

⁷⁰ R. Taplin, "Climate Science and Politics : The Road to Rio", in Giambelluca and Hendsome-Sellers (eds), *Climate change: Developing Southern Hemisphere Perspective*, (John Willey & Sons Ltd. 1996), p. 379.

⁷¹ IPCC. *op. cit.*, p. 4

III. Formulation of response strategic.

This panel decided to organise this work through three working groups (WG) i.e, WGI (science) organised itself by commissioning lead authors to cover different aspect of scientific problems global warming and having other member review the work, while WG II (Impacts) and WG III (Responses) worked through sub groups which looked at particular aspects of the problem and reported collectively.⁷²

Prior to this, in November 1988 a World Congress on Climate and Development was held in Hamburg. This called carbon dioxide emissions to be reduced by 30 percent by the year 2000 and 50 percent by 2015. It argued for unilateral action from the industrialised nation to start that process of change; a global ban on the production and use of CFCs covered by Montreal Protocol by 1995, and urgent strategies for reversing deforestation and beginning afforestation programs.⁷³ This was despite some, notably the Soviet climatologist Mikhail Budyko, claiming that global warming would be beneficial to agriculture and emissions should possibly even be deliberately increased.⁷⁴

The theme of universal cooperation was reiterated at the Summit Conference on the Protection of the Global Atmosphere, held at the Hague in March 1989. It recommended the establishment of new international authority with responsibility to tackle global warming and the final declaration only spoke of a role for the International Court of Justice in monitoring compliance.⁷⁵ Climate changes were not discussed in comprehensive way in the Hague Conference. More over it suffered from the non-endorsement of the US and Soviet Union.

⁷² Paterson, op. cit., p. 43

⁷³ Stewart Boyle and John Andrill, *The Greenhouse effect: A Practical Guide to the World's Changing Climate*, (London: Hodder & Stoughton, 1989), p. 158.

⁷⁴ Ibid.

⁷⁵ Rowland and Green (eds), *Global Environmental change and International Relation*, (London: Macmillan, 1992), pp. 122-44.

In July 1989 the Group of Seven (G-7) major industrial democracies 'annual summit was held in Paris, and was widely dubbed the Green Summit⁷⁶. The summit called for 'common efforts to limit emission of CO₂, and stated that a 'framework or umbrella convention was urgently required.

Later, in November, 1989 a large Ministerial conference on atmospheric pollution and 'climatic change' was held at Noordwijk in Netherlands, attended by representatives from Seventy-two states. This conference's declaration Committed it Signatories to stabilising CO₂ emissions at level to be set by the IPCC in its preliminary report to the Second World Climate Conference in 1990, 'at the latest by the year 2000'⁷⁷. However US supported by Japan and the Soviet Union, were resistant to any further declaration.

''However, divisions between developed and developing countries started to surface already at the second plenary session of the IPCC. Developing countries, led by India, Brazil and Mexico, who were uneasy about their relatively poor representation on the Panel and its lack of normal UN procedural practice, took their concern to the UNGA in December 1989.⁷⁸ At the August 1990 IPCC meeting, Brazil was very vocal and almost prevented adoption of the first assessment report.⁷⁹ The IPCC working group I Report did not however, prevent dissenters from continuing to criticize its findings, as the report was not significantly different in its conclusions from previous assessments, such as that expressed at Villach conference.

⁷⁶ Economist 15 July 1989, pp. 14-15.

⁷⁷ Patesson op. cit., p. 37

⁷⁸ R. Taplin, op. cit., p. 379.

⁷⁹ Ibid., p. 382.

CHAPTER 2

CHAPTER II

CLIMATE CHANGE NEGOTIATIONS STOCKHOLM TO RIO: DOMESTIC MILIEU

India's response to environmental problems dates back to April 1972. When the Prime Minister Mrs. Indira Gandhi established a National Committee on Environmental planning and coordination (NCEPC)¹. Prior to 1972 environmental concerns such as sewage disposal, sanitation and public health were dealt with by federal ministeries, and each pursued these objectives in the absence of a proper coordination system at the federal or intergovernmental level². When the twenty-fourth UNGA decided to convene a conference on the human environment in 1972 and requested a report from each member country on the state of their environment,³ a Committee on the Human Environment under the Chairmanship of Pitambar Pant, a member of Planning Commission was set up to prepare India's report.⁴ By May 1971 three reports had been prepared: 'Some aspects of Environmental Degradation and Its Control in India', some aspects of problems of Human Settlement in India and some aspects of Rational Management of Natural Resources'. With the help of these reports, the population expolison on the natural environment and exisiting state of enviorment problems were examined.

As a result of the reports' more stress was put on the need to establish greater coordination and integration in environmental policies and programmes, in February 1972 a National Committee on

¹ O.P. Dwivedi, *India's Environmental Policies, Programmes and Stewardship*, (New York: St Martin's Press, 1997), p. 52.

² O.P. Dwivedi, "India: Pollution Control Policy and Programmes", *International Review of Administrative Sciences*, Vol., 43, no. 2 1977, pp. 123-33

³ UNGA, Resolution 2398 (XXIII)

⁴ National Committee on Environmental Planning and co-ordiantion, Inaugural Function (proceedings published by the *Department of Science & Technology*, New Delhi, 12 April 1972, p. 1

Environmental Planning and Coordination (NCEPC) was established in the Department of Science and Technology (DST). The NCEPC was an apex advisory body on all matters relating to environmental protection and improvement. The committee was to plan and coordinate, but the responsibility for execution remained with the various ministers and government agencies.⁵ It was expected that the success of the NCEPC would depend on the level of cooperation it received from other ministries and departments. The committee was assisted by the DST, and an office of Environmental Planning and Coordination (OEPC) was set up under the chairman of the committee. Two of the important activities of the OEPC were collaborating with the project appraisal division of the Planning Commission to develop guidelines for evaluating the relative costs and benefits of development projects that would take environmental factors into account, and formulating proposals and coordinating research programmes on environmental problems.⁶ Over the time the composition of the NCEPC changed significantly (committee members were appointed for two-year term). While membership of the NCEPC increased from 14 in 1972 to 24 in 1977 and 35 in 1979, the number of non-officials decreased. The Committee also became unwieldy, and decision making more complex. Greater bureaucratisation occurred with the addition of more secretaries. The first committee enjoyed some political clout, but this gradually waned.

Until the fifth general election of 1977 none of the political parties in India considered environmental problems worthy of inclusion in their election platforms. The election was won by Congress-I and it immediately set up a committee, chaired by N.D. Tiwari, to recommend legislative measures and administrative machinery to

⁵ Ibid. p. 7.

⁶ UNEP, Program Planning Country Report - India, 1968, MIMEO, Nairobi, UNE, p 2.

ensure environmental protection. The Tiwari committee's report, submitted on 15 September 1980, made far reaching recommendations, including the creation of Department of the Environment at the federal level. On the basis of recommendations of the Tiwari Committee, a separate Department of Environment(DOE) was established on 1 November 1980.⁷ The functions hitherto to performed by the DST were transferred to the newly created department This instutional development had its immediate nationwide impact on various state governments and the union territories followed the federal example.

Following another recommendation of the Tiwari committee the NCEPC had been replaced by a National Committee on Environmental Planning (NCEP), with functions similar to those of its pre decessor, the NCEP was formed in April 1981 and authorized to prepare on annual 'state of the environment' report.⁸ In January 1985 the government decided to upgrade the DOE to ministry level by reconstituting it as the Ministry of Environment and Forests (MOEF).⁹

Growing international concern about global environmental issues in the late 1980s motivated the MOEF in India to constitute an Expert Advisory Committee (EAC) on global environmental issues in July 1989, to 'advise the government on al aspects related to global warming under the chairmanship of CSIR, Director General Dr. A.P. Mitra.¹⁰

In May 1990, at its second meeting, the committee reported that with regard to the major greenhouse gases, 'no database exist in the

⁷ O. P. Dwivedi, op. cit., p . 56

⁸ The process of preparing citizens' reports was pioneered in the region by the Centre for Science and Environment (CSE), in New Delhi, India. The State of India's Environment –The first Citizens Report was published in 1982. Since then CSE has been publishing citizens report on a regular basis.

⁹ Ministry of Environment and Forests, Annual Report 1984-85, New Delhi, 1985, p. 1

¹⁰ MOEF, *Second meeting of the EAC on Global Environmental Issue*, (New Delhi, May 24, 1990), p. 2

country, nor is there any present programme for the systematic study/collection of data.¹¹ The MOEF, in an effort to remedy the situation concluded several studies. These included a study initiated in 1989, and expected to take at least two years to complete, on the impact of sea level rise on Indian coastal areas,¹² and a National Methane campaign launched in 1991 to measure India's methane gas production.¹³ The CSIR too, initiated a series of scientific reports on Indian measurements of global phenomena in 1991, devoting the first to a preliminary assessments of greenhouse emissions in India.¹⁴

Significantly, the Group of Seven (G-7), annual summit of Paris states did not address either the question of responsibility for climate change or the question of the division of the cost of global response, on the common efforts to limit emissions of carbon dioxide.

Thus at the meeting of the NAM in September 1989, the then Indian Prime Minister Rajiv Gandhi, threatened Southern non-participation in global efforts to protect the environment by saying that those with inadequate capacities to pay for environmentally sound technologies would be left with no alternative but to let development proceed without due regard for the environment. Rajiv Gandhi proposed a Planet Protection Fund (PPF) to assist developing countries in acquiring technologies at reasonable cost.

Yet, despite the concerns voiced by India, the developing states as a group, failed to put forward a coherent agenda for discussion with the North. There were several reasons:

¹¹ Ibid. p. 20.

¹² MOEF, Annual Report 1989-90, p. 55.

¹³ MOEF, Annual Report 1991-92, p. 9.

¹⁴ A.P. Mitra (ed.), Greenhouse Gas Emissions in India :A Preliminary Report ,(New Delhi : CSIR,1991).

First, although there was general support for the points raised by India, there was less clarity about the emphasis to be placed on different aspect of climate change issue. Some developing countries, notably the small island states, were very concerned about the effects of climate change, especially sea level rise- which could threaten their very existence. To publicize their fears, these countries organized Small States Conference on Sea Level Rise in Maldives in November 1989, followed soon after, on an initiative of Trinidad and Tobago, by the formation of the Alliance of Small Island States (AOSIS).¹⁵ Countries like India were concerned more with costs of strategies to cope with climate change.

Thus, the then Indian President, R. Venkatraman for instance, argued in a speech in November 1989 that the developed countries contributed to global environmental degradation through excessive resource consumption and large scale industrialization intended to support their life styles, and were primarily responsible for adverse changes in the atmosphere and the oceans.¹⁶

The Indian policy was elaborated in more detail at the New Delhi conference of Select Developing Countries on Global Environmental Issues in April 1990. the conference was organized by India in an effort to strengthen southern solidarity at a crucial stage in the ozone negotiations, and also to highlight the linkages between the different global environmental issues and need for coherence in the South's strategy with regard to each.

In the absence of hard scientific data, Indian scientists approach to the policy making process with regard to climate change followed the pattern observed with ozone depletion. Though India did not

¹⁵ M.G. Rajan, *Global Environmental Politics: India and the North-South Politics of Global Environmental Issues*, (Delhi: Oxford University Press, 1997), p. 98.

¹⁶ 'Conservation of Natural Wealth Most Essential, *The Hindu*' November 4, 1989.

participate in the 1985 Vienna Conference. As a very small producer of CFCs, with less than 0.5 percent of world production, India did not feel its interests would be affected by the decision taken at Vienna.

In the post-Vienna period policy makers continued to believe that ozone depletion was mainly the concern of the developed countries. India, therefore, did not participate in the preparatory meetings for the Montreal Conference in 1987. It sent an observer, without any negotiating powers to represent it at Montreal. The comprehensive measures taken at Montreal, especially the restrictions on trade with non-parties, caught the Indian government off-guard. For this lapse, it received considerable criticism from domestic press. The Hindu (national daily), for example, criticized the government's 'inaction at Montreal' and called it a 'poor commentary on the Government's appreciation of a grave environmental issue.'¹⁷ However, the single most important consequence of the ozone issue for India and other developing countries was the lesson it taught them of the importance of being present, at the creation. The ozone issue demonstrated to the developing countries the importance of participating in international negotiations from their very inception, and thus exercising influence over the emergent agendas. Thus in case of Climate Change India did not make the same mistake and participated in international negotiations right from the start, and in strength since 1990.

Thus the Indian government's perceptions about climate change issue were outlined in a paper prepared for the conference.¹⁸

The government argued that:

¹⁷ 'Looming Menace to the ozone layers', *The Hindu*, December 31, 1987.

¹⁸ MOEF, 'Greenhouse Effect and Climate Change-Issues for the Developing Countries', New Delhi, April 5, 1990.

- a) It is the developed countries, which have created and continue to add to the threats of climate change and it is primarily their responsibility to reverse the situation by setting limits on their emissions of green house gases.
- b) Developing countries contribute little to the problem though their share is increasing. Their resource is scarce and they do not have ready access to technologies required. They need technical and financial assistance to adopt environmentally benign technologies.
- c) And further it argued that there are many factors contributing to climate change and the range of response is wide. Developing countries would accept particular responses only if they do not impede their economic development or reduce the resources currently available for such development.

India's approach thus reflected traditional concern about sovereignty, equity and the importance of economic development. India stressed the conventional wisdom, voiced at conferences like Toronto in 1988 and Noordwijk in 1989, that the North was mainly responsible for green house gas production. India obtained general support at the conference for a narrowly defined position that effectively shifted all responsibility for tackling climate change to the North.

Further more, 'any convention on climate change must provide for technology transfer to the developing countries and funds to meet their resources needs'.¹⁹ This was reinforced by reports commissioned by MOEF which indicated that the costs of greenhouse emission limitation strategies were likely to be very substantial, and that many

¹⁹ MOEF, *Chairman's Summary Conference of Select Developing Countries on Global Environmental Issues*, New Delhi, April 23-25, 1990, p. 3.

of the technologies required for such strategies were unavailable in India.²⁰

The defensive aspect of Indian policy, of avoiding costly international obligations and technological assistance from the North, was to be a constant feature during the negotiations over climate change. India's arguments also reflected its traditional reluctance to divert scarce resources from development purposes towards meeting the costs of tackling climate change. Thus by fixing the primary responsibility for climate change on the North, many of the costs could be avoided.

Thus Developing Countries were to make constant references in the course of negotiations over climate change to Resolution 44/228 of UNGA . The General Assembly Resolution 44/228, on the organization of UNCED,²¹ addressed the question of responsibility. The resolution affirmed that 'the responsibility for containing, reducing and eliminating global environmental damage must be borne by the countries causing such damage, must be in accordance with their respective capabilities and responsibilities.²² In particular, it noted that 'the largest part of the current emission of pollutants into environment originates in developed countries, and therefore those countries have main responsibility for combating such pollution.²³

The resolution also recognized that 'new and additional financial resources will have to be channelled to developing countries in order to ensure their full participation in global efforts for environmental protection'.²⁴

²⁰ TERI, Report on Global Warming and Associated Impacts, (New Delhi: TERI), June 1990.

²¹ UN, General Assembly, Resolution 44/228, United Nations Conference on Environment and Development', December 22, 1989.

²² Ibid, Preamble.

²³ Ibid., Para 9.

²⁴ Ibid., Preamble

THE PREPARATORY MEETING FOR NEGOTIATIONS ON CLIMATE

At the UNEP/WMO preparatory meeting for negotiations on climate convention in September 1990 the developing countries reiterated their opposition expressed at the UNEP Governing council meeting to negotiations under the auspices of UNEP and WMO. They felt the IPCC process had been dominated by experts from North, and had been manipulated to their advantage. The handling of the IPCC plenary session, moreover, had done little to reassure them that their interests would be protected. Finally, the developing countries were nervous about Director of UNEP, Mostafa Tolba, to conclude a convention before the Rio Summit scheduled for 1992, as they felt their interests might take secondary importance to the speedy conclusion of an international agreement.²⁵ Also, the developing countries pressed for a forum duly established by UN General Assembly to conduct negotiations.²⁶

Thus, the preparatory meeting revealed the determination of the developing countries to ensure their interest were protected at this early stage of climate negotiations.

SECOND WORLD CLIMATE CONFERENCE

The second World Climate Conference (SWCC), held in Geneva from 1-7 November 1990. UNEP Executive-Director Mostafa Tolba called on industrialized states to help poorer ones. The UN General Assembly was urged to establish formal negotiations towards a framework convention on climate change.

²⁵ Gareth Porter and Janet Brown (eds), *Global Environmental Politics*, (Oxford : Westview Press, 1991), p. 50.

²⁶ UNEP/WMO, Adhoc Working Group of Government Representatives to Prepare for Negotiations on a Framework Convention on Climate Change UNEP/WMO Prep/FCCC/LI/REPORT, Geneva, September 24-26, 1990, p. 7.

The conference reiterated the need for developing countries to avoid potentially disastrous course followed by industrialized countries in the past, and to adopt modern technologies early in the process of development particularly in regard to energy.²⁷ The Geneva Declaration pledged scientific and technological expertise, capacity building and easy access to technology and financial resources to help developing nations.²⁸ The debate on responsibility was led by a 1990 report by Washington based NGO, World Resources Institute (WRI), which showed that the annual Greenhouse Gas (GHG) emission of the developing countries almost equaled those of the industrialized world. It claimed that the South's emissions were growing and would overtake the North in the near future.²⁹

Developing countries, nevertheless, sought recognition in the conference's ministerial declaration for the main responsibility of industrialized countries for actions to reduce GHG emissions, as past and present emissions of GHGs originate largely in these countries.³⁰ They also insisted on new and additional financial and technological resources as a condition of their participation. North South compromise was built around 'Common but differentiated responsibility'³¹

The SWCC saw the beginning of differences between developing countries on the climate issue. The Organization of Petroleum Exporting Countries (OPEC) did not want to talk about CO₂ emissions

²⁷ Anil Agarwal, Sunita Narain & Anju Sharma (ed), *Global Environmental Negotiations, Vol. I*, (New Delhi: CSE, 1999), p. 31.

²⁸ Rahmatullah Khan, "Legal and Institutional Issues Arising out of the Proposed Framework Convention on Climate Change", in Yatendra Josho etc.al (eds), *Global Climate Change: Science Impacts and Responses*, (New Delhi: TERI, 1992), p. 238.

²⁹ WRI: World Resources Institute, *World Resources -1990-91* (Oxford: Oxford University Press, 1990).

³⁰ WMO, Report of the meeting of Government Representative : Draft Ministerial Declaration for the Second World Climate Conference, WMO, Geneva, September 27-29, 1990.

³¹ Ibid.

from fossil fuel use, which accounts for more than half of global warming. The poorest countries, meanwhile, clamoured for action, fearing they would suffer most in a warmer world. The small island states, which were particularly vulnerable to the effects of climate change, repeatedly clashed with OPEC, which cited scientific uncertainties about climate change to oppose strong action to control GHG emissions. The majority of developing countries adopted position between these two groups, generally favoring strong action by the North but rejecting such action for themselves.³²

The General Assembly on 21 December 1990, established the Intergovernmental Negotiating Committee (INC) for a Framework Convention on Climate Change (FCCC) in Resolution 45/212, entitled 'Protection of Global Climate for Present and Future Generations',³³ under its own auspices but supported by UNEP and WMO. A special voluntary fund was established to help developing nations, especially small island states, to participate in the negotiations.

INC-I Chautilly Washington D.C., February 4-14, 1991

The US Government hosted the first session of the negotiations, at the Westfields International Conference Center in Chantilly near Washington DC, from 4-14 February 1991. It elected a bureau, approved special efforts to encourage participating by developing countries, established rules of procedure, and finalised the mandate of the working groups.³⁴ Thus during the preparatory meetings, the question of representation on the bureau of the negotiating body was stressed to keep the track and influenced the process, India sought membership and was elected as one of the vice-chairman, representing

³² M.G. Rajan, op.cit., p. 114.

³³ UN General Assembly, 'Protection of Global Climate for Present and Future Generations, Resolution 45/212, December 21, 1990.

³⁴ M.G. Rajan, op.cit., p.116.

the Asian group.³⁵ The session also, approved for establishment of special voluntary fund to the support the participation of developing countries in climate talks.³⁶ The need arose because of the poor representation by the developing countries. Finally, the Washington session established two working groups of INC, the first dealing with 'commitments' related to greenhouse emissions controls and the provision of financial and technological assistance to developing countries, and the second dealing with 'mechanism' to implement the commitments undertaken by states.³⁷

Pre-INC-2 Developments

Two important developments took place before the second session of the INC in June 1991, which were to have significant impacts on India's policy. These were: the exposure of critical weaknesses in India's economy; and the production of an influential report by the Delhi-based NGO, the Centre for Science and Environment (CSE), which challenged the statistics and analysis of 1990 WRI report.

The critical weaknesses in Indian economy were mainly due to three major factors which had been building up over a number of years. These were: inward-looking trade and investment policies; extensive bureaucratic controls over production, investment and trade; and poor economic performance of public sector.³⁸ There was an, explosive growth in foreign borrowing and government spending during the 1980s.³⁹ India was forced to take IMF loans worth \$ 1.8 billion in the month of January, 1991; when India sought for multi-lateral loans, it entailed it for firm commitments to control and reduce the budget

³⁵ Ibid

³⁶ UNGA, Report of INC for FCCC on Climate Change on the work of its First Session, A/AC.237/6, March 8, 1991, pp.16-17.

³⁷ Ibid., p.24.

³⁸ J. Bhagwati, *India in Transition-Freeing the Economy*, (Oxford: Clarendon Press 1993), p. 46.

³⁹ Ibid p. 67.

deficit and to undertake structural reforms. Thus the Indian negotiations feared that India's economic vulnerability and its dependence on the North's aid would be exploited by the North. The second development which took place before INC-2 was the criticism of 1990 WRI report by the CSE.⁴⁰ The CSE criticized the WRI for focusing on current annual emissions, rather than cumulative emissions. The report retorted that, the WRI exaggerated the South's responsibility for climate change, it also pointed that WRI was focusing on short term heating effect and ignoring the long term effect of GHG. It has criticized Third World representatives who had unquestionably accepted the statistics and analysis of WRI.⁴¹ The CSE provided Indian negotiators with ammunition to attack WRI report.

INC-2 Geneva, June 19-28, 1991

At INC-2, the Indian government handed 'non paper' a full draft text proposal for a convention promoting another major concern of developing countries: to ensure that the funding mechanism of the convention would not be in the hands of Northern dominated institution. The Indian government proposed a separate Climate Fund as a funding mechanism for the convention, to be financed by contributions from the developed parties to the convention and to provide finances on a grant basis to developing countries to adapt to and mitigate the adverse effect of climate change.⁴² The Indian text proposal for a convention was generally welcomed by developing countries, for projecting North's primary responsibility, finances for South, and democratic administration of any funding mechanism. Despite the general approval division within the South also extended to other issues. They wanted new and additional financial resources to

⁴⁰ Anil Agarwal & Sunita Narain, *Global Warming in the unequal world: A case of Environmental Colonialism*, (New Delhi: CSE, 1991), pp. 27-33.

⁴¹ 'A Non Aggression pact with Nature,' *The Hindu*, June 3, 1990.

⁴² A/AC. 237/MISC 1/Add. 3.

cover their incremental costs and technology on concessional terms and insisted on a dedicated 'Green Fund', which would be controlled by UN rules, rather than the more restrictive practices of the World Bank.⁴³ The AOSIS states were opposed to the preparation of common text by G-77, as they were keen to have a commitment by all countries to tackle climate change. India and China opposed the designation of the Global Environmental Facility (GEF) as a financing mechanism in the FCCC and pursued for new sources of finance (GEF was set up in 1991 and is managed by World Bank, the UNDP and UNEP).

A proposal by the UK and Japan at INC-2 for a 'pledge and review' process was widely seen as an effort to accommodate the US. Under this process all countries would commit themselves to establishing policies and strategies to limit their GHG emissions. They would report on measures taken by them, and these reports would be the subject of formal review. Specific commitments, such as stabilization by the industrialized countries of their carbon dioxide emissions at 1990 levels by 2000, or commitments by all countries to curb deforestation would be the subject of separate protocols.

India opposed the 'pledge and review' proposals on the grounds that it would impose legal obligations on the developing countries. India feared that the review process could evolve into an intrusive mechanism through which the North would be able to interfere in the national policies of developing countries, especially in important sectors such as energy and industry.⁴⁴ However there were differences between the North and the South, over the nature of the financial mechanism, which would transfer resources, and the terms on which

⁴³ Anil Agarwal (eds).op. cit., p. 33.

⁴⁴ Ibid., p. 36.

technology transfer would take place.⁴⁵ India and China also opposed the idea of the joint Implementation (JI) introduced by Norway & Germany to meet the 1990 commitments set in Toronto. Under JI industrialized countries would provide funds and better technology to cut emissions in developing countries in return for 'credits' to increase their own emissions. These were to be discussed in more details at INC-3.

INC 3, NAIROBI, SEPTEMBER 9-20, 1991

INC-3 witnessed little changes in the industrialized countries' position. The northern countries, still insisted on universal obligations, and attempted to use the 'pledge and review' concept to get southern countries on board – the developing countries were asked to accept limited binding commitments from the start, instead of common but differentiated responsibilities principle, and then to have periodic reviews to tighten commitment targets.⁴⁶

This provoked a strong reaction from the South, especially India. India was however, willing to accept that developing countries implement specific projects to reduce their GHG emissions, provided the incremental costs are borne by North.⁴⁷ India also warned the North of any attempt made by them to pressurize or impose conditions on the southern nations to change their policies would be inadmissible interference in their internal affairs.

Though India's strong response was welcomed by many developing countries, differences within G-77 persisted over aspects of India's position.⁴⁸ They insisted on preferential, concessional and non-commercial technology transfers and provision of financial resources

⁴⁵ UN, General Assembly Report of the INC for a FCCC on the work of its Second Session, Held at Geneva from 19-28 June, 1991, A/AC. 237-9, August 19, 1991, pp. 14-15.

⁴⁶ UNGA, Report of the INC for a FCCC on the Work of its Third Session, Nairobi, September 9-20, 1991, A/AC 237/12, October 25, 1991, pp. 18, 19.

⁴⁷ M.G. Rajan, op. cit., p 126.

by Northern nations.⁴⁹ Thus on the matter of financial resources; Developing Countries wanted a separate financial mechanism under the authority of the parties to the convention, while industrialised countries wanted GEF to serve as the mechanism.⁵⁰ Both agreed that whatever the mechanism, the climate convention should provide the policy direction.⁵¹ India and other developing countries wanted a separate, democratically administered fund, because that would provide an equal voice to beneficiaries and donors, and fund activities according to the priorities of recipient countries. GEF failed on both counts – it was perceived to follow World Bank operating procedures and was dominated by donor countries. The developing countries also, wanted contributions to the climate fund to be made obligatory, while contributions to GEF were voluntary.⁵²

Shortly before the INC-4, an Organization for Economic Cooperation and Development (OECD) minister's meeting in Paris was held from 2-3 December 1991. The OECD ministers committed themselves to the enhancement and protection of GHG sinks and limitation of GHG emissions especially CO₂. The OECD countries also acknowledged the need to provide financial resources to developing countries. And most of the OECD countries now showed apparent willingness to restructure GEF. On the matter of technology transfer, they were only willing to expand technology co-operation, facilitate the transfer of technologies and to enhance the capacities of developing countries to use and develop technologies.⁵³

⁴⁸ Ibid. p. 127.

⁴⁹ A/AC. 237/12, p. 19.

⁵⁰ UNEP, Annual Report of the Executive Director 1991, Nairobi, UNEP, 1992, p. 4.

⁵¹ A/AC. 237/12, p. 22.

⁵² M.G. Rajan, *op.cit.*, pp. 128-129.

⁵³ Policy Statement, Meeting of OECD Minister on Environment and Development, OECD, Paris, December 2-3, para 11.

INC-4 Geneva, December 9-20, 1991

The Indian Cabinet met on 3 December 1991, shortly before the INC-4, to consider about India's policy in climate negotiations for the first time. The MOEF highlighted the main elements in India's negotiating stance, including the concept of per capita equity, and its opposition to any international review of policies of developing countries, its willingness to consider contractual commitments and demand for separate fund under the climate convention.⁵⁴ The cabinet gave its full approval to the policy note by MOEF.

At the INC-4 a greater consensus among the Southern nations began to emerge. They reiterated the 'main responsibility' argument, which the North continued to reject.⁵⁵ Many G-77 countries were only willing to concede contractual commitments for specific projects an offer India had already made at previous session. India with 43 developing countries including Brazil, China offered to consider taking feasible measures to address climate change, provided that the full incremental costs involved of adequate and additional financial resources are met by new provision from the industrialized country parties.⁵⁶ North south differences persisted over the question of technology transfer, though they had narrowed down somewhat with the North's indication in OECD policy statement of its willingness to restructure GEF.⁵⁷

⁵⁴ M.G. Rajan, *op. cit.*, p.131.

⁵⁵ UNGA, Report of the INC for a FCCC on the work of its Fourth Session, Geneva, December 9-20, 1991, A/AC. 237/15, January 19, 1992. p. 4.

⁵⁶ Joint Statement of G-77 at the Fourth Session of the INC for a FCCC, Geneva, December 9-20 1991.

⁵⁷ Report of the INC-4 p. 10

INC-5 NEW YORK, FEBRUARY 18-28, 1992

A consolidated text had been prepared at INC-4, but was replete with evidence of the wide differences that still existed between the North and the South. It became inevitable for the conclusion of negotiation to resume for an additional 9 days from 30 April to 8 May 1992.⁵⁸ The G-77 and China were extremely dismayed by the slow rate of progress.

At a special session of GEF in Geneva in February 14, 1992 Chairman of GEF, Mohamed EL-Ashry, agreed that GEF could be modified to service the climate convention.⁵⁹ Though many nations still supported for a separate fund, the trend appeared to be acceptance of a modified GEF as the financial mechanism for the FCCC. The US continued to oppose any compromise on the demands for technological and financial resources for the south. Corresponding with the minimal commitments it sought for itself, it did not place any major obligations on the south.⁶⁰

Thus prior to concluding session of INC, developing countries met and reaffirmed their positions on the climate negotiations at several meetings before the final INC session. These included the conference of environment ministers of South Asian Association for Regional Cooperation (SAARC) in New Delhi from 8-9 April, 1992, and the second ministerial conference of developing countries on environment and development in Kuala Lumpur from April 26-29, 1992.⁶¹

When INC-5 resumed in April 1992, INC chairperson Jean Ripert presented a text to the session as the basis for negotiation. The text attempted to limit the convention to 'essentials' and made no mention of stabilization of emission levels by 2000 at 1990 level as has been

⁵⁸ UN Document, A/AC. 237/ MISC. 20, February 28, 1992.

⁵⁹ Mohamed T.EL-Ashry, 'Statement to the Fifth INC-FCCC', (New York), February 22, 1992.

⁶⁰ M.G. Rajan. *op.cit.*, pp. 138-141.

⁶¹ Joint Communique of the SAARC Minister of Environment New Delhi, April 9, 1992 and Kuala Lumpur Declaration on Environment and Development, Kuala Lumpur, April 29, 1992.

included in the text at the first session of INC-5. Ripert, moreover, unofficially declared the commitments to be non-negotiable, because any revision would be unacceptable to the US.⁶²

The negotiating text obliged developing countries to cooperate with North, by providing for the establishment of a subsidiary body for implementation (SBI) to review information relevant to the implementation of the convention. It only committed the North to take all practicable steps to promote, facilitate and finance, as appropriate, access to and transfer of environmentally sound technologies and know how.

India initially described the draft text as 'Linguistic Striptease' which 'dilutes and distorts previous formulations of the specific commitments language', and called on developing countries to stay out of the framework convention if significant changes were not made. This proposal did not receive any support. China in particular, showed no inclination to boycott the convention.⁶³ Finally India had to satisfy itself with some revisions in the chairperson's text, with support from other developing countries on specific issues. An Indian amendment to SBI was accepted, confining the body to only reviewing the commitments of industrialised countries. Information provided by developing countries would not be considered on a country-by-country basis, but would be assessed in terms of the overall aggregated effect of the steps taken by the parties in the light of the latest scientific assessments concerning climate change.⁶⁴

⁶² Christina Lamb, "US Presence at Earth Summit Vital Collar", *The Financial Times*, (London), March 27, 1992.

⁶³ M.G. Rajan, *op.cit.*, p. 145.

⁶⁴ *Ibid.*, pp. 145-148.

The FCCC Assessment

The convention text presented at Rio de Janeiro, June 3-14, 1992, committed the West to no more than what one country, the US was willing to commit. George Bush, the US president, who had initially refused to come to Rio, if the climate convention did not meet with the US approval, agreed to come once all references to make stabilization targets mandatory were dropped. Industrialized countries had only accepted the 'common but differentiated responsibilities' principle, which was a very diluted version of the polluter pays principle.

The Indian delegation seemed easily pleased by the few changes in the convention text and turned from complete rejection to approval. "The final outcome really depends on the protocols", Indian minister Kamal-Nath said optimistically.⁶⁵ While the delegation conceded that no guarantees has been obtained from the North with regard to technology transfer, assessment of financial resources was favorable.

In the view of the MOEF delegate, 'the most important gain in the negotiation was the elimination of articles dealing with review of national policies'.⁶⁶ The Chief Indian negotiator Chandershekar Dasgupta 'ensured that the obligations imposed on us are minimal and, furthermore, that in all areas there is 'differentiation' between developed and developing countries'.⁶⁷ Dasgupta however, conceded that the quantum of financial resources to be provided by the North was indeterminate and in addition 'the precise way in which "full incremental costs" will be "agreed" upon remains to be worked out and upon this will depend the extent of the financial benefits to us'.⁶⁸ The

⁶⁵ Anil Agarwal, "Their capability to pay Arises out of their high level of exploitation", interview with Kamalnath, in *Down to Earth*, Vol 1, No. 2, June 15, 1992 p. 21.

⁶⁶ MG. Rajan, op.cit., p. 151.

⁶⁷ Ibid.

⁶⁸ Ibid., p. 152.

issue of financial mechanism was acknowledged to be a compromise between the North's insistence on the GEF and south's preference for a new mechanism. According to Dasgupta 'the outcome was entirely satisfactory from our point of view'.⁶⁹

Thus, the climate convention did not meet all the demand that India and the other developing countries had made during negotiations. On the positive side the FCCC allowed them (South) to exclude themselves from the purview of the review functions of the subsidiary bodies of the convention. It met the demand for new and additional financial resources. But it did not oblige their demand for a separate climate fund.

Finally the UNFCCC was signed by 154 countries including India, at the Earth Summit in Rio de Janeiro in June 1992.

⁶⁹ Ibid.

CHAPTER 3

CHAPTER III

BERLIN TO HAGUE: THE CONFERENCE OF PARTIES

The Framework Convention on Climate Change (FCCC) was signed at UNCED in Rio de Janeiro in June 1992 by 154 countries, including India. The convention provided for the INC to continue meeting before the convention itself came into force, and this decision was ratified by the UN General Assembly. The purpose of this was both to prepare for the first Conference of Parties (COP-1), and to prepare possible amendments to the convention, or protocols to it. The INC met twice a year from the signing of the convention until the first conference of the parties, which met in Berlin between March 28 to April 7, 1995. After the Rio Summit, climate negotiators met in Geneva in December 1992, to negotiate schedules for the future meeting.¹ It was decided that the working group on financial, procedural, institutional and legal matters would meet in March 1993, in time to send a report to GEF meeting in Beijing.² The Mood at the Geneva Meeting was more subdued than at the earlier negotiations. "The politics have already been negotiated and though many countries may not be happy with the convention, they realize they have to live with it," remarked INC executive secretary, Michael Zammit Cutajar.³

The INC met six times after the Rio Summit to prepare for the first conference of Parties (COP-1). The focus of the first three session, (INCs 6-8), was primarily on the technical issues related to the implementation of the convention's various features. These questions included: how the Subsidiary Bodies on Implementation (SBI) and on

¹ Anjani Khanna, "Delegates Stall Action on Greenhouse Gases", in *Down to Earth*, (Society for Environmental Communications, New Delhi), Vol. 1, No. 16, January 15, 1993 p. 42.

² Ibid., p.44.

³ Ibid., p.42

Scientific and Technological Advice would work in practice; what methodologies countries should use to prepare their inventories of GHG and sinks, or their climate plans; what criteria would be used for disbursing funds under the Financial Mechanism.⁴

There were two main themes, which dominated the negotiations at this point. One was the financial mechanism, the debate from before Rio about whether it should be housed in the GEF had moved on the question of the relationship between the GEF and the COP of the convention.⁵ Though the most of industrialised countries were in favour, that the GEF should remain independent of the conventions for operations, but in contrast the Southern countries argued it should be, in effect, a subsidiary body of the convention, subject to direction on operational questions.

The second was the question of Joint Implementation (JI). The debate had been present before Rio, but intensified after it. After the EU decision in 1990 to stabilize Co2 emissions at the 1990 levels by the year 2000. Industrialised countries went looking for the cheapest options for carrying out their reductions. This was when the Norwegian government first introduced the idea of JI, at INC-2 in June 1991. The idea was discussed in detail during the eight, ninth and tenth INCs. Article 4.2 (d) of FCCC required COP-1 to take decisions regarding JI commitments. Cooperative arrangements for emission reduction are referred in article 3 (3) of FCCC, which says that efforts to address climate change may be carried out cooperatively by interested parties.⁶ Articles 4.2 (a) agreed that industrialized countries

⁴ Mathew Paterson, *Global Warming and Global Politics*, (London: Routledge, 1996), p. 65.

⁵ *Ibid.*, p. 66.

⁶ Framework Convention on Climate Change United Nations, New York. Text reproduced in *Environmental Policy and Law*, (Elsevier Science Publishers, North Holland), Vol 22, No. 4, May 9, 1992, pp. 258-264.

could implement their commitments 'individually or jointly'.⁷ This became a big North-South question, because it was ambiguous in the convention itself, and because some industrialised countries, such as Germany and Norway, wished to widen the scope of JI, they wanted JI to be understood only on the basis of the 'offset concept' – industrialized countries investing in developing countries to compensate for emissions in their own countries, where the cost of reductions would be higher. Recipient countries would receive money for projects to compensate for industrialized countries emissions. The developing countries suspected that JI would become a new way of entrenching an 'eco-colonial' division of the world's resources, with high consumption in the North compensated by investments in the South in forests, energy efficiency projects and so on.⁸ Several developing countries called the proposal an attempt to "lure" developing countries into solving the North's GHG Problem.⁹ The southern countries were therefore sceptical in general of JI, but in particular tried to make sure that it would only apply between industrialized countries, rather than among any parties, and also that no credits under the convention could be gained for action implemented jointly.

France challenged the German contention that the cheapest emission reduction projects are in developing countries. "It is false to assume it is very expensive to reduce emissions in the industrialized countries," said Maurice the steinfelder of France's environment ministry. "The problem is the high political cost." The French government wanted to expand the definition of JI to mean that rich countries provide a minimum level of financial assistance based on their standard of living

⁷ Ibid.

⁸ Mathew Paterson, *op.cit.*, p. 66.

⁹ Ravi Sharma, "Germany Tries to Pass the Buck", in *Down to Earth*, (New Delhi), Vol 2, No. 10, October 15, 1993, p. 18.

and emissions. The money would be used to finance emission reductions in other countries, not to help industrialized countries offset their emissions.¹⁰ The other industrialized countries wanted JI to be totally distinguished from the financial mechanism of the convention. They said, JI, could take on projects that would not pass the GEF's incremental cost test. The industrialized countries admitted that while a GEF project could be linked to specific technologies, JI would give them a chance to choose between options before locking themselves into inappropriate or unstable technologies.¹¹ Finally, it was agreed that JI projects would only supplement national measures. Those countries who had allocated a certain percentage of their gross national product (GNP) as development assistance would be allowed to participate as donors in JI projects. To counter the difficulties involved in JI projects aiming at the enhancement of sinks, it was decided to exclude those projects, at least initially.¹² Emissions reductions achieved by JI could be 'discounted' – investing countries will get only part of the credits if the reduction deadlines for the project are missed.

During 7-10 December 1992, the INC-6 met for the first time since Rio in Geneva. This was a short of procedural meeting, where the main items discussed were a plan of work for the committee until the convention came into force and, then first COP, and following this, revising the roles of the two working groups of the INC.¹³ The Secretariat produced with the meetings agenda a list of the parts of the convention which required work to be under taken before the first

¹⁰ Ibid.

¹¹ Jyoti K. Parikh, *North South Cooperation in Climate Change Through Joint Implementation*, (Bombay: Indira Gandhi Institute of Development Research, 1994), p. 15.

¹² Ibid., p. 9, and 17-18.

¹³ INC, Report of the INC-FCCC on the work of its Sixth Session, held at Geneva, 7-10 December, 1992, UN Document A/AC. 237/24. January 6, 1993.

COP, and this was adopted by the committee.¹⁴ These tasks were split into three clusters. Cluster A dealt with commitments, covering methodologies for calculating emissions inventories, criteria for joint implementation, reviewing information submitted by industrialized countries, and reviewing the adequacy of commitments. Cluster B dealt with the financial mechanism of the convention, and cluster C dealt with the rules of procedure for the COP, the organizing of a permanent secretariat, and institutional questions concerning implementation of the convention. Working Groups I and II were reorganized so that Working Group I now dealt with cluster A, and working Group II with other clusters.¹⁵

Developing countries, meanwhile still felt unsure and said they need more information to judge the advantages and disadvantages of JI. The developing countries were worried mostly of being drawn into participating in the implementation of FCCC through JI. Most developing countries at INC-8 and INC-9 demanded that JI projects should be carried out between 'annex I' parties. But at INC-10, some developing countries, including several from Latin America and South-east Asia, began to show signs of interests in JI schemes. India and China started dropping hints that their opposition to JI may not be total, as long as industrialized countries received no credits.¹⁶ This position found support from EU. Brazil and the African countries were still in opposition, Canada and the US initially remained insistent on receiving credits, but finally agreed that no credit would accrue during the pilot phase, called the Activities Implemented Jointly (AIJ) Programme to distinguish it from JI.

¹⁴ INC, Note by the Executive Secretary, UN Document A/AC. 237/21, (August 24, 1992) January 6, 1993. p. 9.

¹⁵ UN Document A/AC 237/24.

¹⁶ Sebastian Oberthür and Herman ott, "UN Convention on Climate Change: The First Conference of Parties", in *Environmental policy and Law*, (Elsevier Science Publishers, North Holland), Vol. 25, No. 4/5, 1995 pp. 146-147.

At the close of INC-10, small Island states made a desperate attempt to bring countries back on track and discuss long terms reductions of greenhouse gases (GHGs), on which very little progress had been made in the post-Rio INCs. Trinidad and Tobago, on behalf of the AOSIS, introduced the “Toronto Targets Resolutions’, and called on industrialised countries to reduce their carbon dioxide emissions by 20 percent by the year 2005.¹⁷ At INC-II the AOSIS draft came up for discussion where Germany once again brought up developing country commitments, saying large developing countries are likely to emit GHGs on a large scale in the near future which could neutralize any reductions by the industrialized countries. Combined pressure from environmentalist and the media forced the Germans to withdraw their proposals, but the damage had been done, and negotiations broke down completely on this issue of developing country participation.¹⁸

COP-I, Berlin, March 26- April 7, 1995

There were three main issues, which were on the COP-I agenda-adequacy of commitments by industrialised countries to reduce carbon emissions under the convention, the financial mechanism, and criteria for JI. On the periphery, environmentalists and the oil and coal lobby argued over whether the threat from climate change was big enough to demand action. Though most people came to the conference expecting little to happen, for once in recent history of climate meetings, environmentalist declared COP-1 satisfactory, while the oil and coal lobby called it disaster.¹⁹

¹⁷ Vinayak Rao, “No Climate for Change”, in *Down to Earth*, (New Delhi), Vol. 3, No. 23 April 30, 1995, pp. 13-14.

¹⁸ CSE, *Director’s Report 1994-95*, (New Delhi: Centre for Science and Environment, 1995), pp. 12-13.

¹⁹ Ravi Sharma, “Bumpy Ride” in *Down to Earth*, (New Delhi), Vol. 4, No. 1, May 15, 1995, p. 5.

COP-1 was significant for India in other ways. Several protocol proposals had been tabled, including one from the AOSIS, which suggested that the developed countries should cut their carbon dioxide emissions by 20 percent by the year 2005 from their 1990 level. Another proposal was submitted by Germany, that 'we should continue to work towards commitments to limit the rise of the emissions in the case of certain more advance developing countries.²⁰ But as soon as AOSIS repeated their proposal for a 20 percent carbon dioxide reduction target by the year 2000 for industrialized countries, Australia and the US took recourse in diversionary tactics. To take attention away from proposal of singling out larger developing countries like India and China to prune their carbon dioxide emissions. Several major environmental groups bought their arguments that these countries are likely to neutralize any reductions by industrialized countries with their emissions in the future. Green peace and the US-based Environmental Defense Fund planned to organize public campaigns in favour of the German position, and propose a moratorium on foreign assistance to all projects that may lead to emissions.²¹

The German proposal was instantly perceived as an attempt by developed countries to draw major industrializing, developing countries such as India, China and Brazil into making commitments to restrict GHGs emissions. Once again, India was at the forefront of strong developing country oppositions to any proposal or others insidious moves to divide the developing countries into new categories. The AOSIS proposal meanwhile split the G-77, with the German proposal in mind; India, China and Brazil were reluctant to support AOSIS, which would mean putting pressure on their trade and finance

²⁰ *Earth Negotiations Bulletin*, November 12, 1996, *Indian Express*, March 23, 1995.

²¹ Ravi Sharma "Bumpy Ride", op,cit., p. 5.

partners in the developed North. The Indian officials reported in interviews, a fear that such pressure might develop into general support among developed nations for the German proposal. At the same time, it became important for India to retain its position as the Leader of the G-77.

Thus a remarkable consolidation of opinion by NGOs and the media forced German Minister Angela Merkel to withdraw the proposal, and Kohl announced that his government, supported by the EU, planned to cut 'emissions by more than 20 percent by the year 2005. This isolated Australia and the US. The head of US delegation, Tim Wirth, blamed the strong influences of the opposition Republican Party for his delegation's inability to take on strong commitments. Republican Members, lobbied by the powerful oil industry, bound the US delegation to agree to cuts only if developing countries agreed to accept commitments. COP-1 therefore saw the emergence of a new group – JUSCANZ (Japan, US, Canada, Australia, and New Zealand), united in their resistance to action by the industrialized countries unless developing countries accepted commitment.²² India initially was reluctant in supporting the AOSIS, draft, G-77 countries, meanwhile began the meeting as disunited as they had been during INC meetings after Rio.²³ But the pressure from Indian NGOs made the delegation change its stance and support the proposal. It broke the deadlock in negotiations on emission cuts by tabling a 'green paper', a revised form of the AOSIS draft.

The Indian paper was based on the concern that industrialized nations must initiate emission reduction to provide the necessary space for

²² Peter Newell, "A Changing Landscape of Diplomatic Conflict: The Politics of Climate Change", in Felix Dodds (ed), *The way forward: Beyond Agenda 21*, (London: Earth Scan, 1997), p. 40.

²³ Vinayok Rao, "Climate for Change", in *Down to Earth*, (New Delhi), Vol 3, NO. 23, April 30, 1995, pp 13-14.

developing countries to increase their emissions. Kamal Nath, Indian Minister of Environment (1991-95) arrived for the last two days of the conference, and over night the Indian delegation sat with other major G-77 partners and drafted a common statement. He also asserted that, “developing countries have no – or negative responsibility for causing global warming”: Stressing that existing commitments were inadequate, the green paper called on annex 1 countries to adopt specific and legally binding commitments for carbon dioxide reduction after the year 2000.²⁴ Finally the Secretariat’s compilation and synthesis of the first 15 “national communications” of industrialised countries injected some momentum into the discussion on the adequacy of commitments. The synthesis proved that in most of the cases reviewed, the action taken by the countries was insufficient to reduce GHG emission to 1990 levels by 2000, the target envisaged by the convention.²⁵ A special IPCC report pointed out that even if current carbon dioxide emissions were stabilised at the global level, atmospheric concentration would continue to rise for at least two centuries.²⁶ Despite all the evidence, the OPEC countries in strength with the Global climate coalition and the climate council, refused to accept that the convention’s commitments be called inadequate.

Thus the OPEC countries with the tacit consent of the US and other JUSSACANNZ delegations, were able to prevent substantive progress. The result was deadlock in negotiations prior to Berlin.²⁷

²⁴ For detail see Sebastian Oberthür and Herman ott, UN Convention on Climate Change : The first Conference of Parties, in *Environmental Policy and Law*, (Elsevier Science Publishers, North Holland), Vol. 25, No. 4/5, 1995 pp, 144-56.

²⁵ See UN Document, A/AC. 237/81.

²⁶ IPCC : Radiative Forcing of Climate. The 1994 Report of the Scientific Assessment Working Group of IPCC, in J.T. Houghton (ed.) WMO /UNEP. 1994.

²⁷ Sebastian oberthür and Herman ott, op. cit., in *Environmental Policy and Law*, Vol 25, No. 4/5, 1995 pp. 144-156.

Berlin Mandate

In light of the inconclusive discussions – like AOSIS proposal of 20 percent reduction in emissions, clearly stood no chance of being adopted in Berlin. A clear mandate for negotiating, including a concrete target date for adopting strengthened commitments in 1996 or 1997, was the best-possible outcome. The fact that COP-1 in Berlin achieved this by passing the Berlin Mandate. Given the lack of agreement on the rules of procedures, the draft rules were “applied” (not “adopted”) with the exception of the voting requirements – a procedure that had also been followed in the framework of the convention on biological diversity.²⁸ All decisions thus had to be taken by consensus. In the end, COP helped to bring about adoption of Berlin Mandate.

The Berlin Mandate agreed that the existing commitments, listed for industrialized nations in article 4.2 (a) and (b) of FCCC-that annex 1 countries must coordinate relevant economic and administrative instruments, and periodically review their policies and practices – were inadequate. New reduction targets were needed for annex 1 industrialized countries beyond the year 2000. To ensure support of developing countries, the mandate expressly stated that no new obligations for developing countries would be introduced in the next round of talks. This round was to be conducted by an “open-ended adhoc group of parties”, to become known as the Adhoc Group on the Berlin Mandate (AGBM). A clear target was set for the deliberations of the AGBM; to work out a protocol or another legal instrument that included targets and time tables for GHG emission limitations and reductions of industrialised countries. This work was to be completed in time for the adoption of the result at COP 3 in 1997, which Japan

²⁸ Earth Negotiations Bulletin Vol. 9, No. 28, December 28-29, 1994.

offered to host in Kyoto.²⁹ Governments agreed that no new commitments should be introduced for developing countries, but that the existing general commitments listed in article 4.1 on financial resources and technology transfer, should be reaffirmed.³⁰ Virtually no participant or observer had expected such a far-reaching result to be achieved in Berlin.³¹ The US resistance towards the word “negotiations,” was replaced in the Berlin Mandate by “process”. Further more, instead of “targets and timetables”, the expression “quantified (emission) limitation and reduction objectives within specified time frame” was used. Furthermore, the US managed to prevent mentioning the year 1990 as the base year of future obligations – a move that kept open the possibility of higher baseline for potential obligations. Finally the “process was to be based on an “analysis and assessment” to identify appropriate policies and measures – a request introduced by the US mainly to slow down the Kyoto process and could be contained in a protocol “or another legal instrument”. In Sum, the Berlin mandate set the stage for strengthening of industrialized countries’ commitments to protect the global climate.³² In addition to Berlin Mandate, the COP-1 saw the initiation of “activities implemented jointly” (AIJ) projects, after it was decided that no credits shall accrue to any party as a result of GHG emissions reduced or sequestered during the pilot phase. In exchange, G-77 agreed to participate “on a voluntary basis.”³³

COP – 2, Geneva, July 8-19, 1996

Between COP – 1 in Berlin and COP-3 in Kyoto, negotiators met eight times in the framework of the AGBM, which was chaired by former INC

²⁹ Sebastian Oberthür and Herman Ott, op.cit., pp. 154

³⁰ Vinayak Rao, in *Down to Earth*, (New Delhi), Vol. 5, No. 4, July 15, 1996, p. 34.

³¹ John Lanchbery, “What to Expect form Kyoto”, in *Environment* Vol. 39. No. 9, 1997, p. 8

³² Sebastian Oberthür and Herman ott, op. cit., p. 154.

³³ *Ibid.*, p. 147.

Chairman Estrada. COP-2 in July 1996 divided the sequence of negotiations into two parts. Three AGBM sessions proceeded COP-2, which was held in conjunction with AGBM-4, the COP, as the supreme decision-making body of the convention; - to review progress and provide further direction for the second half of the AGBM session 5 to 8. From AGBM 6, negotiating sessions were held in Bonn, the new location of the secretariat.

COP-2 had two major items on its agenda: the finding of the 1995 IPCC Second Assessment Report, and Progress on the AGBM process. Approximately 150 of the 158 parties to FCCC participated in the conference, which ended with a ministerial segment held on July 17-18.³⁴ The AGBM, still occupied with disagreements on voting procedures and the composition of the bureau, the AGBM had not been able to come up with a draft text of the legal instrument proposed for 1997. As a result, COP-2 discussions had to take place without guidance from the group.

The Geneva Declaration

COP 2, which took place at about mid-way on the road to Kyoto, provided the opportunity to determine the future direction of the process.³⁵ OPEC members insisted that the prevailing uncertainties did not justify using the IPCC report as the basis for elaborating a protocol, as requested by the majority of the countries. The declaration went beyond Berlin Mandate in clarifying three important points. Firstly, the language on the target date for AGBM negotiations was more definite than in the Berlin Mandate. Secondly, the declaration clarified that the AGBM process was directed towards an agreement on

³⁴ Sebastian Oberthür, "The Second Conference of the Parties", in *Environmental Policy and Law*, (Elsevier Science), Vol. 26, No. 5, 1996, p. 196.

³⁵ Earth Negotiations Bulletin, Vol. 12, No. 21, April 10, 1995, p. 9.

legally binding objectives, which excluded the option of a “soft” law instrument. Thirdly, the declaration specified that objectives for “significant overall reductions” would be the subject of the legal instrument to be concluded at COP – 3 in Kyoto, 1997.³⁶ The declaration presented to the ministerial session, stressed the need to accelerate talks on strengthening the convention and endorsed the IPCC second assessment report; there was no agreement on the acceptable upper limit of GHGs in the atmosphere. While 1990 was specified as the base year in the convention. The base year issue was not settled in the Geneva Declaration.³⁷ Though a memorandum of understanding was adopted between the conference and GEF as the entity operating the financial mechanism on an interim basis, and detailing procedures for fund disbursement was left to further deliberate by SBI.³⁸

COP – 3, Kyoto, December 1- 11, 1997.

At the eighth session of the AGBM, which ended in Bonn on October 31, 1997, the US called for a “meaningful participation by key developing countries”.³⁹ But the developing country negotiators were clear that industrialized countries must take the lead in accepting binding commitments, though it seemed at this point that some developing countries would be willing to discuss a schedule if annex 1 countries agreed to a meaningful commitment.⁴⁰ The developing countries reminded the industrialized countries that on a per capita basis, developing country emissions are one-thirtieth that of annex 1 countries.⁴¹ The G-77 and China endorsed the EU target of a 15

³⁶ Sebastian Oberthir, *op. cit.*, p. 199.

³⁷ *Ibid*

³⁸ *Ibid.*, p. 200.

³⁹ Earth Negotiations Bulletin, Vol. 12, No. 66, 1997, p. 15

⁴⁰ *Ibid.*, p. 3

⁴¹ *Ibid.*

percent legally binding cut in GHG emission below 1990 levels of Carbon dioxide, methane and nitrous oxide by 2010.⁴²

Inside the Indian administration, COP 3 preparation had otherwise come near to causing a crisis for the Indian delegation when, a month earlier, Prime Minister I.K. Gujral had endorsed a communiqué by the Commonwealth Heads of Governments Meetings in Edinburgh which by and large supported the US position that 'after Kyoto all countries will need to play their part by pursuing policies that would result in significant reductions of GHG emissions if we if we are to solve a global problem that affects us all.'⁴³ At a meeting with visiting British deputy prime minister two weeks later in New Delhi, Indian Minister for Environment and Forest (MOEF) Saifuddin Soz, was keen to inform the international process "*India is not ready to make any commitment on cutting back GHG emissions. Though India would try its best to make a positive contribution towards evolving a common approach, it cannot be expected to give any definite commitment on reduction of emissions.*"⁴⁴ The statement by environment minister assuaged the fears of Indian environmentalists negotiator's who were afraid that national interests would be compromised by Prime Minister Gujral's endorsement of the 1997 Edinburgh Communiqué of the Commonwealth nations.

North- South Drama at COP – 3

When countries met to decide hard targets for industrialized countries in Kyoto, the actors and their roles were clearly defined. The earlier JUSCANZ group had expanded to include Switzerland and Norway, and was now the JUSSCANNZ. The group adopted the position that

⁴² Ehsan Masood, "What to look for at Kyoto", in *Nature*, Macmillan Magazines, Vol. 390, November 20, 1997 p. 220

⁴³ CSE, India's Position on Climate Change at Kyoto, (New Delhi), Letter to Prime Minister I.K. Gujral, 1997.

⁴⁴ The Economic Times, (New Delhi) "India Note to Commit on GHG Reduction at Kyoto meeting", November 26, 1997

unless developing countries participate 'Meaningfully' they would not commit to any reductions. G-77 came prepared to oppose law targets and developing country participation. The EU came with demands for a 15 percent reduction target and a 'bubble' approach – all countries within the union would collectively meet the reduction target, leaving space for the EU's member states to have different targets based on their economic capabilities.

The head of the New Zealand delegation was more precise and asked developing nations to make a formal commitment to limit their GHG emission starting in 2010. The Luxembourg negotiator, speaking on behalf of the EU, called for a review process to establish further commitments for all parties.⁴⁵ India, China, Brazil and other developing countries were irked at the Japanese chairperson for allowing the New Zealand proposal to be tabled as it was a premeditated move by the JUSSCANNZ group, and the Berlin Mandate had already ruled out participation of developing countries.⁴⁶ The Indian minister for environment saifuddin Soz said, "*we expect the conference to cast aside any proposal seeking to disturb the present balance of equities in the convention. India categorically rejects ideas suggesting any new commitments for developing countries. Any idea that seeks further to deprive us of our equitable entitlement to grow can never be allowed to take roof*".⁴⁷ But unfortunately for G-77 some Latin American countries seemed willing to participate in efforts to reduce GHG emission, as long as they contained a financial mechanism.⁴⁸

⁴⁵ Anil Agarwal and Anju Sharma, "A farce of a Face-off", in *Down to Earth*, Vol. 6, No. 15, December 31, 1997, p. 36.

⁴⁶ *Ibid.*, pp. 36-37.

⁴⁷ *Ibid.*, p. 36

⁴⁸ Anil Agarwal, "Kyoto's Ghost will return" in *Down to Earth*, Vol., 6 No, 16, January 15, 1998, p. 34.

Though more than a week had passed and no compromise had yet been reached. COP-3 seemed to heading towards total non-agreement as the issues concerning the JUSSCANNZ group were not acceptable to developing countries, and industrialized countries pushed for 'flexibility mechanism', which would allow them to, met their commitments through trading. The other main issues, which halted the negotiations, were the conditions placed by the US. The US offer of "real reductions" by 2008-2012, so long as the proposed protocol included six gases (carbon dioxide, nitrous oxide, methane, hydrofluourcarbon, perfluorocarbons and sulphur hexafluoride) as a basket, "flexible market mechanisms" and "meaningful participation of developing countries." However, the EU was willing to take on only the first three gases as the other gases were already covered under the Montreal Protocol to reduce production of the ozone-depleting substances, while G-77 wanted gas-by-gas targets.⁴⁹ In the early days of COP 3, the US had changed its position on differentiation and was prepared to accept "limited, carefully bounded differentiation".⁵⁰

This paved the way for informal talks behind the scenes predominantly between the "big three" – the US, the EU and Japan In the evening of December 9, 1997; Chairman Estrada put some members on the table that supposedly reflected the state of the negotiations.⁵¹ The members for the EU and other European countries (minus 8 percent) and New Zealand (stabilization) remained unchanged afterwards. The targets for Russia, Ukraine (minus 5 percent), Australia (plus 5 percent), whereas the targets for the US and Canada (minus 5 percent), Japan (minus 4.5 percent) and Norway (plus 5 percent) still represented lower figures than those accepted in final deal. These reduction and limitation

⁴⁹ Anil Agarwal and Anju Sharma, *op.cit.*, pp. 37-38.

⁵⁰ Sebastian Oberthür, *The Kyoto Protocol: International Climate Policy 21st Century*, (Germany : Spinger, 1999), p. 119.

⁵¹ FCCC /CP/1997/CRP.4. Annex B.

commitments would relate to the commitment period 2006-2010 and would cover a basket of these main gases (carbon dioxide, methane and nitrous oxide) with a second basket containing the other three gases and groups of gases (hydro fluorocarbons, perfluorocarbons, and sulphur hexafluoride) to be adopted at COP-4 with separate time line.⁵² The latter gases were not included at this point because Germany, France and Australia insisted on a three-gases basket. Agreement has also emerged that “borrowing” emissions allowances from future commitments periods would not be part of deal.

Fortunately, agreement on a six-gases basket was reached during the same night and the trilateral negotiations entered the final stage. The EU was under pressure on account of a Russian proposal to come to an umbrella agreement with JUSSCANNZ. This was direct response to ‘bubble’ and the insistence of the European countries on the need for strict rules for trading. This umbrella agreement would be in the context of non EU industrialized countries which can enter into an agreement on the “joint fulfillment” of their obligations, exclusively using the Russian and Ukrainian “hot air” available due to the steep fall in emission that had taken place there since 1990.⁵³ However, whereas the targets for the EU, the US and Japan were the result of negotiations and bargaining, the targets for remaining countries mainly resulted from “Voluntary Pledges” based on their “willingness to pay”.⁵⁴

The draft finally prepared by Estrada-Oyuela, was presented at late night on the last day of the conference, many articles could not be discussed as the clock was stopped officially. The developing countries

⁵² For detail see, FCCC/CP/1997/CRP-4, Annex A.

⁵³ Anil Agarwal and Anju Sharma, op. cit., pp. 35-39.

⁵⁴ Herman ott, “The Kyoto Protocol: Unfinished Business”, in *Environment*, Vol. 40, NO. 6, 1998, p. 43

remained alert to attempts by industrialized countries to include emissions trading, items that had been “bracketed” for discussion in the draft. The Indian government pointed out that such a scheme would require that global atmospheric property rights be defined in advance, and technically, developing countries had no emission rights to give away or trade unless they had a quota given to them.

The Indian government, supported by China Africa Group of Nations and South America, brought the climate change negotiations to a standstill, arguing for the adoption of a ‘right-per-capita’ approach before agreeing to the US emissions trading scheme.⁵⁵ The US immediately reacted by implying that India and other developing countries were holding up the negotiations.⁵⁶ AOSIS opposed the Indian proposal, arguing that it would ‘overload’ the paragraph to include India’s amendment on first defining rules for trading. The EU kept conspicuously quiet.

Finally Estrada-Oyuela proposal was accepted, as he proposed a compromise, by limiting trading of emission and joint implementation to annex I countries and giving developing countries time to understand implication of trading.⁵⁷

The Kyoto Protocol was completed under immense time pressure. As a result it has introduced many new mechanism while providing scant details of their operation. For example three trading mechanisms were created to provide JUSSCANNZ with the ‘flexibility’ it was seeking joint implementation (JI, articles 6) clean development mechanism (CDM article 12), and emissions trading article (17). These 3 flexibility mechanism or flexmex have since Kyoto, became the centre of all

⁵⁵ Anil Agarwal and Anju Sharma, op. cit.,

⁵⁶ Ibid, p. 39

⁵⁷ Ibid

climate related negotiations. Developing countries were also concerned about the tentative targets for emission reduction agreed by developed countries, which negotiated legally binding emission reduction targets of at least a 5 percent reduction in GHG emission. In Kyoto, the EU and its member states as well as most Eastern European countries have to reduce by 8 percent, the US by 7 percent, Canada, Hungary, Japan and Poland by 6 percent and Croatia by 5 percent by 2008-2010.⁵⁸ However Article 10, concerning voluntary commitments was still a matter of hot debate. The supporters – Annex I parties, Israel, South Korea, the Philippines, AOSIS and Argentina met fierce resistance from the big GHG emitting developing countries like India, Brazil and China. They were joined by OPEC countries, which had been advised by the fossil fuel industry that voluntary commitments on the part of developing countries would significantly raise the likelihood of ratification of the protocol in the US Senate. Attempts by the US, South Korea and Mexico to save article 10 by introducing compromise language shared the same destiny. Finally chairman Estrada, withdrew his draft Article 10.⁵⁹ Argentina in particular regretted the failure to establish the possibility of voluntary commitments in the protocol and announced that it would request to have the matter put on the agenda of COP4.

AN OVERVIEW OF KYOTO PROTOCOL AND TARGETS (Some significant provisions of the protocol)

The legally binding nature of commitments (Article 3.7)

Binding commitments have been agreed for those parties to the Kyoto Protocol that are listed in Annex B (all of whom as industrialized). After COP 2 there was a clear understanding by almost all parties, industrialized and developing countries, that a voluntary approach as

⁵⁸ Sebastian Oberthür, op. cit., p. 128.

⁵⁹ Ibid., p. 230.

taken by FCCC has proven to be inadequate and that hard, verifiable and enforceable obligations were required for the next stage. However, areas like climate change that require change in economic policy and domestic decision-making, the existence of legally binding obligations is a necessary component of any internationally co-ordinated strategy.⁶⁰ In addition to legally binding targets, the Kyoto protocol contains a “soft provision that requires parties included in Annex I to make by the year 2005. The year 2005 has an important symbolic character, since this was the date which AOSIS countries, the European Union and environmental groups had urged to be starting time for obligations.⁶¹

The Kyoto protocol also includes provisions that allow countries to slip under an “umbrella” scheme for “collective responsibility” The idea was advocated by Russia for “Annex I bubble”. With “burden sharing” i.e., the allocation of the individual commitments, to be agreed upon later amongst themselves. Article 3.1 contains an overall aim to reduce the overall emission of GHGs in Annex B countries by at least 5 percent Article 4 allows Annex I parties to enter into agreements with each other “to fulfill commitments under article 3 jointly”.

The Basket Approach

The legally binding targets apply to a basket of four gases and two groups of gases, all of which are listed in Annex A to the Protocol. They (industrialized countries) thus follow the so-called “six gases approach” including carbon dioxide, methane, nitrous oxide, sulphur hexafluoride hydrofluorocarbons and perfluorocarbons. The year 1990 remains a baseline for the first three gases (carbon dioxide, methane

⁶⁰ Ibid., pp. 121-123.

⁶¹ Ibid.

nitrous oxide) a concession to Japan was made that any party may use a 1995 base line for calculating the emissions of other gases.

The issue of sinks (land use change and Forestry) (Article 3.2 and 3.4)

The issue of “sinks” in the Kyoto Protocol was and still is probably the most complicated in technical sense. (The issue had been raised by an Indian NGO, Center for Science and Environment). The parties, settled for a compromise formula for the first commitment period that does not include sinks in the calculation of baseline, but allows the calculation of commitments to take accounts of “direct human induced land use change and forestry activities limited to afforestation, reforestation, and deforestation since 1990” (Article 3.3), as long as they can be measured as verifiable changes in “carbon stocks” in each commitment period (Articles 3.4).

Banking provision (Article 3.13)

The Kyoto protocol allows the “banking” of emission (Article 3.13) if a party’s GHG emissions stays below its assigned amount, the surplus will, upon request of that party, be added to its emission allowance for subsequent commitment periods.

Joint Implementation (Articles 6)

The Provision on JI allows industrialized countries, to transfer as acquire emission reduction units (ERUs) from other industrialized countries through projects aimed at reducing emission for sources, or enhancing removal by sinks. But it states clearly that no country can meet its entire commitment through JI.

The “commitments period” 2008 -2012 (Article 3.1)

Another central feature of the obligation in the protocol is the “commitment period”. This concept was originally proposed by the US, which used the term “ budget period”.⁶² The protocol calls for reduction in.. overall emission of such (GHG) of at least 5 percent below 1990 levels in the commitment period 2008-2013 by Annex I countries as a whole.⁶³ The gases are listed in Annex A of the protocol, and the specific reduction targets for the different countries are listed in Annex B.

The conference of the parties serving as the Meeting of the parties (COP/MOP) (Article 13)

According to Article 13.1 of the protocol, the “conference of the parties, the supreme body of the convention, shall serve as the meeting of the parties to this protocol”. Although not expressly stated as in the convention, the “conference of the parties serving as the meeting of the parties” (COP/MOP), as this body is referred to throughout, is the supreme governing body of the protocol. This is evidenced by the broad range of functions allocated to the COP/MOP and corresponds with the tendency in modern international environmental law to use plenary organs of this type as the highest decision making body of a treaty.⁶⁴

The conference of parties serving as the meeting of the parties shall promote and facilitate the exchange of information on measures adopted by parties for implementation of their obligations (Article

⁶² Ibid., p. 123

⁶³ Anil Agarwal, Sunita Naraian & Anju Sharma (eds.) *Green politics* Vol. 1, (New Delhi:CSE Publication), p. 64.

⁶⁴ Sebastian Oberthiir, op. cit., p. 240.

13.4(c)) and facilitate the co-ordination of measures between two or more parties (Article 13.4 (d)).⁶⁵

The COP further adopted a work plan for the Kyoto mechanism with view to taking decisions on all mechanism by COP-6 in year 2000.⁶⁶

The issue of compliance remains unaddressed in the Kyoto protocol. The entire matter of non-compliance has been left over to MOP-I (MOP, which will meet only after the protocol comes into force). This is the first global agreement in which only the powerful industrialized nations have taken up commitments, it is not easy to conceive how poorer nations will be able to apply effective sanctions against the powerful nations if they do not meet their commitments. However Indian, Environment minister Soz admitted that the G-77 stood united but were not as organized as the industrialized countries⁶⁷.

Post-Kyoto Development

In the immediate period following Kyoto, exhaustion prevailed and a low level of activity characterized international climate policy. However, the "prompt start:" decision passed at Kyoto mandated the subsidiary bodies (SB) and COP 4 to prepare decisions, particularly regarding the Kyoto mechanism.⁶⁸ Therefore, the mechanism (JI, CDM) Emission Trading) and the issues of sinks also, become the focus of climate diplomacy, in the COP 4 in Buenos Aires in November 1998. The participation of developing countries has remained high on the international agenda.

⁶⁵ Ibid., p. 241.

⁶⁶ Ibid., p. 245.

⁶⁷ Anil Agarwal, *Kyoto's Ghost* op.cit., p. 33.

⁶⁸ Decision 1/CP. 3 in FCCC/CP/1997/7/Add. 1

COP – 4 Buenos Aires, November 2-3, 1998

Developing countries participating in Kyoto protocol, although not on the official agenda has remained one of the most prominent issues throughout the post discussions. The issue attained utmost prominence in the corridors and backrooms of the COP- 4 in Buenos Aires and was partly responsible for the sluggish progress at the conference. The root cause for conflict spurred by continuing calls from the US and other non-EU industrialized countries for the “meaningful participation” of developing countries in combating climate change. In response, China and India have made the per capita distribution of emission rights one of their central demands. The result has been dead lock.

The event that triggered and enhanced the debate at COP 4 in Buenos Aires was the welcoming address to the conference by Argentina’s president Carlos Menem withdrawing from the conventions of the developing countries, he announced the adoption of voluntary quantitative commitments for his country by COP-5 in 1999. This was coupled with a call for equal access to all Kyoto Mechanisms – a clear reference to Emission Trading.⁶⁹ Sparks began to fly as soon as welcome speech was over, since Kyoto, Argentina has supported the US demand for “meaningful participation” from developing countries. When the proposed Article 10, on voluntary commitments, was dropped from the draft protocol, Argentina had asked for the item to be included in the COP-4 agenda. In the face of opposition from G-77 and China, this proposal was dropped at meeting of the SB in Bonn in June 1998.⁷⁰ The developing countries bristled at the Argentinean’s suggestion that developing country’s commitments be included in the

⁶⁹ FCCC/CP/1998/16, Annex I.

⁷⁰ CSE: The Politics and Agenda of Buenos Aires, *CSE Dossier Factsheet 1*, (New Delhi), November 1998, pp. 3-5

COP-4 agenda. The Chinese government saw any discussion on the subject as means of destroying G-77 unity. While the Brazilian's said it was a mean of helping some countries avoid existing commitments rather than promoting the climate convention.⁷¹

India and China continued with their cautious approach, insisting that before trading commences, the entitlements of both developed and developing countries have to be defined. CDM under the present framework, without enlistment, is unlikely to benefit poorer nations among G-77 for the same reason as the AJI. Industrialized countries are likely to give preference to projects in the more technological rich countries among the G-77, which will provide them with fast and cheap emission credits.⁷²

During the final plenary, COP-4 finally adopted a decision that included a work programme on mechanisms. The work programme a virtual wish-list of G-77, calling for further discussions on the principles of CDM, JI, emission trading, adaptation, compliance, capacity building, compensation to countries under Articles 4.8 and 4.9 of FCCC and caps links with conventions.⁷³ The final work programme on flexmex included the list of items they had submitted, with equity and transparency, and a basis of rights and entitlements of annex B parties for emission trading.

Another point of different was the oil producing states among them pushed for compensation of loss of revenue due to reduction in the use of fossil fuels.⁷⁴ The rest of G-77 and China was unwilling to let pass Saudi Arabia's efforts to link this compensation to the adaptation costs

⁷¹ Report of the Fourth COP in the UNFCCC, November 2-13, in *Earth Negotiations Bulletin*, Vol 12, No. 97 November 16, 1998.

⁷² Anju Sharma, "No Headway", in *Down To Earth*, Vol 7, No. 14, December 15, 1998, p. 41.

⁷³ Report of the Fourth COP to the UNFCCC, in *Earth negotiations Bulletin* Vol, 12. No. 97, November 16, 1998.

⁷⁴ Anju Sharma, op.cit., p. 40.

for countries likely to be worst affected by climate change. Developing countries did not want transfer of technology to be related to the trading mechanisms, while industrialized countries promoted the potential for transfer through the quick implementation of CDM.⁷⁵ The COP-4 established a joint working groups on compliance under the SBI and SBSTA, consisting of regional workshops and meetings to sort out the matter.⁷⁶

Consequently, some progress was achieved with respect to strengthening the transfer of financial resources, technology know-how. Decisions on the transfer of technology⁷⁷ and financial mechanism⁷⁸ were passed as a part of Buenos Aires plan of action. The GEF was confirmed as an entity entrusted with operation of the financial mechanism of the convention, which will be reviewed at a four-year interval. The GEF will also begin financing measures designed to assist vulnerable developing countries in adopting to climate change impacts, like e.g., the rising sea level. At the same time compensation for potentially negative effects of climate protection, in form of a reduced demand for fossil fuels and raw materials, will remain on the agenda of the convention organ as well.⁷⁹

The Kyoto protocol officially opened for signature on March 16, 1998. The protocol will come into effect only after ratification by countries accounting for 55 percent of the 1990 carbon dioxide emissions of the industrialized world. The sixth session of the COP was to be the deadline for the completion of the work related to Buenos Aires Plan of Action.

⁷⁵ Report of the Fourth COP to the UNFCCC, in *Earth Negotiations Bulletin*, Vol. 12, No. 97 November 16 1998.

⁷⁶ Ibid

⁷⁷ Decision 4/CP/4, in FCCC/CP/1998/16/Add.1

⁷⁸ Decision 2 and 3 /CP/4, in FCCC/CP/1998/16/Add.1

⁷⁹ Decision 5/CP/4, in FCCC/CP/1998/16/Add.1

COP 5 Bonn, October 25, November 5, 1999

The COP-5 which took place in Bonn, Germany showed none of the desperate horse trading that marked previous COPs. This was partly because no real decisions were to be taken at COP-5. The Bonn conference of the parties continued their work toward fulfilling the Buenos Aires Plan of Action, which was adopted at the Fourth Conference of parties the previous years. Under the plan, parties set a two-year dead line of strengthening implementation of the UNFCCC and preparing for the future entry into force of the Kyoto Protocol, and paving the way for the sixth COP in 2000. Discussions on the Kyoto mechanism centered on a 'synthesis document put together in September 1999. The document recorded all views on what the principles modalities, rules and guidelines for the mechanism should be, including India's call for equity with respect to per capita green house gas emission.⁸⁰ Subsidiary bodies to UNFCCC were to made additional inputs to this document for the COP-6 for the negotiation purpose. But at COP-5 the developing countries while discussing on the issues of CDM said funding for CDM should be additional to official development assistance (ODA) and other financial commitments. Japan responded negatively saying there was no such provision in the protocol. The COP-5 discussed less controversial issues, such as deciding penalties against countries that fail to meet their commitments and the adverse effects on countries due to climate change.⁸¹

As the sixth conference of the parties' deadline for deciding the principle and modalities of the Kyoto mechanism approached, the US stepped up bi-lateral pressure on key developing countries to support

⁸⁰ Anil Agrawal (eds), *Green Politics*, p. 233

⁸¹ *Ibid* p. 235.

their stand on CDM. The US has a dual incentive to push CDM first it would provide cheapest way to meet its Kyoto commitments and it would provide business opportunity to sell their wares, because the environment market was the third best sector for selling US goods and services in India, after the telecommunication and software.⁸²

When Clinton came to India in March 2000 environmental and energy was high on his agenda. Thus a joint statement was signed between Indian minister for external affairs, Jaswant Singh and former US Secretary of State Madeline Albright – this was the second in six month; the earlier was with US energy secretary bill Richardson in October 1999.⁸³ The Indian government kept both the agreement in general without giving any firm commitments for unqualified support to CDM. Because India leads the G-77 in their opposition to CDM, and argues that CDM is nothing but a mechanism for the neutralized countries to mop up the low cost emission reduction possibilities from developing countries.

COP –6, The Hague, November 13-25, 2000.

At the sixth COP, sinks (Article 3.4) was the subject of major controversy, particularly of the new reevaluations by the IPCC report on, Land use, Land use change and forestry realised at SB-12. Given the uncertainties, the EU and the G-77 and China opposed including activities like forest management in the first commitment period of 2008-2012. But the umbrella group was not willing to let go to a cheap mitigation opportunity. They fought to ensure that the provisions of Article 3.4 were applicable to the first commitment period without any

⁸² Anju Sharma and Trishtram Stuart, "Clinton Costly Gifts", in *Down to Earth* Vol. 8, No. 22 April 15, 2000, p. 12

⁸³ Ibid.

restrictions.⁸⁴ Thus after a week of COP – 6 the US, Japan and Canada came up with a “compromise” proposal based on creative accounting. They wanted countries to gain full carbon credits for existing forest management activities up to a level of 20 million tonnes of carbon (mtC) per year during the commitment period, or a certain percentage that could be negotiated, whichever is lesser.⁸⁵ A rapid analysis by the Green Peace, an environmental group showed that if this proposal were adopted, the US would be able to increase its emissions by 1 percent instead of reducing them by 7 percent from 1990 levels.⁸⁶

The issue of Sinks was there which led to the failure of the COP-6. The second issue of contention was the EU proposal for a positive list of projects eligible under CDM. India and China opposed this proposal and wanted such decisions to be left up to developing countries. On the issue of compliance the G-77 and China wanted the creation of a compliance fund. In the event of failure to meet emissions reduction target, a country can pay with this fund at a pre-determined penalty rate, which must be high enough to act as a deterrent. A percentage of the fund could be allocated to finance projects to reduce GHG emissions. The US opposed any such financial penalties.

Thus the outcome of the sixth conference of parties was inconclusive. The session was suspended and the president of the conference was requested to seek advice on desirability of resuming the session in order to complete the work texts and adopt a compressive and balanced package of decisions on the all the issues covered by the Buenos Aries.

⁸⁴ Anil Agarwal (eds.), *Green Politics* (2001) p. 255.

⁸⁵ *Ibid.*, p. 256.

⁸⁶ *Ibid.*

The second part of the sixth session of the conference of the parties was held at Bonn, Germany from 16 to 27 July 2001. The ministers agreed upon the core elements of the Buenos Aires Plan of Action at the session.⁸⁷

The draft decisions on elements to strengthen the implementation of the Convention and the protocol were agreed and forwarded the adoption by the conference at its seventh session. The conference of parties agreed to establish new funds under GEF, to assist developing countries in addressing climate change; an expert group on transfer of technology has been established to identify ways in which to facilitate and advance the activities identified in the formwork; industrialized countries have committed themselves to strive to prevent or minimize adverse effects on developing countries in the cause of taking action in relation to climate change.

The draft decisions on land use, land use change and forestry and the compliance mechanism have been forwarded to seventh session of the conference of the Parties.

⁸⁷ UNGA, Report of the Executive Secretary of the UNFCCC, A/56/509, October 26, 2001.

CHAPTER 4

CHAPTER IV

ROLE OF NGOS: CASE STUDY OF CSE/TERI IN INDIA'S CLIMATE CHANGE POLICY

INTRODUCTION:

Non-Government Organizations (NGOs) in countries of the region have proved to be a formidable force in championing the cause of environment. NGOs, youth, women and indigenous people collectively as well as individually and as a group, have stood out as ardent supporters of environmental concerns and are destined to play even bigger and more vigorous role in the future. NGOs, operating at local and regional levels, have emerged as a major player and partner in both development and conservation activities in the region. In particular, NGOs, have spear-headed advocacy and action programmes aimed at better environmental safeguards, environmental policy and law reforms, environmental education, as well as changed of personal attitudes and conduct for a better environment. The various roles played by NGOs in the field of environmental are discussed below.

Advocacy:

NGOs play a crucial advocacy role in many countries of the region. Such advocacy positions may be taken on national or local issues, or on international process, as which produce clear national level impacts. These advocacy positions are promoted through various environmental campaigns, conducted in conjunction with relevant agencies of the government or sometimes even opposed to the views of government agencies. Increasingly, however, government agencies have come to respect and incorporate the views of well-established

NGOs, which support their advocacy position with facts, figures and scientific assessments.

Some NGOs have been so efficient and technically sound in their advocacy positions and work that they have become regular advisors to governments. Another effective means of advocacy that NGOs have adopted in several countries of the region is people's tribunals on key environment and development issues. These tribunals are modeled on judicial tribunals, but they lack any judicial powers; however, their findings and rulings carry considerable moral value. For example People's Tribunals (PPT) in India entertains cases filed by individuals or communities affected by environmental degradation. The PPT hears the case and its judgments are delivered and widely publicized. The PPT is described as an independent forum that examines cases of people who are unable to find legal justice through state law's¹ Campaigns have also been used by NGOs in promoting environmental causes. These campaigns may be on a single subject or they could be a several related issues. And some NGOs have combined their environmental advocacy with advocacy on other, related issues.

Awareness Raising

Most NGO programme activities concern, partly or wholly, the raising of people's awareness on environmental issues. NGOs employ formal and non-formal educational methods, including inter personal communities campaigns, mass media etc. to reach out to the public and sensitize them on aspects of environment and development. Sometimes, information and insights obtained by NGO driven studies have created national level discussion, debate and controversy on key environmental issues. Many NGOs use direct contact with nature and the environment as means of imparting awareness and understanding

¹ Anon, "South-South Solidarity", *South Link News Letter*, (New delhi) Vol-II, No. ii-iii, July -October, 1992, p.3.

of environmental issues. The other various roles played by NGOs is environmental monitoring; collaborating with governments, training, problem solving and resource management, regional cooperation and networking.

The Role of NGOs in Climate Change Issues

Scientific studies in the early 1980s by few NGOs in the North and then the South concluded that issues of climate change required urgent attention from the policy-makers. The Impact of temperature increase from rising GHG concentrations drew everyone's attention. The threat of inundation to small islands states and major low-lying deltas stirred the concern of many NGOs, as well as scientist and policy planners.

Gradually concerns about the risks of rapid climate change have been accepted and recognized by large number of NGOs throughout the south. This recognition reflects a widely perceived need to integrate environment and development into a global climate change became one of the main focal points for negotiations worldwide. Active research by large numbers of Northern organizations such as World Resources Institute, the Woods Hole Research Center, Environmental Defense Fund, the Stockholm Environment and Development reflected high degree of concern².

Concern for rising temperature due to GHG buildup expanded to include concerns for its indirect impacts, particularly sea level rise and intensification of natural hazards such as cyclones. These concerns became heightened as scientific evidence presented further gloomy prognoses. The threat of multiple disaster scenarios has elicited grave concern from the countries considered most susceptible to the effect's

² Atiq Rahman and A.Roncerel, "A view From Ground Up", in Irving Mintzer and Leonard (ed.), *Negotiating Climate Change: The Inside Story of the Rio Convention*,(Stockholm: Cambridge University Press,1994),p. 241.

of climate change, including island states such as the Maldives and the low lying deltaic regions of countries such as Bangladesh and Egypt. Southern NGOs began to discuss these major issues within the areas of their influence and interacted with their Northern counterparts. Thus NGOs worldwide emerged as a major force meeting a whole range of issues.

Climate Convention and the NGOs

Understanding of climate change progressed rapidly from the scientific world to the policy arena over a relatively short period of time. Many Northern environmental research groups, and their advocacy groups, were well prepared to respond to the rapid diffusion of information. Soon, Southern NGOs followed with their own research agenda, and started linking up with activities in the North. This culminated in global networking activities.

NGOs in the Second World Climate Conference and INC

The SWCC held in November 1990, raised global consciousness of the climate issue and culminated for the first time in a statement on the risks of rapid climate change from the ministers representing over 150 countries. This ministerial statement stressed the urgent need for action regarding the risks of rapid climate change. The statement prompted a response in the UN General Assembly, which established the INC for a FCCC. But before the SWCC, many, Northern and Southern NGOS groups had worked for years to pave the way for climate convention. The SWCC demonstrated clearly that NGOs from the North and the South could work together more effectively than that of either group acting alone. Cooperation in the climate change negotiations was a natural follow up to the activities of NGOs working in the SWCC. Procedures for rapid information collation, analysis and dissemination allowed consensus building on strategy to occur very

quickly. As a result, NGOs were quickly responsive to the speedily changing textures and foci of the international debate.

North –South Relationship amongst NGOs

A welcome aspect of the developing relationship between Northern and Southern NGOs was its open character. This encouraged a pattern of mutual respect and appreciation of each other's position. Once the information flow of scientific materials on global climate change began to emerge from a multitude of sources – including government's bodies, NGOs, research institutes, and the voluntary sectors- governments leaders began to take note. For example, the President of Maldives, Maumoon Abdul Gayoom, addressed the United Nations General Assembly and called on world leaders to save his low-lying island country from extinction. The government of the Netherlands started the process of responding to sea level rise. After NGOs such as the Bangladesh Centre for Advanced Studies produced preliminary analyses, which showed that the future of 11 million Bangladeshis would be seriously jeopardized by uncontrolled sea level rise, the government of Bangladesh recognized that the country's coastal region could be destroyed by the impacts of climate change. The governments of the North started to sharpen their position towards future negotiations, while Southern governments including India identified their own national interests in the debate, taking their cue from research work at NGO institutions such as the CSE and TERI.³

Networking amongst NGOs in Climate Negotiations

The NGOs participating in the climate convention benefited from the coordination of a unique organization. In the first INC session in Washington, DC, great doubts surrounded the future of the INC and many were discouraged about the possibility of agreeing on a potential

³ Ibid., p. 244

climate convention. Even in those early days, the NGOs had some degree of cohesion and effective communications. There was clear recognition amongst NGOs of their complementary roles in climate questions. The NGOs from the North enjoyed a comparative advantage resulting from their traditional environmental activities and existing intra group contacts. Southern NGOs on the other hand, had a long tradition of involvements in national and regional development issues, but little experience on the international front.

Special areas of expertise eventually emerged. Scientific knowledge in the area of global climate change was gained by studying the impact of GHGs and sea level rise on the national populations. Diplomatic skills were gained through experience in negotiations on the Montreal Protocol and related legal issues. Information was then expediently exchanged locally. NGOs in Bangladesh and India worked together developing detailed scientific bases on a regional level. Through the larger consultative process these views became representative of the Southern regional position. Such embryonic coalitions were not just confined to the climate change but extended also to biodiversity issues and the evolution of the GEF. The meetings preparatory to the UNCED stimulated much of this.⁴

Climate Action Network:

Climate Action Network (CAN) was formed by a group of environmental NGOs who agreed to work together in the area of global climate change. Their joint activities began with the SWCC. But prior to the start of the intergovernmental negotiations, the groups gathered together to form a focal points to circulate information and to discuss a common platform. CAN groups were established in Europe (Climate

⁴ Ibid p. 245

Network Europe and CAN UK); CAN US for the North American in the United States.

Southern NGOs participating in the climate negotiations also recognized that it would be to their advantage to join this growing force of organized NGOs. Southern CAN regional groups were established in Dhaka, Jakarta, Nairobi, and Santiago. In addition, the presence of international NGOs in CAN has been mutually beneficial. It has increased the capacity of the international NGOs to cooperate with one another and also has given CAN more opportunity to affect the IPCC and INC process. As the national NGOs of the North and South and the large international NGOs aligned together, they slowly grew to appreciate each others' priorities.⁵

National Policy and NGOs:

Environmental NGOs had their greatest influence on the climate debate in the national policy arena. In the United States, the World Resource Institutes, Natural Resource Defense Council, Environmental Defense Fund, Union of Concerned Scientists, Woods Hole research Center and Audubon Society worked with UN agencies and US policy-makers. From the South, the TERI, and the CSE worked on research, analysis, and development of policy options for India. The Bangladesh Centre for Advanced Studies initiated early work on the impact of sea-level rise in coastal areas and published scientific papers which helped the Bangladeshi government to initiate sound policy responses. In Africa, ENDA Senegal had a pioneering role in GHG emissions inventory. These are just a few examples.⁶

⁵ Ibid.,p. 246.

⁶ Ibid.,p. 248.

North-South: NGOs Model

The climate negotiations offered a unique opportunity for NGOs of both North and South to develop a better appreciation of the broader issues of environment and development. NGOs debates had broadened the agenda of the climate debate from one focused just on energy use to one that addressed the whole set of issues involving sources and sinks, complexities of science and databases. An example of this came in the form of paper by the CSE, New Delhi, titled "Global Warming in an Unequal World". This paper provided a very sharp critique of the index of GHG emissions developed by the World Resources Institute (WRI). This criticism and the draft report of the CSE were circulated at INC1 by Southern NGOs. Both the substantive conclusions and the rationale behind the report were initially doubted by many-including some of the representatives of Northern NGOs and several governments, both from the North and the South. But very soon it became a major subject of debate and succeeded in raising the issues of equity and per capita entitlement to greenhouse gas emissions. These issues later became central to the debate of global climate change during the sessions of INC. This is not to say that these issues would not have come into the negotiations at a later time or in some other way without the NGOs debate. However, the CSE paper highlighted the issues of equity and the legitimate rights of the poor. As a result the concept of per capita entitlement was debated time and again. Furthermore, in the final Convention the issue has now been addressed in the preamble and in Article 4(7).⁷

⁷ Ibid., pp. 250-51.

The case studies of CSE and TERI⁸ has been done, to see the impact of these non state actor an India climate policy negotiations and the breakthrough achieved with them in international negotiations on climate change.

CSE – Aims and Objectives.

Centre for Science and Environment (CSE) is a well-established and known non-state actor in climate change, which matters both at the national and international level. The CSE started in 1980⁹ as a small non-governmental organization, interested primarily in awareness generation. But over the last two decades, it has grown into a vocal NGO that not only undertakes awareness raising activities but is also involved with policy research and advocacy for equitable, democratic and sustainable development. CSE keeps track of environmental developments not just at the grassroots but also at the global level. Its primary objective is to promote sustainable development by creating an informed public opinion and initiating dialogues and debates within the civil society. CSE acts as an environmental 'watch dog' and comments and analysis upon government policies and programmes affecting the environment. Funding for CSE comes from donors like Swedish International Development Aid (SIDA) west European environmental organizations and Mac-Arthur foundation.¹⁰

CSE-strategy to influence the government:

CSE's strategy to influence the government is quite vocal, straightforward and public. It comments on the political aspects of the national position through critical articles and open letters in the press.

⁸ India was one of the very few developing countries to put an 'NGO representative on its national delegation.

⁹ Anil Agarwal, Sunita Narain and Anju Sharma (eds.), *Green Politics, Vol. 1* (New Delhi: CSE 1999).

¹⁰ Interview with Ms. Neelam Singh on June 12, 2002 CSE.

CSE cooperates with other environmental organizations in other countries in position papers.

Being a part of Climate Action Network (CAN) also helps CSE to influence the government. CSE comes into contact with a variety of environmental organizations from across the world in CAN, which allows it to obtain information about the national position of other countries, and which CSE passes on to the Indian government delegations.

CSE's Activities

CSE became involved in global climate change issues in 1990 with its retaliation of the WRI assessment of responsibility for global warming which had found India as the fourth largest contributor of GHG emissions.¹¹ The report found that India, China and Brazil are amongst the top five countries responsible for the accumulation of GHG in the earth's atmosphere. In other words the WRI report held that developing countries were in the same league with the developed countries as far as global climate change is concerned. To counter this report CSE came up with a study entitled, "Global warming in a unequal world: A case of environmental colonialism", co-authored by Ms Sunita Narain and Anil Agarwal. The study hold the idea that developing countries like China and India be held responsible for global climate change as concluded by the WRI in collaboration with the UN is an example of environmental colonialism.¹² The question arises as to how did the WRI reach its conclusions. The CSE report held that, 'the figures used by WRI to calculate the quantity of carbon dioxide and methane produced by each country is extremely questionable. The main emphasis has been placed on Carbon dioxide

¹¹ World Resources Institute, World Resources, 1990-91, New York and Oxford: WRI in collaboration with UNDP and UNEP: Oxford University Press.

¹² Anil Agarwal (ed.), 'Global Warming in an unequal world: A Case of Environmental Colonialism', (New Delhi: CSE, 1991), pp. 2-5.

production, due to deforestation and methane production from rice fields and live stock as compared to carbon dioxide production from the use of fossil fuels like oil and coal. Since developing countries are more responsible for the former, the heavy emphasis on deforestation and methane generation tends to over play their contribution while underplaying that of the developed countries.”¹³

The CSE study held that the WRI report is based less on science and more on politically motivated and mathematical jugglery. CSE has used the same data provided by WRI to analyze the issues and these analyses showed that India and China can not be blamed for any of the methane or carbon dioxide that is appearing in the atmosphere.¹⁴ The ideal approach taken to prepare each, nations budget of GHG emissions was by taking into account each nations sources of emissions and its terrestrial sinks, that is its forests, other vegetation and soils. Only this exercise would have given the true emissions of each nation.

The report has further analyzed that India has been ranked as the first largest contributor of GHG in the world. But if we take India’s population into account i.e., 16.2% of the world in 1990; India’s total production of carbon dioxide and methane amounted to only 6 percent that is absorbed by the earths ecological systems, which effectively means, that India can double its total carbon dioxide emissions without threatening the world’s climate. On the other hand US with only 4.73 percent of the World’s population emits as much as 26 percent of the methane that is absorbed, every year. That is the production of carbon dioxide and methane by countries like US and Japan-totally out of proportion to their population and that of the world’s absorptive capacity, which is entirely responsible for the

¹³ Ibid , p. 3

¹⁴ Ibid , p. 5

accumulation of unabsorbed carbon dioxide and methane in the atmosphere.¹⁵

This leads us on to the important question raised by the CSE study that of politics in global climate changes issues. CSE expressed fear that the WRI report will be used by the developed world to influence the outcome of the proposed climate conventions. CSE's report had the, desired impact on the government of India. CSE had held the view that the Indian government would have to become much more actively involved in global climate change negotiations to protect the interest of the Indians.

The MOEF now realized that they many have very easily agreed with foreign estimates of Indian GHG emission.¹⁶ Influenced by the report, the Indian delegation to COP-1 had pinned for a reduction of luxury emissions by the developed west, so a common ground had developed both by the government and the Indian NGOs accounting on environment, namely the CSE. This was manifested when Anil Agarwal the CSE'S director was part of the Indian delegation to UNCED in 1992 as an NGO representative.¹⁷

The CSE report also brought into limelight the North-South debate on climate change. Many developing countries found proof in the CSEs report what they had suspected all along about the North's real intention in the global climate change negotiations.¹⁸

After the Earth Summit however, CSE's influence in the policy making of MOEF decreased. This was due to the ministers becoming more independent and self-reliant in its decision-making and also as CSE

¹⁵ Ibid., p. 10.

¹⁶ Joyceta Gupta, Richard Van der Wurff and Junne, *Report, International Policies to Address the Greenhouse effect*, (Amsterdam: University of Amsterdam, 1995), p. 96.

¹⁷ Susanne Jakobsen, *International Relations Theory and the environment: A study of Brazilian and Indian Policy making on climate change*, (Denmark: Institute of political science, 1999), p. 226.

¹⁸ Ibid , p. 224

brought down its activities of global climate change and concentrating on domestic environmental topics.¹⁹ However, CSE did not completely withdraw their stand on climate change. The then prime minister I.K. Gujral at the commonwealth Heads of State Meeting (CHOGM) at Edinburgh stated that, 'after Kyoto all the countries will need to play their part by pursuing policies which would result in significant reductions of greenhouse gases emissions, if we are to solve a global problem that affects us all,' – CSE described the CHOGM statement as one that will damage the position of the south and thereby put at risk its future. Reacting sharply to Gujral's statement, the CSE sent a 10-pages letter to Gujral in which it was explained as to what India's position at Kyoto should be.²⁰ The letter was released at a well-attended press conference on November 6, 1997. Copies of the letter were also sent to president K.R. Narayanan Commonwealth heads of state and ambassadors of various countries. The main issue that was brought out in the letter was that of equity dimensions of sharing the climate change effects burden. The position of CSE on this issue i.e., equitable entitlements should be based on per capita was appreciated by the then environmental minister Saifuddin Soz.²¹ The stand taken by the Indian delegation at the Kyoto meeting at COP-3 was by and large influenced by CSE's work.

Again in the run up to the October 1998, COP-4 session at Buenos Aires, CSE²² wrote to the Prime Minister, Vajpayee stating that India should be well prepared in the session to protect the current and future economic rights of its people, and to present a strategy that

¹⁹ Ibid 227

²⁰ CSE, India's position on climate change at Kyoto, (New Delhi), letter to Prime Minister, I. K. Gujral, 1997.

²¹ PM has supported the Commonwealth Communiqué largely because he was keen that India should work with US. When British Deputy Prime Minister John Prescott rang up PM Gujral on the last day of the negotiations in Kyoto to ask India to take soft line, Gujral actually rang up the Indian delegation reported that the environment Minister, Saifuddin Soz, decided to ignore the PM's advice and instructed his delegation to take firm stand. Anil Agarwal in *Down to Earth*, January 15, 1998 (editorial).

²² Ibid p. 45

protects the global ecology. And argued that the southern countries cannot forsake the rights of its current and future generations to grow economically, by occupying undue constraints on the use of the energy. The CSE also briefed the then environment minister Suresh Prabhu on these issues.

TERI

TERI is another major non-state organization that has made an impact on the union government or MOEF decision-making. TERI is a major, professional non-profit research institute with nearly five hundred professionals, TERI gets its funding in the form of sponsorship like the World Bank, UNEP, EC, USAID, GEF, UNPF, UNIDO, ADB, Rockefeller Foundation, Mac Arthur Foundation and the Canadian International Development Agency. Also it does consultancy work to obtain funding for the organization²³ (interview). TERI is one of the first developing country institutions that have been working on climate change related matter since the late 1980's.

A dynamic and flexible organization with a global vision and local focus, TERI was established in 1974. While in the initial period the focus was mainly on documentation and information dissemination activities, research activities in the fields of energy, environment, and sustainable development were initiated towards the end of 1982. The genesis of these activities lay in TERI's firm belief that efficient utilization of energy, sustainable use of natural resources, large-scale adoption of renewable energy technologies, and reduction of all forms of waste would move the process of development towards the goal of sustainability.

A unique developing country institution, TERI is deeply committed to every aspect of sustainable development. From providing

²³ Interview with Ms. Neelam Singh, CSE , dated ,June 12 , 2002

environmental-friendly solutions to rural energy problems to helping shape the development of the Indian oil and gas sector from tackling global climate change issues across many continents to enhancing forest conservation efforts among local communities; from advancing solutions to growing urban transport and air pollution problems to promoting, energy efficiency in the Indian industry, the emphasis energy efficiency in the Indian industry, the emphasis has always been on finding innovative solutions to make the world a better place to live in. However, while TERI's vision is global its roots are firmly entrenched in Indian soil. All activities in TERI move from formulating local and national level strategies to suggesting global solutions to critical energy and environment related issues. Dr. R.K. Pachuri who is the Director of TERI is associated with many committees of GOI (Government of India), and is Vice chairman of IPCC. He has been active in several international forums dealing with the subject of climate change and its policy dimensions.

TERI-Strategy to influence the government

Since the late eighties, TERI through its research activities have undertaken several projects to estimate India's GHG's emission; the impacts on climate change, the options for mitigation of such emissions. The issue of JI/AIJ/CDM has also been part of TERI's activities. The most important issue related to the working of the AIJ/CDM mechanism is how the partners find each other and negotiate a mutually beneficial agreement. Further, there is bound to be some asymmetry in the information sets available to the investing and the host parties. Industries in the developing countries are usually not very familiar with the abatements cost curves, and thus cannot estimate how much the investing countries would be willing to pay for the abatements. On the other hand, the investors do not know enough about the installation commissioning and operational costs of

mitigation projects in the developing countries. Also, all the parties may not have adequate information about the developments at the FCCC negotiation process, as well as the opportunities existing for AIJ, and generate proposals accordingly.

It is with this rationale, therefore that TERI established TREAT, a centre which at present focuses specially on AIJ/CDM activities, TERI: TERI Repository of Environmental Activities and Trade. (TREAT)²⁴ is expected to function as an information support and clearing house, in addition to developing and assisting in implementation of AIJ options in India. The main activities of TREAT can be divided into two broad categories, namely general and project related.

General Activities:

Awareness creation and information dissemination in order to boost the AIJ programme in India. This would be done through conferences workshops, brochures, personal meeting etc. in this regard, a database has been prepared, which provides information in AIJ/CDM, including the latest developments in climate change negotiations and other international forums, planned and ongoing projects around the world, AIJ/CDM programmes, GHG mitigation technologies and other related information.²⁵ The main target groups and industrial and business houses, chambers/association of commerce, and concerned governments ministries and NGOs.

International linkages and networking

This activity would be geared mainly towards the many embassies and high commission based in India and institutions and governments bodies. The major aim of this activity would be to facilitate a match between the “investors” and the “hosts”, and exchange of information

²⁴ Quote from TERI ‘write up on the TREAT Programme; undated.

²⁵ <http://www.teriin.org.html>.

between prospective participants. Analyzing the project, and providing policy recommendations regarding the working of pilot phase of AIJ. This would not only help in shaping the AIJ/CDM programme in India but also provide recommendations to develop international rules for the mechanism.²⁶

Project Related Activities

The project related category support activities and technical assistance. These service related to specific projects would be provided to the partners in order to ensure that mutually beneficial agreements are negotiated while keeping in mind the ultimate objective of reducing GHG emissions. This is done, while maintaining the transparency and objectivity of TREAT, the transparency and objectivity of TREAT, and does not in any way reflect the private interests of any of the parties involved. The service provided includes the following:

- Assistance in developing credible proposals. The complexities associated with developing AIJ/CDM proposal includes developing base lines and system boundaries, estimating the GHG offsets, working out the abatement costs, and ensuring that the additionality and other criteria of AIJ/CDM are met.
- Helping in environmental negotiations between the potential partners.
- Management Information System. Once, the project has been implemented, TREAT would assist in monitoring and verification of the GHG reductions and, at a later stage, in reporting of the project to the FCCC- Secretariat.

²⁶ Ibid.

Activities

As part of TREAT, TERI recognized a series of workshops on AIJ of Greenhouse Gas Abatement:

Opportunities and issues targeted mainly at the corporate sector. These workshops were held at various places in India. The workshops brought out the willingness of the corporate sector to exploit the opportunities available under AIJ/CDM, and they expressed the need for better policies to facilitate this process.

Aims

Targeted mainly at the corporate sector with the following objectives.

- Creating awareness
- Discussing AIJ/CDM related opportunities and Issues
- Generating specific project ideas key issues raised in the workshop
- Selection of baseline criteria.

The baseline criteria is one of the critical components in the development of AIJ proposals. The baseline decides the amount of carbon dioxide abated and the incremental cost. This can be at the project level as well as the national level. Although there was a general consensus that the baselines have to be developed on a project basis, a number of related issues emerged from the discussions. There were several suggestions regarding selection of the baseline technologies. One of the suggestions was that the government should fix a minimum cut-off level for technologies in the industrial sector. Only the technologies above this minimum level should qualify as AIJ projects. All the participants felt that the baseline issue needs to be debated further and clarified.

“Additionality” criteria. There are three kinds of additionality under AIJ.

- *Financial additionality.* The funding for AIJ project should be in addition to the ODA or GEF funding
- *Project additionality.* The AIJ project would not have been implemented in a normal course due to financial technological, or institutional constraints.
- *Offset additionality.* The AIJ project should bring about GHG reductions over and above that baseline.

The concept of additionality is important for all AIJ/CDM projects. The additionality concept addresses an essential question as to why the project should be considered under AIJ/CDM. It is normally expected that all economically viable projects will come through under the providing circumstances. For a project to qualify under the AIJ/CDM mechanism the project had to satisfy one or more of the above mentioned additionality criteria. Most participants felt that more discussion was required to bring out the issues clearly. Although the government of India has drafted a set of criteria on the basis of which a project is accepted as an AIJ project, its stand on CDM is still ambiguous;

TERI & CSE – A Comparative Analysis

CSE and TERI share the same position on global climate change from a larger perspective along with the Indian Government, that industrialized countries must be held responsible for their emissions which are linked to their unsuitable pattern of consumption. These two organizations also held the view that the climate change negotiations are linked to North-South divide. Another common issue that TERI-CSE agrees upon is that the Indian government needs to take a proactive stand in climate change issue and the government

should tread carefully as India could be subjected to new obligations in terms of further international agreements and which might not anger well for the country politically as well as for its economic development. However CSE and TERI apart from the above broad common goals differs quite a bit in terms of strategy and other issues. Their differences in terms of say the nature of these organizations, their core area of focus, on their strategy have been discussed in the above sections of this chapter.

However the major differences between the two organizations are in regards to the international instruments of the FCCC, in the area of the AIJ programme there are differences between the two. TERI has taken AIJ on board as yet another mechanism to obtain crucial foreign finance for its research into alternative energy source. TERI has done a lot of work in this area and has created the TREAT, which will function as an information support and cleaning house for domestic AIJ projects.

Unlike TERI, CSE is not in favour of the AIJ mechanism. CSE believes that mechanism like AIJ are short-term arrangement and will benefit only the developed countries CSE argues that such arrangement would not reduce global emissions and pressure would recur for the developing countries to cut back their carbon dioxide emissions.

In spite of all these differences both TERI and CSE definitely enjoys wide recognition among the officials of the Indian government TERI acts as a knowledge provider in matters related to energy to the government. TERI has adopted a silent strategy to influence the government, mainly through its research activities. That is by making available its research findings. It makes an attempt to influence government official; its interest can be made out in its research that developing countries have to regulate its emissions level in same way.

Following its silent and quiet strategy, TERI does not aim to influence the position of government politically. Neither does it criticize the government stand publicly; also TERI does not issue position paper at international negotiations like many NGOs do. In the run up to the preparations to the UNCED conference in 1992 on the Earth Summit, the MOEF finding its knowledge base inadequate on climate change called upon CSE and TERI to draft an initial Indian position on climate change. The ministry gave TERI a grant to cover professional and analytical support on the issue. TERI is also represented in the IPCC. The ministry-received inputs on the IPCC meetings from TERI. These organizations have been able to make quite an impact on the Indian government's position on climate change issues. Prior to the Earth Summit the stand taken by the Indian government has more or less been informed by this organization, as both possessed up to date information on the scientific and political aspects on climate change.

CHAPTER 5

CHAPTER V

CONCLUSION

TRADITIONS AND VALUES IN INDIA'S ENVIRONMENTAL POLICY

India's foreign environmental policy has been mainly shaped in large measures by two main sources. First, orthodoxy, established by Mrs Indira Gandhi, regarding the way in which environmental problems in poor countries need to be viewed, and the legacy of India's foreign policy.

Prime Minister Indira Gandhi's address to the 1972 UN conference on Human Environment in Stockholm established, an orthodoxy that has prevailed ever since in India's foreign environmental policy. International support also helped to sustain the orthodoxy that emerged from Mrs. Gandhi's views. These views reflected, and were reinforced by Third World views on environment and development. Mrs. Gandhi's views also gained support from liberal elements in the North who accepted as legitimate, priority that developing countries accorded to development. Thus, the wide publicity given to Mrs. Gandhi's Stockholm speech reinforced the Indian government's espousal of the orthodoxy that emerged from it.

The traditions of foreign policy have had a major influence on India's foreign environmental policy, because of the Congress Party rule for about forty-five years since independence in 1947 and the leadership of the congress party by three generations of the Nehru-Gandhi family. Foreign Policy traditions have also been maintained because they are believed to have served the country well, and have enjoyed strong cross party support. This is illustrated by the lack of change in foreign policy despite changes in governments. Finally, the MEA's lack of environmental expertise and more generally, its deficiencies in terms of institutionalised forward thinking and policy planning, have made it particularly prone to fall back on tradition as a guide to policy. Indeed,

many observers agree that few of India's major actions in the field of foreign affairs since 1971 have resulted from long-term strategic planning.

In the policy making process of India there is extremely limited impact of pluralist inputs. Domestic non-state actors such as the media, NGOs and business interests generally had very little influence over policy formation. Therefore the government is left with considerable degree of autonomy in policy making.

India's delegations to the international negotiations on climate change are normally composed of middle and top-level officials from the MOEF. These officials accompanied by a numbers of other representatives from India's Permanent Mission to the United Nations, and in addition there are often one or two representatives from the Ministry of External Affairs' United Nations Division. The UN Division of the MEA is one of the nine functional divisions. It deals with all aspects of India's relation with the UN. The Division is an intermediary agency between India's permanent Mission of UN and the political leadership whom it helps in arriving at decisions. However, during the UNCED preparations, MEA's senior officials led delegations to the INC. But with the departure of this official from the ministry, the MEA lost its leadership and the MOEF took over. At present, India's delegations to climate change negotiations are usually led by the minister of the Environment or a top level official from MOEF.

Prior to UNCED the MOEF and MEA had a dispute over who was to head India's delegations and be in charge of shaping the national position. The MEA had the upper hand during the INC negotiations; but since Rio the MOEF has been the ministry in charge of the Indian national position. The MEA's task is to ensure that, the MOEF position on climate change does not take the Indian government beyond its general line of foreign policy.

The MOEF receives technical support from a wide range of ministries i.e., Ministry of Power, the Ministry of Coal and Ministry of Non-Conventional Energy Resource, and the technical inputs provided by Ministry of Science and Technology and Ministry of Finance. The participation of ministry simply fulfils the functions of providing information relating to technical matters. But the actual policy making process lies with MoEF, only.

During the initial policy making on climate change the MOEF leaned heavily on the advice of a number of environmental organisation and climate change experts. The MOEF had little knowledge of the international or domestic issues at stake. NOG's had very limited influence, because very few NGOs which possess at least some of the resources and the interests made significant contribution to Indian policy.

In the climate change issues, the CSE and TERI appeared to have made substantial contributions. The CSE's robust criticism of the WRI's 1990 report encouraged the government to reject the WRI's statistics and demand the application of the principle of per capita equity in green house gas allocations. The CSE however highlighted problems in the methodology adopted by the WRI. It criticised the WRI for focusing on current annual emissions, rather than cumulative emissions; by neglecting the past, the WRI exaggerated the South's responsibility for climate change. The CSE also pointed out that by focusing only on their short term heating effect, the WRI was ignoring the various atmospheric residence times and long term warming effect of greenhouse emissions; consequently, the WRI report was biased against countries that produced relatively large quantities of short lived green house gases, as did many developing countries. On the issue of sinks, the CSE argued, the natural sinks ought to be allocated such that each nation was credited with its entire national sinks as

well as a share of the global sinks based on its share of world population. And the CSE also criticized, third world representatives who had unquestionably accepted the statistics and analysis of the WRI. Thus the CSE report impressed the Indian government and provided the negotiations with some ammunition to attack the WRI report.

TERI's main contribution was technical evaluations of the costs of responding to climate change; its confirmation that these costs were high reinforced the government's determination to avoid them and to obtain assistance from the North.

In general, most NGOs preferred to concentrate their energies on domestic situation and ignored the government's foreign environmental issues because of the scale of domestic environmental problems, such as lack of clean drinking water and soil erosion. And merely in terms of participation in international meetings, prominent NGOs like CSE and TERI often lacked the funds to sponsor the participation of their representatives. Further more lack of access to information, also constrained the ability of NGOs to influence government policy on global environmental issues. The media's influence over government policy was also minimal as a leading environmental journalist admits. Ozone depletion was the only issue to receive a certain amount of critical media coverage, particularly in the early stages when the governments lack of policy was evident. As far as the climate change issues were concerned, there was hardly any sustained, critical commentary in the media, the only source of information for NGOs was government. But the government consistently maintained that it could not be expected to go out of its ways to provide information to NGOs.

Thus, one thing was clear particularly with climate change issue, that the government did not wish to encourage public debate lest this

divert attention from other pressing problems. The government had no resources to allocate to the climate issue, its entire environmental budget already proving insufficient to cope with existing environmental problems. The most it was prepared to advocate was 'no-regrets' domestic policy, taking actions to deal with climate change only if they could be justified on other ground too. Thus explanations regarding the limited influence of NGOs on Indian policy must also take account of the government's secretiveness with regard to its policy. The government did not keep NGOs informed on a regular basis about the progress of negotiations, nor did it generally consult them on policy. This behaviour was primarily the result of the bureaucracy's traditional inclination, to restrict access to policymaking to as few outsiders as possible, successive environment ministers, moreover, reposed total trust in bureaucracy, and did little to relax the latter's grip on policy-making.

Besides, NGOs and the media, business interests constituted another group, which had very limited impact on government policy. This was due to the indications that the impact of policies under the climate convention on business community in India would be negligible. Greenhouse emission curbs were countries, simply not on the agenda for developing countries, and the conventional wisdom was that they would not be for several decades. Therefore, while the business community supported the government's policy of rejecting curbs on Greenhouse gas production, and joined calls for the transfer of environmentally friendly and energy-efficient technology from the North, it had little influence as such on the formulation of Indian policy.

Thus limited domestic political interests in global environmental issues and the limited impact of non-state actors left the government with considerable degree of autonomy in policy formulation.

The different global environmental negotiations revealed impressive consistency in the character of Indian interests and preferences, attributable to the construction of Indian policy around traditional foreign environmental policy concepts such as sovereignty, equity, the poverty is (the greatest polluter), orthodoxy and Third World solidarity. These were key criteria employed by the Indian government to assess the outcome of each global environmental negotiations, namely the extent to which India had evaded international commitments and the degree to which the flow of financial and technological resources to India were going to be enhanced, Indian interests and preferences can be seen as encompassing at least two important categories of goals defensive goals to do with preserving sovereignty, ensuring equity, and reducing vulnerability; and more assertive goals, to do with securing economic benefits and exercising more power in the international system. India's defensive sovereignty concerns can be categorised into these types. That there should be no firm obligation on it; that there should be no international control on it; and that there should be no market interference in the principles governing the operation of India's environmental agreements. India's rejection of firm obligations was reflected in its insistence on its sovereign right to establish its own environmental priorities and its rejection of outside interference in its policies. Indian policy alleviation through rapid economic development was a more pressing priority in the short term than global environmental protection.

Besides the defensive goals Indian policy also encompassed more assertive goals to do with securing economic benefits and exercising more power in the international system. Economic considerations played a very important role in Indian policy, reflecting the traditional prioritisation of development over the environment. Thus in the climate change issue, India opposed any suggestion that it restrain the

growth of its green house emission. A sustained increase in energy production and use was to play a controlled role in fuelling its economic development. Although non-conventional and renewable sources of energy and nuclear power to play important parts in this regard, the predominant role was to be that of fossil fuel-bases sources of energy. Particularly petroleum and coal. In addition with a very low per capita consumption of GHG as compared to the world average, and an already substantial commercial deficit, India could well expect to see its emission increase substantially in the future. Consequently Indian policy makers were not prepared to countenance any controls on India's GHG production.

Indian policy also displayed a small but significant desire to exercise more power in the international system. This was reflected in Indian efforts to reduce the control of donor countries over the financial mechanics established under the different environmental conventions. These were partly motivated by equity concerns. But in addition, they also owned to resentment of the control exercised by the North over the lending policies of international financial institutions, notably the World Bank and the IMF. This resentment increased in Indian policy-making, when India was itself forced to obtain World Bank and IMF endorsement of its structural adjustment programme in 1991. Nevertheless, it pressed demands during the different negotiations that each mechanism operate under the authority of the parties to its parent convention, and that the governance of each be equitable balanced between developed and developing countries. It opposed the GEF because of its lack of these features and intimate links with the World Bank.

During the ozone negotiations, when India's economic situation was relatively stable, policy makers were apprehensive about possible trade restrictions that might be imposed by the North if India stayed out of

Montréal Protocol. The economic crisis of 1991, increased the apprehensions. Due to the strong backing by North on different global environmental negotiations, India was not inclined to look upon non participation as a good option. At the same time an incentive for participation was provided by North. The elements constituted a significant source of bargaining power for India and other Southern countries. Thus whereas in the ozone issue India allowed the North to set the agenda and then fought a rearguard action to secure its interests, in the climate change India did not repeat the same mistake and participated in negotiations from the start.

The coordination and alliance of policy with the coalition of developing countries, was the basic strategy that India adopted in global environmental negotiations to secure its interest because of the tradition of Third World Solidarity in Indian Foreign Policy.

In accordance with the importance of Third World Solidarity in its policy, India played a leadership role in articulating Third World concerns and uniting developing countries around a common agenda. India's used to good effect such as the NAM, the Commonwealth in the first and second ministerial conferences of developing countries, on environment and development at Beijing and Kuala Lumpur respectively, meetings of the environment Minister of SAARC, G-15 meetings, and a large number of G-77 meetings during the various negotiations on global environmental issues as well as during meeting of UNCED. India also organised the first significant political conference of developing countries on global environmental issues, the April 1990 conference of Select Developing Countries on Global Environmental Issues.

Other developing countries generally supported most of India's defensive and assertive goals: However, in the climate change issue, there were important divisions within the South over the question of

obligations of the developing countries. The AOSIS countries were anxious to see both North and South adopt strong controls on GHG production. The Latin American states tended to favour some obligations, but on a differentiated basis from the North. Most of the African and Asian countries rejected these obligations. These divisions could not be resolved, but were not allowed to disrupt Southern unity over other issues. G-77 statements, meanwhile, tended to carefully avoid elaborating on the question of developing countries obligations.

The majority of developing countries emphasised the North's main responsibility for climate change and were keen to see the North adopt targets to control its GHG emissions. However, the OPEC states did not want such controls to apply to fossil fuels, especially petroleum, least their exports suffer. They therefore kept stressing the scientific uncertainties involved in understanding climate change, and cautioned against participate action. When the EC approved in May 1992 a draft directive to tax energy in order to combat global warming, the OPEC states came out vehemently against the tax. The OPEC states feared, the tax would reduce the demand for oil and cause investment in oil sector to decline. The differences could not be resolved and undermined to some extent the South's position in the climate change issue.

The developing countries were also divided over an appropriate concept to guide the allocation of GHG emission rights amongst states. Developing countries like India and China favoured the concept of per capita equity. Other developing countries, with smaller populations and rapidly growing energy requirements, were ambivalent about the concepts utility. Oil producing countries like Saudi Arabia were strongly opposed to the concept and thus no agreement could be reached on the subject.

Thus, despite significant differences over a few of India's goals, the developing countries were generally united in their approval for the others. Hence, India found it relatively easy to generate Third World solidarity in support of most of its interests and preferences.

In the ozone issue, the threat of non-cooperation of major developing countries like India and China was creditable. But in the climate change issue, the threat of non-cooperation was not seen as credible option by many developing countries because of their vulnerability to Northern pressure. India, for instance was in a much weaker economic position than it had been during the ozone negotiations, and Indian policy makers, fearing Northern exploitation of India's economic differentiates, stressed moderation in India's bargaining strategy. Division within the South over important issues like the obligations of developing countries, Northern commitments, and the allocation of green house emission rights, also would have reduced the credibility of a Southern threat of non cooperation. As far as public pressure in the North was concerned, unlike in ozone issue this was counterbalanced by pressure from a small group of skeptical scientists, as well as many industrial groups, economists and others, all of whom were worried by the costs of greenhouse emission reduction strategies and stressed caution and the need for more evidence about the actual nature of threats posed by climate change before any strong steps were taken. Indeed, relative differences in constraints imposed by these groups on different Northern governments also created divisions within the North. Although the South was able to secure some minor concession from the North in climate issue, it was unable to prevent poor overall outcome, mainly because of its inability to use good sources of bargaining power, namely the threat of non-cooperation, and its relative freedom from the constraints of public pressure.

APPENDIX

APPENDIX 1 : UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

The Parties of this Convention

Acknowledging that change in the Earth's climate and its adverse effects are a common concern of humankind,

Concerned that human activities have been substantially increasing the atmospheric concentrations of greenhouse gases, that these increases enhance the natural greenhouse effect, and that this will result on average in an additional warming of the Earth's surface and atmosphere and may adversely affect natural ecosystems and humankind,

Noting that the largest share of historical and current global emissions of greenhouse gases had originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs,

Aware of the role and importance in terrestrial and marine ecosystems of sinks and reservoirs of greenhouse gases,

Noting that there are many uncertainties in predictions of climate change, particularly with regard to the timing, magnitude and regional patterns thereof,

Acknowledging that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions,

Recalling the pertinent provisions of the Declaration of the United Nations Conference on the Human Environment, adopted at Stockholm on 16 June 1972,

Recalling also that States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental

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

Reaffirming the principle of sovereignty of States in international cooperation to address climate change,

Recognizing that States should enact effective environmental legislation, that environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply, and that standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries,

Recalling the provision of General Assembly resolution 44/228 of 22 December 1989 on the United Nations Conferences on Environment and Development, and resolutions 43/53 of 6 December 1988, 44/207 of 22 December 1989, 45/212 of 21 December 1990 and 46/169 of 19 December 1991 on protection of global climate for present and future generations of mankind,

Recalling also the provisions of General Assembly resolution 44/206 of 22 December 1989 on the possible adverse effects of sea-level rise on island and coastal area, particularly low-lying coastal areas and the pertinent provisions of General Assembly resolution 44/172 of 19 December 1989 on the implementation of the Plan of Action to Combat Desertification,

Recalling further the Vienna Convention for the Protection of the Ozone Layer 1985, and the Montreal Protocol on Substances that Deplete the Ozone Layer, 1987, as adjusted and amended on 29 June 1990,

Noting the Ministerial Declaration of the Second Climate Conference adopted on 7 November 1990,

Conscious of the valuable analytical work being conducted by many states on climate change and of the important contributions of the World Meteorological Organization, the United Nations Environment Programme and other organs, organizations and bodies of the United Nations system, as well as other international and intergovernmental bodies to the exchange of results of scientific research and the coordination of research,

Recognizing that steps required to understand and address climate change will be environmentally, socially and economically most effective if they are based on relevant scientific, technical and economic considerations and continually re-evaluated in the light of new findings in these areas,

Recognizing that various actions to address climate change can be justified economically in their own right and can also help in solving other environmental problems,

Recognizing also the need for developed countries to take immediate action in a flexible manner on the basis of clear priorities, as a first step towards comprehensive response strategies at the global, national and, where agreed, regional levels that take into account all greenhouse gases, with due consideration of their relative contributions to the enhancement of the greenhouse effect,

Recognizing further that low-lying and other small islands countries, countries with low-laying coastal, arid and semi-arid areas as areas liable to floods, drought and desertification and developing countries with fragile mountainous ecosystems are particularly vulnerable to the adverse effects of climate change,

Recognizing the special difficulties of those countries, especially developing countries, whose economies are particularly dependent on fossil fuel production, use and exportation, as a consequence of action taken on limiting greenhouse gas emissions,

Affirming that responses to climate change should be coordinated with social and economic development in an integrated manner with a view to avoiding adverse impacts on the latter, taking into full account the legitimate priority needs of developing countries for the achievement of sustained economic growth and the eradication of poverty,

Recognizing that all countries, especially developing countries, need access to resources required to achieve sustainable social and economic development and that, in order for developing countries to progress towards that goal, their energy consumption will need to grow taking into account the possibilities for achieving greater energy efficiency and for controlling greenhouse gas emissions

in general, including through the application of new technologies on terms which make such an application economically and socially beneficial,

Determined to protect the climate system for future generations,

Have agreed as follows:

Article 1: Definitions

For the purposes of this Convention:

1. "Adverse effect of climate change" means changes in the physical environment or biota resulting from climate change, which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare.
2. "Climate change" means a change of climate, which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.
3. "Climate system" means the totality of the atmosphere, hydrosphere, biosphere and geosphere and their interactions.
4. "Emissions" means the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and a period of time.
5. "Greenhouse gases" means those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation.
6. "Regional economic integration organization" means an organization constituted by sovereign states of a given region which has competence in respect of matters governed by this Convention or its protocols and has been duly authorized, in accordance with its internal procedures, to sign, ratify, accept, approve or accede to the instrument concerned.
7. "Reservoir" means a component or components of the climate system where a greenhouse gas or a precursor of a greenhouse gas is stored.

8. "Sink" means any process, activity or mechanism, which removes a greenhouse gas, an aerosol, or a precursor of a greenhouse gas from the atmosphere.
9. "Source" means any process or activity, which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere.

Article 2: Objective

The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

Article 3: Principles

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

1. The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.
2. The specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those Parties, especially developing country Parties, that would have to bear a disproportionate or abnormal burden under the Convention, should be given full consideration.
3. The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such

measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptations, and comprise all economic sectors. Effects to address climate change may be carried out cooperatively by interested Parties.

4. The Parties have a right to, and should, promote sustainable development. Policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programmes, taking into account that economic development is essential for adopting measures to address climate change.
5. The Parties should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all Parties, particularly developing country Parties, thus enabling them better to address the problems of climate change. Measures taken to combat climate change, including unilateral ones, should not constitute a means a arbitrary of unjustifiable discrimination or a disguised restriction on international trade.

Articles 4: Commitments

1. All Parties, taking into account their common but differentiated responsibilities and their specific national, and regional development priorities, objectives and circumstances, shall:
 - (a) Develop, periodically update, publish and make available to the Conference of the Parties, in accordance with Article 12, national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties;

- (b) Formulate, implement, publish, and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol and measures to facilitate adequate adaptation to climate change;
- (c) Promote and cooperate in the development, application and diffusion, including transfer, of technologies practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors;
- (d) Promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and ocean as well as other terrestrial, coastal and marine ecosystems;
- (e) Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods;
- (f) Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example, impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the equality of the environment , of projects or measures undertaken by them to mitigate or adapt to climate change;
- (g) Promote and cooperate in scientific, technological, technical, socio-economic and other research, systemic observation and development of data archives related to the climate system and intended to further

the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies;

- (h) Promote and cooperate in the full, open and prompt exchange of relevant scientific, technological, technical, socio-economic and social consequences of various response strategies;
- (i) Promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organizations; and
- (j) Communicate to the Conference of the Parties information related to implementation, in accordance with Article 12.

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

- (a) Each of these Parties shall adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs. These policies and measures will demonstrate that developed countries and taking the lead in modifying longer-term trends in anthropogenic emissions consistent with the objective of the Convention, recognizing that the return by the end of the present decade to earlier levels of anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol would contribute to such modification, and taking into account the differences in these parties' starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of these Parties to the global effort regarding that objective. These Parties may implement such policies and measures jointly with other Parties and may assist other Parties

in contributing to the achievement of the objective of the Convention and, in particular, that of this subparagraph;

- (b) In order to promote progress to this end, each of these Parties shall communicate, within six months of the entry into force of the Convention for it and periodically thereafter, and in accordance with Article 12, detailed information on its policies and measures referred to in subparagraph (a) above, as well as on its resulting projected anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol for the period referred to in subparagraph (a), with the aim of returning individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol. This information will be reviewed by the Conference of the Parties, at its first session and periodically thereafter, in accordance with Article 7;
- (c) Calculations of emission by sources and removals by sinks of greenhouse gases for the purposes of subparagraph (b) above should take into account the best available scientific knowledge, including of the effective capacity of sinks and the respective contributions of such gases to climate change. The Conference of the Parties shall consider and agree on methodologies for these calculations at its first session and review them regularly thereafter;
- (d) The Conference of the parties shall, at its first session, review the adequacy of subparagraphs (a) and (b) above. Such review shall be carried out in the light of the best available scientific information and assessments on climatic change and its impacts, as well as relevant technical, social and economic information. Based on this review, the Conference of the Parties shall take appropriate action, which may include the adoption of amendments to the commitments in subparagraphs (a) and (b) above. The Conference of the Parties, at its first session, shall also take decisions regarding criteria for joint implementation as indicated in subparagraph (a) above. A second

review of subparagraph (a) and (b) shall take place not later than 31 December 1998, and thereafter at regular intervals determined by the Conference of the Parties, until the objective of the convention is met;

(e) Each of these parties shall:

- Coordinate as appropriate with other such Parties, relevant economic and administrative Entrustment developed to achieve the objective of the Convention; and
- Identify and periodically review its own policies and practices which encourage activities that lead to greater levels of anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol than would otherwise occur;

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

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

3. The developed country Parties and other developed Parties included in Annex - II shall provide new and additional financial resources to meet the agreed full incremental costs incurred by developing country Parties in complying with their obligations under Article 12, paragraph I. They shall also provide such financial resources, including for the transfer of technology, needed by the developing country parties to meet the agreed full incremental costs of implementing measures that are covered by paragraph 1 of this Article and that are agreed between a developing country party and the international entity or entities, referred to in Article 11, in accordance with that Article. The implementation of these commitments shall take into account the need for adequacy and

predictability in the flow of funds and the importance of appropriate burden sharing among the developed country Parties.

4. The developed country Parties and other developed Parties included in Annex-II shall also assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects.
5. The developed country Parties and other developed Parties included in Annex II shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention. In this process, the developed country parties shall support the development and enhancement of endogenous capacities and technologies of developing country Parties. Other Parties and organizations in a position to do may also assist in facilitating the transfer of such technologies.
6. In the implementation of their commitments under paragraph 2 above, a certain degree of flexibility shall be allowed by the Conference of the Parties to the Parties included in Annex I undergoing the process of transition to a market economy, in order to enhance the ability of these Parties to address climate change, including with regard to historical level of anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol chosen as a reference.
7. The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under Convention related to financial resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.
8. In the implementation of the commitments in this Article, the parties shall give full consideration to what actions are necessary under the

Convention, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures, especially on:

- a) Small island countries;
- b) Countries with low-lying coastal areas;
- c) Countries with arid and semi-arid areas, forested areas and areas liable to forest decay;
- d) Countries with areas prone to natural disasters;
- e) Countries with areas liable to drought and desertification;
- f) Countries with areas of high urban atmospheric pollution;
- g) Countries with areas with fragile ecosystems, including mountainous ecosystems;
- h) Countries whose economics are highly dependent on income generated from the production, processing and export, and/or on consumption of fossil fuels and associated-energy intensive products; and
- i) Land-locked and transit countries.

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

- 9 The Parties shall take full account of the specific needs and special situations of the least developed countries in their actions with regard to funding and transfer of technology.
- 10 The Parties shall, in accordance with Article 10, take into consideration in the implementation of the commitments of the convention the situation of Parties, particularly developing country Parties, with economies that are vulnerable to the adverse effects of the implementation of measures to respond to climate change. This applies notably to Parties with economics that highly dependent on income generated from the production, processing and export and/or consumption of fossil fuels and associated energy-

intensive products and/or the use of fossil fuels for which such Parties have serious difficulties in switching to alternatives.

Article : 5 Research and Systematic Observation

In carrying out their commitments under Article 4, paragraph 1 (g), the Parties shall:

- (a) Support and further develop, as appropriate, international and intergovernmental programmes and networks or organizations aimed at defining, conducting, assessing and financing research, data collection and systematic observation, taking into account the need to minimize duplication of effort;
- (b) Support international and intergovernmental efforts to strengthen systematic observation and national scientific and technical research capacities and capabilities, particularly in developing countries, and to promote access to and the exchange of data and analyses thereof obtained from areas beyond national jurisdiction; and
- (c) Take into account the particular concerns and needs to developing countries and cooperate in improving their endogenous capacities and capabilities to participate in the efforts referred to in subparagraph (a) and (b) above.

Article 6: Education, Training and Public Awareness

In carrying out their Commitment under Article 4, paragraph 1 (i), the Parties shall:

- (a) Promote and facilitate at the national and, as appropriate, sub regional and regional levels, and in accordance with national laws and regulations and within their respective capacities:
 - (i) The development and implementation of educational and public awareness Programmes on climate change and its effects;
 - (ii) Public access to information on climate change and its effects;

- (iii) Public participation in addressing climate change and its effects and developing adequate responses; and
 - (iv) Training of scientific, technical and managerial personnel.
- (b) Cooperate in and promote, at the international level, and where appropriate using existing bodies:
- (i) The development and exchange of educational and public awareness material on climate change and its effects; and
 - (ii) The development and implementation of education and training Programmes, including the strengthening of national and the exchange or secondment of personnel to train experts in this field, in particular for developing countries.

Article 7: Conference of the Parties

1. A Conference of the Parties is hereby established.
2. The Conference of the Parties, as the supreme body of this Convention, shall keep under regular review the implementation of the Convention and any related legal instruments that the Conference of the Parties may adopt, and shall make, within its mandate, the decisions necessary to promote the effective implementation of the Convention. To this end, it shall:
 - (a) Periodically examine the obligations of the Parties and the institutional arrangements under the Convention, in the light of the objective of the Convention, the experience gained in its implementation and the evolution of scientific and technological knowledge.
 - (b) Promote and facilitate the exchange of information on measure adopted by the Parties to address climate change and its effects, taking into account the differing circumstances, responsibilities and capabilities of the Parties and their respective commitments under the Convention;
 - (c) Facilitate, at the request of two more Parties, the coordination of measures adopted by them to address climate change and its effects, taking into account the differing circumstances, responsibilities and

capabilities of the Parties and their respective commitments under the convention;

- (d) Promote and guide, in accordance with the objective and provisions of the Convention, the development and periodic refinement of comparable methodologies, to be agreed on by the Conference of the Parties, inter alia, for preparing inventories of greenhouse gas emissions by sources and removals by sinks, and for evaluating the effectiveness of measures to limit the emissions and enhance the removals of these gases;
- (e) Assess, on the basis of all information made available to it in accordance with the provisions of the Convention, the implementation of the Convention by the Parties, the overall effects of the measures taken pursuant to the Convention, in particular environmental, economic and social effects as well as their cumulative impacts and the extent to which progress towards the objective of the Convention is being achieved;
- (f) Consider and adopt regular reports on the implementation of the Convention and ensure their publications;
- (g) Make recommendations of any matters necessary for the implementation of the convention;
- (h) Seek to mobilize financial resources in accordance with Articles 4, paragraph 3, 4 and 5 and Article 11;
- (i) Establish such subsidiary bodies as are deemed necessary for the implementation of the convention;
- (j) Review reports submitted by its subsidiary bodies and provide guidance to them;
- (k) Agree upon and adopt, by consensus, rules of procedure and financial rules for itself and for any subsidiary bodies;
- (l) Seek and utilize, where appropriate the services and cooperation of, and information provided by, competent international organizations and intergovernmental and non-governmental bodies; and

(m) Exercise such other functions as are required for the achievement of the objective of the Convention as well as all other functions assigned to it under the Convention.

3. The Conference of the Parties shall, at its first session, adopt its own rules of procedure as well as those of the subsidiary bodies established by the Convention, which shall include decision-making procedures for matters not already covered by decision-making procedures stipulated in the Convention. Such procedure may include specified majorities required for the adoption of particular decisions.
4. The first session of the Conference of the Parties shall be convened by the interim secretariat referred to in Article 21 and shall take place not later than one year after the date of entry into force of the Convention. Thereafter, ordinary sessions of the Conference of the Parties shall be held every year unless otherwise decided by the Conference of the Parties.
5. Extraordinary sessions of the Conference of the Parties shall be held at such other times as may be deemed necessary by the Conference, or at the written request of any Party, provided that, within six months of the request being communicated to the Parties by the secretariat, it is supported by at least one third of the Parties.
6. The United Nations, its specialized agencies and the international atomic energy agency, as well as any State members thereof or observers thereto not Party to the convention, may be represented at sessions of the Conference of the Parties as observers. Any body or agency, whether national or international, governmental or non-governmental, which is qualified in matters covered by the Convention, and which has informed the secretariat of its wish to be represented at a session of the Conference of the Parties as an observer, may be so admitted unless at least one third of the Parties present object. The admission and participation of observers shall be subject to the rules of procedure adopted by the Conference of the parties.

Articles 8: Secretariat

1. A secretariat is hereby established.
2. The functions of the secretariat shall be:
 - (a) To make arrangements for sessions of the Conference of the Parties and its subsidiary bodies established under the Convention and to provide them with services as required;
 - (b) To compile and transmit reports submitted to it;
 - (c) To facilitate assistance to the Parties, particularly developing country Parties, on request, in the Compilation and communication of information required in accordance with the provisions of the convention;
 - (d) To prepare reports on its activities and present them to the Conference of the parties;
 - (e) To ensure the necessary coordination with the secretariats of other relevant international bodies;
 - (f) To enter, under the overall guidance of the Conference of the Parties, into such administrative and contractual arrangements as may be required for the effective discharge of its functions; and
 - (g) To perform the other secretariat functions specified in the Convention and in any of its protocols and such other functions as may be determined by the Conference of the Parties.
3. The Conference of the Parties, at its first session, shall designate a permanent secretariat and make arrangements for it functioning.

Article 9: Subsidiary Body for Scientific and Technological Advice

1. A subsidiary body for scientific and technological advice is hereby established to provide the Conference of the Parties and, as appropriate, its other subsidiary bodies with timely information and advice on scientific and technological matters relating to the Convention. This body shall be open to participation by all Parties and shall be multidisciplinary. It shall comprise government representatives competent in the relevant field of expertise. It

shall report regularly to the Conference of the Parties on all aspects of its work.

2. Under the guidance of the Conference of the parties, and drawing upon existing competent international bodies, this body shall:
 - (a) Provide assessments of the state of scientific knowledge relating to climate change and its effects;
 - (b) Prepare scientific assessments on the effects of measures taken in the implementation of the convention;
 - (c) Identify innovative, efficient and state-of-the-art technologies and know-how and advise on the ways and means of promoting development and/or transferring such technologies;
 - (d) Provide advice on scientific programmes, international cooperation in research and development related to climate change, as well as on ways and means of supporting endogenous capacity-building in developing countries; and
 - (e) Respond to scientific, technological and methodological questions that the Conference of the Parties and its subsidiary bodies may put to body.
3. The functions and terms of reference of this body may be further elaborated by the Conference of the Parties.

Article 10: Subsidiary Body for Implementation

1. A subsidiary body for implantation is hereby established to assist the Conference of the Parties in the assessment and review of the effective implementation of the Convention. This body shall be open to participation by all Parties and comprise government representatives who are experts on matters related to climate change. It shall report regularly to the conference of the Parties on all aspects of its work.
2. Under the guidance of the Conference of the Parties, this body shall:
 - (a) Consider the information communicated in accordance with Article 12, paragraph 1, to assess the overall aggregated effect of the steps taken by

the Parties in the light of the latest scientific assessments concerning climate change;

- (b) Consider the information communicated in accordance with Article 12, paragraph 2, in order to assist the Conference of the Parties in carrying out the reviews required by Article 4, paragraph 2 (d) ; and
- (c) Assist the Conference of the Parties, as appropriate in the preparation and implementation of its decisions.

Article 11: Financial Mechanism

1. A mechanism for the provision of financial resources on a grant or concessional basis, including for the transfer of technology, is hereby defined. It shall function under the guidance of and be accountable to the Conferences of the Parties, which shall decide on its policies, programme priorities and eligibility criteria related to this Convention. Its operation shall be entrusted to one or more existing international entities.
2. The financial mechanism shall have an equitable and balanced representation of all Parties within a transparent system of governance.
3. The Conference of the Parties and the entity or entities entrusted with the operation of the financial mechanism shall agree upon arrangements to give effect to the above paragraphs, which shall include the following:
 - (a) Modalities to ensure that the funded projects to address climate change are in conformity with the policies, programme priorities and eligibility criteria established by the Conference of the parties;
 - (b) Modalities by which a particular funding decision may be reconsidered in light of these policies, programme priorities and eligibility criteria;
 - (c) Provision by the entity or entities of regular reports to the Conference of the Parties on its funding operations, which is consistent with the requirement for accountability set out in paragraph 1 above; and
 - (d) Determination in a predictable and identifiable manner of the amount of funding necessary and available for the implementation of this

Convention and the conditions under which that amount shall be periodically reviewed.

4. The Conference of the Parties shall make arrangements to implement the above-mentioned provisions at the first session, reviewing and taking into account the interim arrangements referred to in Article 21, paragraph 3, and shall decide whether these interim arrangements shall be maintained. Within four years thereafter, the Conference of the Parties shall review the financial mechanism and take appropriate measures.
5. The developed country Parties may also provide and developing country Parties avail themselves of, financial resources related to the implementation of the Convention through bilateral, regional and other multilateral channels.

Article 12: Communication of information related to implementation

1. In accordance with Article 4, paragraph 1, each party shall communicate to the Conference of the Parties, through the secretariat, the following elements of information:
 - (a) A national inventory of anthropogenic emission by source and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, to the extent its capacities permit, using comparable methodologies to be promoted and agreed upon by the Conference of the Parties;
 - (b) A general description of steps taken or envisaged by the Party to implement the Convention ; and
 - (c) Any other information that the Party considers relevant to the achievement of the objective of the Convention and suitable for inclusion in its communication, including if feasible, material relevant for calculations of global emission trends.
2. Each developed country Party and each other Party included in Annex I shall incorporate in its communication the following elements of information :
 - (a) A detailed description of the policies and measures that it has adopted to implement its commitment under Article 4, paragraph 2 (a) and 2 (b); and

- (b) A specific estimate of the effects that the policies and measures referred to in subparagraph (a) immediately above will have on anthropogenic emissions by its sources and removals by its sinks of greenhouse gases during the period referred to in Article 4, paragraph 2 (a).
3. In addition, each developed country Party and each other developed Party included in Annex II shall incorporate details of measures taken in accordance with Article 4, paragraphs 3, 4, and 5.
 4. Developing country parties may, on a voluntary basis, propose projects for financing, including specific technologies, materials, equipment, techniques or practices that would be needed to implement such project, among with, if possible, an estimate of all incremental costs, of the reductions of emissions and increments of removals of greenhouse gases as well as an estimate of the consequent benefits.
 5. Each developed country Party and each other Party included in Annex I shall make its initial communication within six months of the entry into force the Convention for that Party. Each party not so listed shall make its initial communication within three years of the entry into force of the Convention for that Party, or of the availability of financial resources in accordance with article 4, paragraph 3. Parties that are least developed countries may make their initial communication at their discretion. The frequency of subsequent communications by all Parties shall be determined by the Conference of the Parties, taking into account the differentiated timetable set by this paragraph.
 6. Information communicated by Parties under this Article shall be transmitted by the secretariat as soon as possible to the Conference of the Parties and to any subsidiary bodies concerned. If necessary, the procedures for the communications of information may be further considered by the Conference of the Parties.
 7. From its first session, the Conference of the Parties shall arrange for the provision to developing country Parties of technical and financial support, on request in compiling and communicating information under this Article, as well as in identifying the technical and financial needs

associated with proposed projects and response measures under Article 4. such support may be provided by other parties, by competent international organizations and by the secretariat, as appropriate.

8. Any group of Parties may, subject to guidelines adopted by the Conference of the Parties, and to prior notification to the Conference of the Parties, make a joint communication in fulfillment of their obligations under this Article, provided that such a communication includes information on the fulfillment by each of the these Parties of its individual obligations under the Convention.
9. Information received by the secretariat that is designated by a Party as confidential, in accordance with criteria to be established by the Conference of the Parties, shall be aggregated by the secretariat to protect its confidentiality before using made available to any of the bodies involved in the communication and review of information.
10. Subject to paragraph 9 above, and without prejudice to the ability of any Party to make public its communication at any time, the secretariat shall make communications by Parties under this Article publicly available at the time they are submitted to the Conference of the Parties.

Article 13: Resolution of Questions Regarding Implementation

The Conference of the Parties shall, at its first session, consider the establishing of a multilateral consultative process, available to Parties on their request, for the resolution of questions regarding the implementation of the Convention.

Article 14: Settlement of Disputes

1. In the event of a dispute between any two or more Parties concerning the interpretation or application of the Convention, the Parties concerned shall seek a settlement of the dispute through negotiation or any other peaceful means of their own choice.
2. When ratifying accepting/approving or acceding to the convention, or at any time thereafter, a Party which is not a regional economic integration organization may declare in a written instrument submitted to the Depositary that, in respect of any dispute concerning the interpretation

or application of the convention, it recognizes as compulsory ipso facto and without special agreement, in relation to any party accepting the same obligation:

- (a) Submission of the dispute to the intentional court of justice, and/or
- (b) Arbitration in accordance with procedures to be adopted by the Conference of the Parties as soon as practicable, in an annex on arbitration.

A Party which is a regional economic integration organization may make a declaration with like effect in relation to arbitration in accordance with the procedures referred to in subparagraph (b) above.

3. A declaration made under paragraph 2 above shall remain in force until it expires in accordance with its terms or until three months after written notice of its revocation has been deposited with the Depositary.
4. A new declaration, a notice of revocation or the expiry of a declaration shall not in any way affect proceedings pending before the international court of justice or the arbitral tribunal, unless the Parties to the dispute otherwise agree.
5. Subject to the operation of paragraph 2 above, if after twelve months following notification by one Party to another that a dispute exists between them, the Parties concerned have not been able to settle their dispute through the means mentioned in paragraph 1 above, the dispute shall be submitted, at the request of any of the parties to the dispute, to conciliation.
6. A conciliation commission shall be created upon the request of one of the parties to the dispute. The commission shall be composed of an equal number of members appointed by each party concerned and a chair jointly by the members appointed by each party. The commission shall render a recommendatory award, which the parties shall consider in good faith.

7. Additional procedures relating to conciliation shall be adopted by the Conference of the Parties as soon as practicable, in an annex on conciliation.
8. The Provisions of this Article shall apply to any related legal instrument which the Conference of the Parties may adopt, unless the instrument provides otherwise.

Article 15: Amendments to the Convention

1. Any party may propose amendments to the Convention.
2. Amendments to the Convention shall be adopted at an ordinary session of the Conference of the Parties. The text of any proposed amendment to the Convention shall be communicated to the Parties by the secretariat at least six months before the meeting at which it is proposed for adoption. The secretariat shall also communicate proposed amendments to the signatories to the Convention and, for information to the Depositary.
3. The Parties shall make every effort to reach agreement on any proposed amendment to the Convention by consensus. If all efforts at consensus have been exhausted, and no agreement reached, the amendment shall as a last resort be adopted by a three-fourth majority vote of the Parties present and voting at the meeting. The adopted amendment shall be communicated by the secretariat to the Depositary who shall circulate it all Parties for their acceptance.
4. Instruments of acceptance in respect of an amendment shall be deposited with the depository. An amendment adopted in accordance with paragraph 3 above shall enter into force for those Parties having accepted it on the ninetieth day after the date of receipt by the Depositary of an instrument of acceptance by at least three fourths of the Parties to the Convention.
5. The amendment shall enter into force for any other party on the ninetieth day after the date on which that Party deposits with the Depositary its instrument of acceptance of the said amendment.

6. For the purposes of this Article, "Parties present and voting" means parties present and casting on affirmative or negative vote.

Article 16: Adoption and Amendment of Annexes to the Convention

1. Annexes to the Convention shall form an integral part thereof and, unless otherwise expressly provided, a reference to the Convention constitutes at the same time a reference to any annexes thereto. Without prejudice to the provisions of Article 14, paragraph 2 (b) and 7, such annexes shall be restricted to lists, forms and any other material of a descriptive nature that is of a scientific, technical, procedural or administrative character.
2. Annexes to the Convention shall be proposed and adopted in accordance with the procedure set forth in Articles 15, paragraph 2, 3 and 4.
3. An annex that has been adopted to accordance with paragraph 2 above shall enter into force for all Parties to the Convention six months after the date of the communication by the Depositary to such Parties of the adoption of the annex, except for those Parties that have notified the Depositary, in writing, within that period of their non-acceptance of the annex. The annex shall enter into force for Parties which withdraw their notification of non-acceptance on the ninetieth day after the date on which withdrawal of such notification has been received by the Depositary.
4. The proposal, adoption and entry into force of amendments to annexes to the convention shall be subject to the same procedure as that for the proposal, adoption and entry into force of annexes to the Convention in accordance with paragraph 2 and 3 above.
5. If the adoption of an annex or an amendment to an annex involves an amendment to the Convention, that annex or amendment to an annex shall not enter into force until such time as the amendment to the Convention enters into force.

Article 17: Protocols

1. The Conference of the Parties may, at any ordinary session, adopt protocols to the convention.
2. The text of any proposed protocol shall be communicated to the Parties by the secretariat at least six months before such a session.
3. The requirements for the entry into force of any protocol shall be established by that instrument.
4. Only Parties to the Convention may be Parties to a protocol.
5. Decisions under any protocol shall be taken only by the Parties to the protocol concerned.

Article 18: Right to Vote

1. Each Party to the Convention shall have one vote, except as provided for in paragraph 2 below.
2. Regional economic integration organisations, in matters within their competence, shall exercise their right to vote with a number of votes equal to the number of their member States that are Parties to the Convention. Such an organization shall not exercise its right to vote if any of its member States exercises its right, and vice versa.

Article 19: Depositary

1. The Secretary-General of the United Nations shall be Depositary of the convention and of protocols adopted in accordance with Article 17.

Article 20: Signature

This Convention shall be open for signature by States Members of the United Nations or of any of its specialized agencies that are Parties to the Statute of the International Court of Justice and by regional economic integration organizations at Rio de Janeiro, during the United Nations Conference on Environment and Development, and thereafter at United Nations Headquarters in New York from 20 June 1992 to 19 June 1993.

Article 21: Interim Arrangements

1. The secretariat functions referred to in Article 8 will be carried out on an interim basis by the secretariat established by the General Assembly of the United Nations in its resolution 45/212 of 21 December 1990, until the completion of the first session of the Conference of the Parties.
2. The head of the interim secretariat referred to in paragraph 1 above will cooperate closely with the intergovernmental Panel on climatic change to ensure that the Panel can respond to the need for objective scientific and technical advice. Other relevant scientific bodies could also be consulted.
3. The Global Environment Facility of the United Nations Development Programme, the United Nations Environment Programme and the International Bank for Reconstruction and Development shall be the international entity entrusted with the operation of the financial mechanism referred to in Article 11 on an interim basis. In the connection, the Global Environment Facility should be approximately restructured and its membership made universal to enable it to fulfil the requirements of Article 11.

Article 22: Ratification, Acceptance, Approval or Accession

1. The Convention shall be subject to ratification, acceptance, approval or accession by States and by regional economic integration organizations. It shall be open for accession from the day after the date on which the Convention is closed for signature. Instruments of ratification, acceptance, approval or accession shall be deposited with the Depositary.
2. Any regional economic integration organization which becomes a Party to the Convention without any of its member States being a Party shall be bound by all the obligations under the Convention. In the case of such organizations, one or more of whose member States in a Party to the Convention, the organization and its member States shall decide on their respective responsibilities for the performance of their obligations under the Convention. In such cases, the organization and the member States

shall not be entitled to exercise rights under the Convention concurrently.

3. In their instruments of ratification, acceptance, approval or accession, regional economic integration organizations shall declare the extent of their competence with respect to the matters governed by the Convention. These organizations shall also inform the Depositary, who shall in turn inform the Parties, of any substantial modification in the extent of their competence.

Article 23: Entry into Force

1. The Convention shall enter into force on the ninetieth day after the date of deposit of the fiftieth instrument of ratification, acceptance, approval or accession.
2. For each State or regional economic integration organization that ratifies, accepts or approves the Convention or accedes thereto after the despite of the fiftieth instruments of ratification, acceptance, approval or accession, the Convention shall enter into force on the ninetieth day after the date of deposit by such State or regional economic integration organization of its instrument of ratification, acceptance, approval or accession.
3. For the purposes of paragraph 1 and 2 above, any instrument deposited by a regional economic integration organization shall not be counted as additional to those deposited by states members of the organization.

Article 24: Reservations

NO reservations may be made to the Convention.

Article 25: Withdrawal

1. At any time after three years from the date of which the Convention has entered into force for a Party, that Party may withdraw from the Convention by giving written notification to the Depositary.

2. Any such withdrawal shall take effect upon expiry of one year from the date of receipt by the Depositary of the notification of withdrawal, or on such later date as may be specified in the notification of withdrawal.
3. Any Party that withdraws from the Convention shall be considered as also having withdrawn from any protocol to which it is a Party.

Article 26: Authentic Texts

The original of this Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary General of the United Nations.

In witness whereof the undersigned, being duly authorized to the effect, have signed this Convention.

Done at New York this ninth day of May one thousand nine hundred and ninety-two.

Annex 1

Australia	Latvia*
Austria	Lithuania*
Belarus*	Luxembourg
Belgium	Netherlands
Bulgaria*	New Zealand
Canada	Norway
Czechoslovakia*	Poland*
Denmark	Portugal
European Economic Community	Romania*
	Russian Federation*
Estonia*	Spain
Finland	Sweden
France	Switzerland
Germany	Turkey
Greece	Ukraine*
Hungary*	United Kingdom of Great Britain and Iceland

Ireland	Northern Ireland
Italy	United States of America
Japan	

Annex II

Australia	Japan
Austria	Luxembourg
Belgium	Netherlands
Canada	New Zealand
Denmark	Norway
European Economic Community	Portugal
Finland	Spain
France	Sweden
Germany	Switzerland
Greece	Turkey
Iceland	United King of Great Britain and
Ireland	Northern Ireland
Italy	United States of America

* Country there are undergoing a process of transition to a market economy.

BIBLIOGRAPHY

PRIMARY SOURCES

Government of India Document

Department of Science and Technology. A Report of the Committee for Recommending Legislative Measures and Administrative Machinery for Ensuring Environmental Protection, New Delhi:DST,1980.

Joint Comminuque of the SAARC Minister of Environment New Delhi, April 9, 1992 Kuala Lumpur Declaration on Environment and Development, April 29, 1992.

Ministry of Environment and Forest (MOEF), Annual Report 1986-87 New Delhi: MOEF, 1987.

Ministry of Environment and Forests, Annual Report 1984-85, New Delhi, 1985.

MOEF 'Inter-Ministerial Meeting Regarding Matters Related to Beijing Ministerial Conference on Environment and Development', New Delhi: MOEF 10 May 1991.

MOEF, 'Greenhouse Effect and climate Change Issues for the Developing Countries', New Delhi: MOEF 5 April 1990.

MOEF, Annual Report 1987-88, New Delhi :MOEF, 1988.

MOEF, Annual Report 1988-89, New Delhi: MOEF, 1989.

MOEF, Annual Report 1989-90, New Delhi: MOEF, 1990

MOEF, Annual Report 1989-90.

MOEF, Annual Report 1991-92, New Delhi:MOEF, 1992.

MOEF, Annual Report 1991-92.

MOEF, Chairman's Summary, Conference of Select Developing Countries on Environmental Issues ,New Delhi, April 23-25,1990, New Delhi:MOEF,1990.

MOEF, Environment and Development:Traditions, Concerns and Efforts in India, New Delhi:MOEF, June 1992.

MOEF, Greenhouse Effect And Climate Change Issues for the Developing Countries. New Delhi:MOEF, 5 April, 1990.

MOEF, Second meeting of the EAC on Global Environmental Issue, New Delhi, 24 May 1990.

National Committee on Environmental Planning and Condition, Inaugural Function,(proceedings published by the department of science & technology, New Delhi),2 April 1972.

United Nations Documents

A Report by the World Resources Institute in collaboration with UNEP and UNDP : World Resources, 1994-95(New York: Oxford University Press) 1994.

FISCAL, 1994, (Washington D.C. The World Bank, 1994)

Global Environment Facility, Report by the Chairman to the May 1993 participants meeting, (Washington D.C., The World Bank, 1993)

Global Environment Facility: Independent Evaluation of the pilot phase, Washington D.C.: UNDP, and the World Bank, 1994.

Making Development Sustainable : The World Bank Group and the Environment ,

Monthly Report on World Bank- Implemented Global

Environment Facility Operations, (Washington D.C.,The World Bank, November -December 1993)

Multi-Lateral Treaties Deposited with the Secretary General, (New York, U.N. 1993)

The World Bank Annual Report 1998 (Washington D.C., The World Bank , 1998).

The World Bank and the Environment :FISCAL, 1993 (Washington D.C., The WorldBank, 1993)

UN, ECOSOC, E/446/Add.1,in ECOSOC, Official Records, Forty fifth Session, July 30, 1968.

UN, General Assembly Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the work of its Second Session, Held at Geneva from 19-28 June, 1991, A/Ac. 237-9, August19,1991.

UN, General Assembly, Official Records, Twenty-seventh Session, December 13,1967.

UN, General Assembly, Resolution 44/228, United Nations Conference on Environment and Development', December 22, 1989.

UN, Report of the Secretary General, E/4553, July 11,1968.

UN, Secretary General, Problems of the Human Environment, Report, E/4667, May 26, 1969.

UN, Year Book of the United Nations, 1972 New York, United Nations, 1975.

UNEP, Annual Report of the Executive Director 1991, Nairobi, UNEP, 1992.

UNEP, Na.78/5921-5000, Nairobi, 1979.

UNEP, Program Planning Country Report – India, 1968, MIMEO, Nairobi, UNEP.

UNEP/WMO, Ad hoc Working Group of Government Representatives to Prepare for Negotiations on a Framework Convention on Climate Change UNEP/WMO Prep/FCCC/LI/REPORT, Geneva, September 24-26, 1990.

UNEP: The Impact of Climate Change, Nairobi: UNEP 1993.

UNGA, Report of INC for FCCC on Climate Change on the work of its First Session, A/AC.237/6, March 8, 1991.

UNGA, Report of the INC for a FCCC on the work of its Fourth Session, Geneva, December 9-20, 1991, A/AC. 237/15, January 19, 1992.

UNGA, Report of the INC for a FCCC on the Work of its Third Session, Nairobi, September 9-20, 1991, A/AC 237/12, October 25, 1991.

UNGA, Resolution 2398 (XXIII) WCED, Our common future – Report of the World Commission on Environment and Development, Oxford: Oxford University Press, 1987.

United Nations Documents, A/AC. 237/ MISC. 20, February 28, 1992.

United Nations Documents, G.E.71-12626, June 30, 1971.

United Nations Environmental Programme (UNEP), Annual Report of the Executive Director —1988, Nairobi:UNEP.1989.

United Nations Framework Conventions on Climate Change 1992, (New York: U.N., 1992).

United Nations General Assembly, Matters Relating to Commitments : Criteria for Joint Implementation, A/Ac237/49, (New York , U.N., 1994)

WMO publication no. 537, Geneva: World Meteorological Organization. 1979.

WMO, 'The Declaration of the World Climate Conference', in WMO a Conference of Experts on Climate and Mankind, February 12-13, 1979.

WMO, Report of the Meeting of Government Representative : Draft Ministerial Declaration for the Second World Climate Conference,

WMO; World Conference on the Changing Atmosphere, World Meteorological Organisation (WMO), Report of the meeting of the Government Representative to Draft Ministerial Declaration for the Second World Climate Conference, Geneva: WMO, September 27-29, 1990.

World Resources Institute, World Resources, 1990-91, New York and Oxford : WRI in Collaboration with UNDP and UNEP: Oxford University Press.

BOOKS

Agarwal, Anil and Sunita Narain, *Global Warming in the unequal world: A case of Environmental colonialism*, (New Delhi: CSE, 1991).

Agarwal, Anil Sunita, Narain and Anju Sharma (ed), ' *Green Politics: Global Environmental Negotiations, Vol. I*. (New Delhi: CSE, 1999)

Agarwal, Anil Sunita, Narain and Anju Sharma (ed), ' *Green Politics: Global Environmental Negotiations, Vol. II*. (New Delhi: CSE, 2001).

- Agarwal, Anil and Sunita Narain, *Towards a Green World*, (New Delhi: CSE, 1992)
- Bhagwati, J., *India in Transition- Freeing the Economy*, (Oxford: Clarendon Press, 1993)
- Bhaskar, V, and Andrew, Glyn, *The North The South and the Environment: Ecological Constraints and the Global Economy*, (London: United Nations University Press, 1995).
- Brenton Tony, *The Greening of Machiavelli: The Evolution of International Environmental Politics*, (London: Earth Scan, 1994)
- Caldwell, Lynton Keith., *International Environmental Policy, Emergence and Dimensions*. (London: Duke University Press, 1987).
- Carroll, John E. (ed.), *International Environmental Diplomacy*, (Cambridge: Cambridge University Press, 1988).
- Chichilinsky, G., *Implementing a Global Abatement Policy*, (Paris : OECD, 1994)
- Choucri, Nazli, *Global Accord: Environmental Challenges and International Responses*, (Massachusetts: MIT Press, 1993)
- Coppel, J., *The Economics of Climate Change*, (Paris: OECD, 1994)
- D.Kay and K. Jacobson (eds.), *Environmental Protection: The International Dimension*, (Osmun: Allanheld, 1983).
- Darnbusc, Rudiger (ed.) *Global Warming: Economic Policy Response*, (Cambridge: The MIT Press, 1992).
- Dommen, Edward, *Fair Principles for Sustainable Development: Essays on Environmental Policy and Developing Countries*, (Aldershot: Edward Elgar Publishing Limited, 1993)

- Elliott, Lorraine., *The Global Politics of the Environment*, (New York: New York University Press, 1988).
- Ghosh, Prodipto, and Jyotsna Puri, *Joint Implementation of Climate Change Commitments: Opportunities and Apprehensions*, (New Delhi: TERI, 1994)
- Giambelluca and Henderson-Sellers (eds.), *Climate Change: Developing Southern Hemisphere Perspectives*, (John Wiley & sons Ltd. 1996)
- Gllantz, Michael H. (ed.), *Societal Responses to Regional Climatic Change*, (London: Westview Press, 1988)
- Gupta, Joyeeta, Richard Van der Wurff and Junne, 'Report, *International Policies to Address the Greenhouse effect*, (Amsterdam: University of Amsterdam, 1995).
- Gupta, Joyeeta., *The Climate Change Convention and Developing Countries: From Conflict to Consensus?*, (London: Kluwer Academic Publishers, 1997).
- Gupta, Sujata and R.K. Pachuri, *Global Warming and Climate Change: Perspective from developing countries*, (New Delhi: TERI, 1989).
- Houghton, John, *Global Warming: The Complete Briefing*, (U.K.: Cambridge University Press, 1997).
- J. Jaeger and H.L. Ferguson (eds.), *Climate change: Science, Impacts and Policy – Proceedings of the Second World Climate Conference* (Cambridge: Cambridge University, 1991).
- Jakobsen, Susanne, *International Relations Theory and the environment: A study of Brazilian and Indian Policy making on climate change*, (Denmark: Institute of political science, 1999).

Jepma, Catrinus J, ed., *Climate Change Policy: Facts, Issues and Analysis*, (United Kingdom, Cambridge University Press, 1998).

Khan Rahmatullah, "Legal and Institutional Issues Arising out of the Proposed Framework Convention on Climate change" in Yatendra Josho etc. (eds.), *Global climate change: Science Impacts and Responses*, (New Delhi: TERI, 1992).

Lee, Henry, *Shaping National Responses to Climate Change: A Post- Rio Guide*. (Washington, D.C, Island Press, 1995).

Lunde, Leiv, *Science or politics in the Global Green housed a Study of the development towards scientific consensus on climate change*. (London : Fridtjof Nansens Institute Oslo, 1991)

Miller Marian, A.,L., *The Third World in Global Environmental Politics*, (Buckingham: Open University Press, 1995).

Mintzer, Irving and Amber J. Leonard, eds., *Negotiating Climate Change :The Inside Story of the Rio Convention*, (Cambridge: Cambridge University Press 1994).

Murthy, C.S.R., *India's Diplomacy in the United Nations Problems and Perspectives*, (New Delhi: Concerns Books, 1993).

Nadel, S.S., (ed.) *Global Policy studies: international, Interaction Towards Improving Public Policy*,(London: Macmillan, 1991).

O.P. Dwivedi, *India's Environmental policies, Programmes and Stewardship*, (New York: St Martin's Press, 1997).

Parikh, Joyoti K., *Joint Implementation and Sharing Commitments: A Southern Perspective*, (Bombay: Indira Gandhi Institute of Development Research, 1993).

Parikh, Joyoti K., *What is India doing to minimise Greenhouse Gas emissions ?Policies. Programmes and Institutions*, (New Delhi: CSE, 1997)

Parikh, Jyoti, K. and Clupeper, Roy, (ed.), *Climate Change and North-South Cooperation: Indo-Canadian Cooperation in Joint Implementation*, (New Delhi: Tata Mc Graw Hill, 1997).

Paterson, Matthew, *Global warming and global politics*, (London: Routledge, 1996)

Prasad, Bimal (ed.), *India's Foreign Policy-Studies in continuity and change*, (Delhi: Vikas Publications, 1979).

Rajani, M.G., *Global Environmental Politics :India and the North-South Politics of Global Environmental Issues*, (New Delhi: Oxford University Press, 1997).

Riordan, T.O. (ed), *The Politics of Climate Change in Europe*, (London: Rout ledge, 1996).

Robert Bradnock, *India's Foreign Policy Since 1971*, (London: AIIA, 1990).

Rowlands, Ian H., *The Politics of Global Atmospheric Change*, (London: Manchester University Press, 1995).

Rowlands, Ian H. and Green Malory, ed., *Global Environmental Change and International Relation*, (London: Macmillan, 1992).

Saksena, K.D., *Environmental Planning Policies and Programmes in India*. (Delhi :Shipra Publications 1993).

Singh, Shekhar (ed.) *Environmental Policy in India*, (New Delhi: Indian Institute of Public Administration 1984).

Stewart Boyle & Jahn Ardill, *The Greenhouse Effect : A Practical Guide to the World's Changing Climate*, (Hodder & Stoughton: New English Library, 1989).

Tolba, Mostafa K., *Saving our Planet: Challenges & Hopes*, (London: Chapman & Hall, 1992).

Tolba, Mostafa K.,(ed.), *Evolving Environmental Perceptions: From Stockholm to Nairobi*, (London: Butterworths, 1989).

W. Rowland, *The Plot to Save the World*, (Toronto: Clark Irwin & Co., 1973).

White, Rodney R., *North South, and the Environmental Crisis*, (London: University of Toronto Press, 1993).

ARTICLES IN JOURNALS

'A Non Aggression pact with Nature,' *The Hindu*, June 3 , 1990.

'Conservation of Natural Wealth Most Essential, '*The Hindu*,' November 4,1989.

'Looming Menace to the ozone layers', '*The Hindu*', December 31,1987.

A Report " What Happened at Stockholm", *Science and Public Affairs*,: September 28, 1972, P.44

Agarwal, Anil. "The North-South Perspective: Alienation or Interdependence?", *Ambio*, Vol. 19, No. 2, April, 1990, pp. 94-96.

Anil Agarwal, 'Their capability to pay Arises out of their high level of exploitation, interview with Kamalnath, in *Down to Earth*, Vol 1, No. 2, June 15, 1992, p. 21.

Annon, South-South Solidarity, *South Link News Letter*, Vol-II, No. 2-3, July October, 1992, New Delhi.

Brown, Neville, "Climate, Ecology and International Security" . *Survival*, Vol.31, No.6, November/December 1989, pp.519-532.

C.D Keeling., A.F. Carker & W.G., Mook, "Seasonal, Latitudinal & Secular Variations in the Abundance & Isotopic Ratios of Atmosphere CO₂". *Journal of Geophysical Research*, Vol. 89. 1984, pp. 4615-28.

Christina Lamb, "US Presence at Earth Summit Vital Collar", *The Financial Times*, (London), March 27, 1992.

Conservation Foundation ; Implication of Rising Carbon dioxide concentration of the Atmosphere. The conservation Foundation, New York, 1963.

CSE, Director's Report, 1997-99.

CSE, Statement of the South Asian NGO Summit, New Delhi, 17-19 February 1992.

Derek , Paul, "Climate Change: Facts, Strategies, Choices and Innovations", *Social Indicators Research*, Vol. 42, No.2, October 1990, pp. 117-49.

Dwivedi, O.P. 'India: Pollution control policy and programmes', *International Review of Administrative Sciences*, Vol. 43, No. 2, 1977, pp. 123-33.

Gammon, R.H. E.T. Sundquist, and P.J. Fraser, "History of Carbon dioxide in atmosphere. In J.R. Trabalka (ed.) Atmospheric carbon dioxide and global carbon cycle. *Report DOE/Er-0239*. Washington D.C. *US Department of Energy*, 1985, pp. 25-62.

Gleick, Peter, "Climate Change and International Politics: Problems Facing Developing Countries", *Ambio*, Vol. 18, No. 6, 1989, pp 333-339.

Grubb, Michael and Farhana, Yamin, "Climatic Collapse at The Hague: What happened and where do we go from here?" *International Affairs*, Vol. 11 No. 2 April 2001, pp. 261-76.

Grubb, Michael "The Berlin Climate Conference: Outcome and Implications", *Feem Newsletter*, No. 2, (Grafiche Pinelli Milano), 1995, pp. 16-20

Hart, David M. and David G. Victor, "Scientific elites and the making of U.S Policy for climate change research, 1957-74", *Social Studies of Science*, Vol. 23, 1993, pp. 666-9.

Helmen, UDI, "Sustainable Development : Strategies for Reconciling Environment and Economy in the Developing World". *The Washington Quarterly*, (Washington D.C. Autumn 1995) pp. 189-207.

Henry D. Jacoby and David M. Reiner "Getting Climate Policy on the Track after The Hague, *International Affairs*, vol. 77 no. 2, April 2001 pp. 297-312.

Henry, Ellerman and Jacob Henry, "Climate Change: Who Really Wants a Climate Change Agreement anyway?" *World Today*, Vol. 57, No. 7 July 2001, pp. 23-24.

Hilary, French, "Global Environmental Facility Replenishment" *World Watch*, Vol. 7, No. 4 (Worldwatch Institute , Washington, D.C., July-Aug. 1994), pp. 1-15.

Interview of Praful Bidwai, in, *The Times of India*, New Delhi, 3 July 1993.

Jao Augusto de Araujo Castro, "Environment and development: The case of the Developing Countries", *International Organization*, Vol, 27/6, 1972, pp. 401-416

Kellogg, Willian W. 'Mankind's Impact on Climate : The Evluation of an Awareness", *Climatic change*. Vol. 10, 1987, p. 121.

Landsberg Hans H., "Can Stockholm Succeed? *Science*, Vol. 176, May 19, 1972, p. 749.

Mathews, Jessica Touchman, "Redefining Security" *Foreign Affairs*, vol,68 no. 2 (Spring 1989)pp. 162-77.

Miegham, Van J "International Cooperation in Metrology: An Historical, Review", Report of Proceedings of Symposium on International Cooperation in Meteorology, International Association of Meteorology and Atmospheric Physics, 1968, pp. 110.

Neumann, John Van, "Can We Survive technology?", *Fortune*, June 1955, pp. 106-8.

Parikh Jyoti, "North-South Cooperation In Climate Change Through Joint Implementation" *International Environmental Affairs*, 7 (1) 1995 IGIDR-RP-No.142.

Perspective" *Journal Of Global Environment Engineering* Vol.6, 2000 pp. 1-12.

R. Revelle, & H.E. Suess, "Carbon dioxide exchange between atmosphere and ocean & the question of an increase of atmospheric CO₂ during the past decades", *Tellus* (9) 1957, pp. 18-27.

Rasmussen, R.A and M.A.K Khalil, "Atmosphere trace gases,; Trends and distributions over the last decade", *Science*, vol. 232, 1926, pp. 1623-4.

Roebym Heintz and Tol Richard, "Joint Implementation and Uniform Mixing" *Energy Policy*, Vol. 23, No. 10, (Oxford: Elsevier Science Limited 1995) pp.911-923.

Skalinkoff Eurgem B., "The policy Gridlock on Global Warming", *Foreign Policy*, No. 79, Summer 1990, pp. 77-93.

Swaminathan, M.S., 'A Non-Aggression pact with Nature', *The Hindu*, June 3, 1990.

TERI, Report on Global Warming and Associated Impacts, New Delhi: TERI, June 1990.

TERI, Strategies for limiting carbon dioxide emission in India, TERI, New Delhi, November 1990, p. 1992.

Thomas B. Smith, "India's Power Crisis: Why do the lights Go out, *Asian Survey*, Vol, XXXIII, NO. 4, April 1993, pp. 376-92.

Thomas F. Malone, 'The CO₂ Problem revisited', in WMO Report of the International Conference on the Assessment of the role of Carbon dioxide and other green house gases in climate variations and associated impacts, Villach: Austria, 9-15 October 1985, WMO Publication no. 661. Geneva: *World Metrological Organization* 1986.

UN General Assembly, 'Protection of Global Climate for Present and Future Generations, Resolution 45/212, December 21, 1990.

V. Ramanathan, "Greenhouse effect due to Chlorofluorocarbons: Climatic Implications" *Science*, 190, 1975, p. 50-52.

V. Ramanathan, H.B. Singh. R.J. Cicerone, & J.J. Kiehl, "Trace gas trends & their potential role in climate change", *Journal of Geophysical Research*, Vol. 90, 1985, pp. 5547-66.

Vrolijk, Christiaan, "COP-6 Cpllpase or 'to be Continued"
International Affairs, Vol. 77, No. 1, January 2001, pp. 63-69.

Weiss, Edith Brown "International Responses to Weather
Modifications", *International Organization*, Vol. 29, 1975, pp. 805-26.

NEWSPAPERS

Indian

The Times of India

The Hindu

The Economics Times

Hindustan Times

Foreign

The New York Times

International Herald Tribune

The observer

The Times

The Finacial Times

INTERNET SOURCES :

[http:// www.epa.gov/global_warming](http://www.epa.gov/global_warming)

http://www.unep.ch/ipcc/ipcc_95.html

<http://www.unep.ch/iuce/f5-index.html>

<http://oneworld.org/cse/html/you41.html>

<http://www.terin.org/html>