

**POLITICS OF CLIMATE CHANGE:
CASE STUDY OF BANGLADESH**

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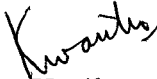
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CERTIFICATE

This Dissertation entitled “**Politics of Climate Change: Case Study of Bangladesh**” submitted by **DEEPENDER KUMAR**, Centre for South, Central, South East Asia and South West Pacific Studies, Jawaharlal Nehru University, New Delhi, for the award of the degree of Master of Philosophy is an original work and has not been submitted so far in part or in full for any other degree or diploma of any other University.

This Dissertation may be placed before the examiners for the evaluation for the award of the degree of **Master of Philosophy**.


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LIST OF ABBREVIATIONS:

| | |
|--------------|---|
| AIJ | Activities Implemented Jointly. |
| AOSIS | Alliance of Small Island States. |
| CDM | Clean Development Mechanisms. |
| COPs | Conference of the Parties. |
| CSD | Commission for Sustainable Development. |
| FCCC | Framework Convention on Climate Change. |
| GEF | Global Environment Facility. |
| GHGs | Green House Gases |
| GIS | Geographic Information System. |
| HOS | Head of the State. |
| ICSU | International Council for Scientific Union. |
| INC | Intergovernmental Negotiating Committee. |
| IPA | Integrated Programme of Action. |
| IPCC | Intergovernmental Panel on Climate Change. |
| NEMAP | National Environment Management Action Plan. |
| NGO | Non Governmental Organisation. |
| OPEC | Organization of Petroleum Exporting Countries. |
| SAARC | South Asian Association for Regional Cooperation. |

| | |
|--------------|--|
| SACEP | South Asia Cooperation for Environment Programme. |
| SACs | South Asian Countries. |
| SAR | South Asian Region. |
| SEMAP | Sustainable Environment Management Action Plan. |
| SMRC | SAARC Meteorological Research Center. |
| UNCED | United Nation Conference on Environment and Development. |
| UNEP | United Nation Environment Programme. |
| WCC | World Climate Conference. |
| WCED | World Commission on Environment and Development. |
| WCP | World Climate Programme. |
| WMO | World Meteorological Organisation. |

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DEEPENDER KUMAR

JULY 22, 2002

*"The Earth provides enough to
satisfy everyone's need, but not
for anyone's greed"*

Mahatma Gandhi

CHAPTER- I

INTRODUCTION

Climate change has emerged as an important environmental issue, ever to confront humanity. This concern arises from the fact that our everyday activities may be leading to changes in the Earth's atmosphere, that have potential to significantly alter the planet's heat and radiation balance. The nature of the problem is such that no country can take unilateral decision to protect their environment. It has brought both the developing and developed countries to the negotiating table. Co-operation is required between developing and developed countries to minimize the impact. 'Pressure Politics', which was earlier used by the developed countries have lost relevance, instead parity with equity has gained importance, and consequently spectacular transformation has taken place in, the International Politics.

With the emergence of environmental problems in general and climate change in particular in international politics the concept of security has undergone a radical shift. "Until recently the notion of security was exclusively oriented to power and emphasized the military security as its main component. Under the definition, state was the primary actor and the

dominant interpretation was that if state security can be ensured individual security was of little consequence.”¹ “Under the transformation there is shift away from the zero sum, dichotomous thinking of traditional national security discourse toward a more comprehensive, less state- centric orientation.”² This means that primacy of state as an actor has become diluted and the state per se has become less effective and relevant with the emergence of climate change issue.

With the diminishing state’s role the politics of climate change has led to, “growing participation and importance of non-state actors in global environmental politics. International governmental organization, Non governmental organization, advocacy groups have all become vital players in the process of international environmental regime formation.”³ Moreover, the complexity of climate change problem has provided increasing role to ‘Epistemic community’,“(coalition of actors including scientists, government and other public sector officials, who come to share a common interpretation of the science behind environmental problems and the broad

¹ C.Uday Bhaskar, “Post Cold War Security”, *Strategic Analysis*, (IDSA, N.Delhi). volxxi.no.8. Nov. 1997, p.1136.

² Abul Kalam, “Environment and Development: Widening Security Frontier and the Quest for a New Security Framework in South Asia”, (Dhaka.BIIS Journal), vol.19, no. 2, 1998, p.120.

³ Ted Scherecker, *Surviving Globalism: The Social and Environmental Challenges*, (St. Martin’s Press Inc., New York), 1997, p.134.

policy and political requirements in response).”⁴ It has given rise to the collective action plan, i.e., it raises questions of who takes initiatives, coordinate co-operation and shoulders costs. “A central aspect of the collective action problem is that it cannot ever be solved by confrontation, which means that “welfare not warfare”, will shape the rules and global threat like climate change will dictate the agenda.”⁵

THEORITICAL ASPECT:

The diminishing role of state in the global order has coincided with the transformation of theoretical perspective from, ‘Realist to Neo Liberal Institutional’. “Realist emphasized on fashioning national interest in terms of power, war or threat perception, Neorealist begins by proposing a problem solving approach, seeking to help develop, the concept of system’s structure which at once bounds the domain.”⁶ Moreover, realist believes that international anarchy fosters competition and conflicts among states and inhibits their willingness to cooperate even when they share common interests. On the other hand, ‘Neorealist’ enables the policymakers to see how the structure of the system and variation in it, affect the interacting units and the outcomes they produce. Thus, ‘Neorealist theory’, “help us to focus

⁴ Clair Gough and Simon Shackley, “The Respectable Politics of Climate Change the Epistemic Communities and NGO’S”, *Foreign Affairs*, (New York), vol.77, no.2, April 2001, p.331.

⁵ Raimo Vayrynen, “Environmental Security and Conflicts: Concepts and Policies”. *International Studies* (Sage Publications, New Delhi), vol.35,no.11998, p.6.

⁶ Op.cit., Abul Kalam, pp.118-119.

on the conflicting aspects of the negotiations, and elucidates some of the reasons why co-operation has been difficult to achieve?”⁷ It leads the policymaker to think in terms of a collective action problem, through its conceptualization of anarchy.

However, neorealist also has drawbacks and its primary weaknesses are its neglect of international institutions and domestic politics, and its effective structural determinism, which leaves us unable to account for the process and for agenda setting. The neo liberal institutionalist has appropriately elucidated the role of international institutions in solving the global problem. They argue that realist have overemphasized conflicts and underestimated the capacities of international institutions to promote cooperation. They believe that even in the prevalence of anarchy in global order states can work together and can do so especially with the assistance of international institutions.

For neo liberal “security is essential, and institutions help to make security possible. Institutions provide guaranteed framework of interaction; they suggest that there will be an expectation of future interactions. These interactions will occur not just on security issues but on a whole suit of international issues, including human rights, the environment, immigration

⁷ Matthew Paterson, *Global Warming and Global Politics*. (Routledge, London,). 1996 p.113.

and economics.”⁸ Therefore, neo liberal institutionalist is appropriate theory to deal about the issue of climate change in the international politics. The principal organizations on climate change are World Meteorological Organisation (WMO), and United Nation Environment Programme (UNEP), then later the broader UN system through the Intergovernmental Negotiating Committee (INC) and finally the Conference of the Parties (COP).

However, there are divergences among countries regarding theory. Some are influenced by realist and some by the neo liberal institutionalist. For example US position on climate change is influenced by the realist theory that argue during the negotiations that it would be irrelevant for it to take substantial action on climate change if developing countries would not also undertake similar commitments. Moreover, walking out from the Kyoto Protocol in March 2001 shows that US has no faith in framework prepared by the International Organization (IO). On the other hand the developed and developing countries have shown faith in IO to solve the menace of climate change.

Before going in details about the various negotiations that have taken place to mitigate the impact of climate change it would be appropriate to know in brief, ‘What is climate change?’

⁸ Karen Mingset, *Essentials of International Relations*, (W.W.Norton & Company, Inc. USA), 1999, p.69.

CLIMATE CHANGE:

The Earth's climatic system is driven by solar energy. About 2/3rd of the short wave solar radiation is absorbed by the atmosphere, ocean, land, ice and biota and 1/3rd is radiated back. In this way "Climate of the Earth is controlled by the difference between the incoming solar radiation from the sun and the outgoing infrared radiation emitted by the Earth-atmosphere system the radiation balance"⁹. However, the long-wave terrestrial radiation emitted by the earth's surface is partially absorbed and then re-emitted by a number of trace gases in the atmosphere collectively known as green house gases (GHGs). The main GHGs include Water vapour, Carbon dioxide, Methane, Nitrous oxide CFC & Ozone in the atmosphere and stratosphere. This phenomenon keeps the global temperature warmer by about 33^oc and is vitally important for life on Earth"¹⁰. "Since, the industrial revolution, anthropogenic activities, especially fossil fuel combustion and deforestation, are increasing the concentrations of atmospheric GHG's beyond their natural state, resulting in the enhanced greenhouse effect. This causes an increase in global temperatures, which is known as global warming."¹¹ The sum of all these potential changes is referred to as climate change. The CFC's and

⁹ R.A. Warrick, A.H.Buiya and M.Q.Mirza, *Briefing Document No.1, The Green House Effect and Climate Change*, (BUP, Dhaka), 1994, p.8.

¹⁰ Teddy, *Energy Data Directory and Yearbook: 1999-2000*, (TERI, New Delhi), 2000, P.363.

¹¹ *Ibid.*, p.363.

Ozone are under control by Montreal Protocol. Among the remaining gases water vapour is the most important but the supply of water vapour depends on the temperature and the presence of other GHG's notably carbon dioxide. Methane emission could be reduced with the improvement in paddy cultivation and improvement in rudimentation of cattle. Moreover the lifetime of methane in the atmosphere is variable depending on the interactions with other gases. But in general the lifetime (8-12 years) is considerably less than that of carbon dioxide (100 years), so the time between emission change and concentration response is comparatively short. Nitrous oxide emission has not risen as quickly as other gases. The sources of nitrous oxide and their fluxes to the atmosphere are very uncertain, but according to some research it is found that the use of nitrate and ammonium fertilizers is likely source, but estimates of the fluxes vary widely. For details see Table: 11

TABLE:11

GHGs and their main anthropogenic sources:

| | |
|----------------------|--|
| Carbon dioxide | Fossil fuel burning, deforestation and land use changes, cement manufacture. |
| Methane | Rice paddy cultivation, ruminants (e.g. cows, sheep), biomass burning and decay, releases from fossil fuel production. |
| Chloro fluorocarbons | Manufactured for solvents, refrigerants, aerosol spray. propellants, foam packing etc. |
| | |

| | |
|------------------------|--|
| Nitrous oxide | Fertilisers, fossil fuel burning, land conversion for agriculture. |
| Precursor gases | (Involved in ozone and methane chemistry) |
| Nitrogen oxides | Fossil fuel burning. |
| Nonmethanehydrocarbons | Evaporation of liquid fuels and solvent. |
| Carbon monoxide | Fossil fuel and biomass burning. |

Source: Matthew Patterson, "Global Warming and Global Politics", p.13.

According, to the above illustrations it becomes clear that emission of carbon dioxide reduction is an imminent to stop the climate from changing. Carbondioxide accounts for about 360 particles per million (ppm) of the atmosphere today. It has increased by about 30% since the beginning of the industrial revolution and is accepted to more than double if we continue to rely on fossil fuels for energy and if we fail to reverse current practices resulting in the destruction of tropical forests.

HISTORICAL BACKGROUND OF CLIMATE CHANGE:

"Baron Jean Baptiste Joseph Fouries (1827) is generally recognized to have been the first person to have made argument about the greenhouse- like properties of the atmosphere, and to suggest that the atmosphere was important in determining the temperature of the earth's surface."¹²

¹² Op.cit., Patterson, p.17.

Although some conferences and studies were carried out related to climate change but the turning point in relation to awareness of climate issues and to the development of greenhouse science were two studies undertaken in 1970 and 1971, 'The Study of Critical Environmental Problems' (SCEP) and, 'The Study on Man's Impact on Climate' (SMIC). These studies highlighted the importance of the CO₂ question and cause of the problem on the environmental agenda of national and international institutions.

In response to dramatic increase of international environmental concerns the UN conference on the "Human Environment" was organized in 1972 at Stockholm. The Conference marked a, "turning point in the development of international politics. Some of the principles that were agreed and established had an enduring effect."¹³

The Conference led to the establishment of the, "UN Environment Programme" (UNEP), Which was tasked with coordinating the environment related activities of other UN agencies and promoting the integration of environmental considerations into their work. Moreover, it worked as a catalyst in the growth of "Green Movements" and "Green Politics", through most of the developed countries. In the erstwhile USSR and Eastern Europe environment concerns grew strongly in the 1980's.

¹³ Owen Greene, "Environmental Issues in the Globalisation of World Politics" in John Baylis and Steve Smith (ed.), *An Introduction to International Relations*. (Oxford University Press, New York), 1997, p.316.

It is true that the 1972 conference led to series of conferences on climate change from late 80's but the most important among the conferences are 'Earth Summit' of 1992, 'Kyoto Summit' of 1997. Earth summit is a major breakthrough in the policy of climate change, in which developing and developed countries participated for the first time in large number to prepare a framework on climate change. During Kyoto summit, "38 industrialised countries plus the EU (listed in Annex-1 to the convention, and sometime referred to as "Annex-1 countries") committed themselves to an overall reduction of emissions of six green house gases to 5.2% below 1990 levels for the period 2008-12"¹⁴.

POLITICISATION OF CLIMATE CHANGE:

Kyoto protocol is in right direction to check the emission of GHGs but due to the predominance of politics the world got divided into various climate camps and the division is confined not only between developed and developing countries but also among developed countries and among developing countries. "USA led camp believe that emissions reduction will come at a high cost and are searching for as low cost solution as possible"¹⁵.

Whereas, European countries who have a strong pro-environment public

¹⁴ *Just a Lot of Hot Air? A Close Look at the Climate Change Convention.* (Panos Institute, London), 2000, p.10.

¹⁵ "Making the Kyoto Protocol Work, Ecological and Economic Effectiveness, and Equity in the Climate Regime", *Paper by CSE*, (New Delhi), 1997, p.3.

opinion and green parties in their Parliaments wants to take serious action on global warming.

The picture is equally complex for the developing countries, which are divided into three main groupings: “The 42 members, Alliance of Small Island States (AOSIS) who will be directly affected by climate change are pushing for tough position. The Oil Producing Countries (OPEC), afraid of seeing their oil revenues dwindle, argue for more research, and for emphasis on increasing absorption of carbon dioxide through forestry activities. The majority of the other developing countries are concerned to maintain their own natural resources, and insisted that any commitments they make will be dependent on prior emissions cuts by the industrialized countries and financial resources for them”¹⁶.

Due to the division of world into various groups and withdrawal of US from the protocol it is passing through the phase of uncertainty. The main reason behind the non-ratification of protocol is the conflict between the developed and developing countries. North states were of view that “climate change is a common technological and economic problem and it is cause by Greenhouse gas emissions. It could be tackled by providing aid and

¹⁶ Op.cit., Panos, p.9.

encouragement of new technologies in developing states”¹⁷. On the other hand, “South states were of view that climate change is a western problem. It is caused by consumption patterns. It cannot be dealt with without looking into the problems inherent in the development paradigm and at distribution issues such as who is entitled to what emissions?”¹⁸

Apart from the above said conflict developing countries have apprehension that in the name of eco-friendly objectives, developed countries would try to impose various restrictions on the developing countries that would implicitly impede their development process. Most notable amongst these are trade, access to natural resources, restriction on forest resources on which many depend for their livelihood. It would indirectly promote interference in internal matter of developing countries. The suitable example could be the case of Bangladesh, which is endowed with rich natural resources (natural gas), tropical rainforest (can be used as sink for carbon dioxide), and has good market of readymade garments.

CASE STUDY OF BANGLADESH:

Geographically, Bangladesh is located in one of the most hazard-prone areas of the world. Several types of natural calamities such as tropical cyclones,

¹⁷ Gupta Joyeeta, *The Climate Change Convention and Developing Countries from Conflict to Consensus*. (Kulwer Publishers, Netherlands), 1997, p.184.

¹⁸ *ibid.*, p.184.

storm surges, monsoon floods and river erosions occur frequently and often affect the country adversely. The frequencies of the calamities are likely to be accentuated due to change in the climate. Agriculture, manufacturing industry and various service sectors are the economic backbone of the country. Flat terrain, low economic growth, high population density, excessive dependence on agriculture and agricultural production, lack of institutional infrastructure etc. combine to make the country vulnerable to any nuance in climate change and sea level rise. Sixty percent of total energy in Bangladesh comes from renewable energy sources either in the form of biomass or hydropower. Similarly, more than 55% of commercial energy comes from natural gas known as cleaner fuel. Moreover, it has one of the lowest per capita commercial energy consumption rates in the world. As least developed country with peculiar socio-political formation, Bangladesh's environment faces challenges of different characters and implications. It seems clear that greening of Bangladesh can be possible through appropriate measures by government and through regional cooperation. Regional co-operation in water management, water sharing, research and information exchange and monitoring of the sea level can help Bangladesh in mitigating the impact. It can also promote "Confidence-building measures" between the member countries in general and between

India and Bangladesh in particular.

REGIONAL COOPERATION:

Environmental management is just beginning to evolve in the region and the member countries of SAARC can greatly learn from one another, particularly those that share similar eco-systems. Therefore there is need for cooperation amongst the member countries of SAARC to share the experiences in environmental management, formulations and implementation of environmental legislation, development of systems intersectoral coordination within government on environment issues and systems of participatory resource management. There is need of paying attention on the utilization of the natural resources in particular hydro electric power and conserving the “Tropical rainforest”, which could be utilize as “Carbon sinks”. Moreover, there is need of giving proper attention for the eradication of poverty and stabilization of population because most of the damage to the environment is incurred due to both.

Lastly one could hope for the implementation of the Kyoto Protocol at the Johannesburg Summit, which is scheduled on 2nd –11th September 2002. Recent developments, ratification of the Protocol by Japan and EU, and the acceptance by US Climate Action Report 2002 that anthropogenic activities are responsible for climate change, have raised the hopes of its coming into

force by the end of 2002. However, all depends on the Annex-1 countries who have not ratified the Protocol and is to be seen how they are going to respond to the gesture of Japan and EU. Most significant is the reaction of US who has walked out from the Protocol.

BRIEF OVERVIEW OF THE CHAPTERS:

The Second Chapter: *Climate Change and International Politics.*

The chapter outlines the emergence of climate change as an issue in international politics and discusses the interstate negotiations till Marrakesh Conference. It provides the view of different countries on the issue of climate change particularly in the context of developed and developing countries conflict. It also provides description about the factors that have influenced the position of countries during the negotiations.

The Third Chapter, *Climate Change and Bangladesh.*

It provides brief outline of Bangladesh geographical location, natural resources, demography and discusses the climate change in context of it. It also provides description about the impact of climate change on Bangladesh with measures taken and ought to be taken by the government of Bangladesh in order to mitigate the impact of climate change.

The Fourth Chapter, *Regional Approaches to tackle Climate Change.*

The chapter discusses the importance of regional approaches to tackle the menace of climate change in general and role of South Asia Association For Regional Cooperation (SAARC) in particular. It provides details about the role of SAARC and the initiatives taken by the member countries to mitigate the impact of climate change. It also provides suggestions how the issue could be tackle by using the natural resources of the region.

Conclusion.

The chapter discusses why so far Annex-1 countries have not ratified Kyoto Protocol. It also discusses about the fate of Protocol after the withdrawal of US from it. Finally it provides way out for the implementation of the protocol before the Johannesburg Summit scheduled on 2nd-11th September 2002.

CHAPTER-II

CLIMATE CHANGE AND INTERNATIONAL POLITICS

INTRODUCTION:

Stockholm Conference led to the growth of concern for the environment among the peoples and flurry of international conferences to find out mitigation measures for the climate change. Apart from Political leaders' Conferences, Scientists' Conferences were also held to know exactly about the menace of climate change. In February 1979, WMO, in conjunction with other UN bodies and International Council of Scientific Union (ICSU), organized the first World Climate Conference (WCC) in Geneva. "It was attended by approximately 400 Scientists and other specialists from fifty different countries representing many scientific and other disciplines." The declaration of WCC, appealed to nations to, "foresee and to prevent potential man-made changes in climate that might be adverse to well being of humanity"¹. WCC, led to the establishment of 'World Climate Programme' (WCP), specifically to understand climate more fully.

WCP, organized the 'Villach Conference', from 9-15 October 1985. The Villach Conference made recommendations, which emphasized the need for economic, social and technological research into policy options for responding to any

¹ Matthew Paterson, *Global Warming and Global Politics*, (Routledge, London), 1996, p.28.

potential climate change.”² The ‘Villach Conference’ was followed by publication of report ‘Our Common Future’, by the ‘World Commission on Environment and Development’ (WCED), on 27 April 1987.

In June 1988, from 27-30, international Conference was convened: ‘The Changing Atmosphere: Implications for Global Security’, at Toronto by the Canadian Prime Minister, Mr. Brian Matronly. More than 300 Scientists and policy makers attended the conference from forty-eight countries. UN, other international bodies and NGO’S participated in the sessions. The ambitious plan of the Conference “stated that governments and industry should reduce carbon dioxide emissions by approximately 20% of 1988 levels by the year 2005 as an initial goal. This was the first international conference to call for such radical action”³. The Intergovernmental Panel on Climate Change (IPCC) was set up in 1988, “to provide an authoritative assessment of the state of scientific knowledge on global warming.

The occurrence of natural calamities in many countries during 1988 led to spectacular increase in awareness about climate change issue. “USA, the erstwhile USSR experienced drought in 1988, continued droughts and unexpected floods in Africa and India; floods and drought simultaneously in China; floods in Brazil, and Bangladesh; hurricanes in the Caribbean; a cyclone in New Zealand

² Owen Greene, “Environmental Issues” in, John Baylis and Steve Smith. (ed), *The Globalisation of World Politic, An Introduction to International Relations*, (Oxford University Press. New York). 1997, p.31.

³ Op.cit., Patterson, p.34.

and a typhoon in the Philippines”⁴. The 1980s became a watershed as it turned out to be warmest decade so far, with seven of the eight years recorded till then. However, the countries differed on the approaches to tackle the menace and as a result developed countries and developing countries met separately. From 20-22 February 1989 developed countries convened, ‘The International Meeting of Legal and Policy Experts on the Protection of the Atmosphere’ in Ottawa. At the same time developing countries met in New Delhi regarding climate change. New Delhi conference stated that the climate change should be addressed in a North-South context, and asked the industrial countries to limit emissions and to help developing countries reduce emissions.

In order to bridge the gap between North and South (Ottawa & N.Delhi Conferences), “Ministerial Conference on Atmospheric Pollution and Climate Change” was convened on 5th-7th November 1989 at Noordwijk in the Netherlands. It was attended by seventy-two states and large number of developing countries participated in it. “In the conference dispute arose among the developed countries. The Europeans led by the Dutch and Germans wanted hard targets and timetables for carbon dioxide reduction. USA, opposing it said

⁴ Ibid., p.32.

that main emphasis should be placed on national strategies which include concrete measures and targets”⁵.

While issue of climate change got embroiled in the North-South onus, “in 1990 IPCC (set up in 1988 with the conjunction of WMO and UNEP), presented its first report in Geneva and confirmed the reality of global warming and suggested for ‘World Climate Conference’ in order to initiate negotiation between developed and developing countries to tackle the global menace”⁶.

The IPCC report set the stage for the ‘Second World Climate Conference’ held in Geneva from 29 October to 7 Nov.1990. “The primary goals of the Conference were to formulate recommendations for the continuing world climate program, and to provide an opportunity for ministers to consider actions in the light of the IPCC report, consider the special needs of developing countries with respect to climate data and to consider goals for enhancing intergovernmental co-operation in monitoring climate change. The conference was split into a scientific and technical session and a ministerial session”⁷. It also led to the establishment of Intergovernmental Negotiating Committee (INC) in Dec.1990 to initiate negotiations leading to the adoption of a FCCC on climate change and any associated Protocols designed to counter climate change.

⁵ David Rumalls, “The International Politics of Climate Change”, in, Jyoti K Parikh, Cuspeper Roy, Rumalls David, Painuly (ed), *Climate Change and North South Cooperation , Indo-Canadian Cooperation in Joint Implementation*. (TMH,USA), 1997, p.25.

⁶ Ibid., p.25.

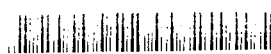
⁷ Op.cit., Patterson, pp.47-48.

The climate change negotiation gradually became politicised in 90's and the countries, which pledged for action to mitigate the impact of climate change, were no more willing to fulfill their words. During this period conflict was mainly between developed and developing countries regarding the measures to mitigate the impact. Moreover, conflict was also between USA and other industrialized countries regarding the commitments on limiting the emission. In light of these backdrops the chapter examines what led the leaders to vitiate from earlier commitment and what politics were involved that influenced the dynamics of the negotiations.

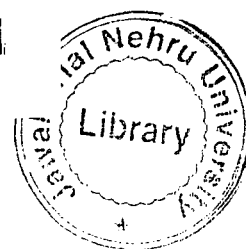
The climate change issue was high on the agenda following the Toronto Conference. Many world leaders made statements on the need for a response to global warming. In UK, then P.M. Margaret Thatcher stated in a speech that humanity had "unwittingly begun a massive experiment with the system of this planet itself"⁸. "Edward Schevardnadze, then Soviet foreign minister, proposed in UNGA on 27 September 1988 that UNEP should be transformed into 'an environmental council capable of taking effective decision to ensure ecological security'. George Bush made global warming an issue in the US Presidential election of 1988. He stated that 'those who think we're powerless to do anything about the green house effect are forgetting about the White House effect'. He

⁸ Ibid., p.34.

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pledged to convene a global conference on the subject at the White House in his first year in office”⁹.

In 1990 (17-18 April), President Bush as per his pledge hosted a conference at the White House. But the conference instead of bridging the gap between developed and developing countries widened it. It happened mainly because “Bush stated at the conference that no action should be taken until more research had been completed and science was more certain”¹⁰. Reacting sharply West German Environment minister, Klaus Topfer, argued that gaps in knowledge must not be used as an excuse for worldwide inaction.

Moreover, UK also showed its reluctance for the commitment to reduce the carbon dioxide emission, “David Tripper said we will have to make it clear to our electorate how much anguish they will have to suffer in order to save the planet”¹¹.

The above said view clearly shows that the countries which pledged earlier to reduce the emission gradually vitiated from it, after analyzing the cost of action and domestic pressure. And the priority that was accorded earlier to climate change became significantly lower in the succeeding years.

⁹ Ibid., p.35.

¹⁰ Ibid., p.39.

¹¹ Ibid., p.40

Although, the countries had divergent views regarding the reality of climate change and mitigation measures, the INC continued its discussion for the finalization of UN Framework Convention on Climate Change (UNFCCC) that was adopted in 1992.

United Nation Conference on Environment and Development:

UNCED is popularly known as ‘Earth Summit’ held in June 1992 at Rio de Janeiro, attended by 8,300 delegates from 178 countries to finalize the UNFCCC with proper negotiations between the developed and developing countries. It has international recognition because all the UN members participated in it and expressed their views regarding the climate change and for the first time developing countries were treated equally on the issue of climate change. With the publication of IPCC first report, Summit gained importance as it has confirmed the reality of global warming. “The decisions were enshrined in the final document UNFCC. The convention signed and later ratified by 186 countries, created a legal instrument called the Conference of the Parties (COP) which had the objective of stabilising GHGs concentration in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”¹².

¹² C.E.Karunakaran, “Climate and Contradictions”, *Frontline*, July 5, 2002, p.86.

Basic Features of UNFCCC:

The preamble of FCCC consists of 26 Articles. Article 4.7 of FCCC states that the economic and social development and poverty eradication are the first and overriding priorities of developing country parties. Article 3.1 and 3.2 of FCCC, obliges the parties to protect the climate on the basis of equity and according to their respective capabilities. It also acknowledges the specific problems of developing countries. “Article 11.1 defines a ‘financial mechanism’, to provide ‘financial resources on a grant or concessional basis, including for the transfer of technology. Article 11.2, defines about an equitable and balanced representation of all parties within a transparent system of governance”¹³. Article 11.2 is in favour of developing countries because till now they were ignored and were always on the receiving ends. Article 10, which defines provision of voluntary commitments, “got support from countries like Argentina, (AOSIS) and other developing countries but rejected by major developing countries like India, China and Brazil”¹⁴. Article 2- states that there is need for stabilization of greenhouse gas concentration in the atmosphere at the level that would prevent dangerous anthropogenic interference with the climate system. Article 4, of FCCC recommended that all parties should formulate national and regional global

¹³ Op.cit; Patterson, p.51.

¹⁴ Joyeeta Gupta, *The Climate Change Convention and Developing Countries from Conflict to Consensus*, (Kluwer Publishers, Netherland), 1997, p.230.

warming pollution reduction programs. Moreover, FCCC “affirms that a precautionary approach should be adopted and lack of full scientific certainty shall not be used as reason for postponing cost effective measures to prevent environmental degradation”¹⁵.

Apart from above said articles the convention also adopted Agenda 21, a 400-page document with 40 chapters aiming to provide a programme of action for sustainable development. The chapters cover a wide range of topics, such as: promoting sustainable urban development, combating deforestation, biotechnology management, managing fragile mountain ecosystems and hazardous waste management.

However, during the Summit the contentious issues: funds, technology transfer, atmosphere and forest principles created loggerheads between the North (developed) and South (developing) countries.

Contentious Issues Between North and South:

FUNDS: Criticizing the lackluster policy of North on the funds, Gro Harlem Brundtland said, “We are disappointed by the lack of adequate financial commitments made. The 20-year-old-target of 0.7% of GNP as official development assistance must be reached before the 2000”¹⁶. Many developed

¹⁵ Op.cit., Owen Greene, p.331.

¹⁶ Rio Notebook, “Diary of Political Carnival”, *Down to Earth*. (CSE, New Delhi), vol.1.no.4, July 15 1992, p.32.

countries took his criticism positively. They gave assurance for the funds and GEF was included into the Agenda-21. However, on the relationship between the GEF, and COP of the convention, “developed countries were of the view that the GEF should remain independent from the convention in its operation. By contrast, developing countries argued it should be in effect, a subsidiary body of the convention, subject to direction on operational question”¹⁷. The reason for conflict was, ‘COP has one member–one votes system, while the GEF through World Bank is dominated by the industrialized countries.

FOREST RESOURCES: Developed countries wanted to make it globalised because of its importance in mitigating the impact of climate change (sink). Criticising the demand of developed countries, Kamal Nath, then Environment Minister of India said, “our strongest objection is to the attempt to use forests as part of the global cycle. If it is such a resource, we should be paid for it-not only now but also the opportunity cost (of leaving forest intact) for the past and future. The position otherwise is: our forests are your dumps. They should stabilize their carbon emissions. We cannot supply them as an escape route”¹⁸. Collectivity among developing countries managed to check the sinister plan of developed countries from making it legally binding in the convention.

¹⁷ Op.cit., Patterson, p.66.

¹⁸ Dr Narrotam Gaan &Smt. Sudharsubala Das, “A New Global Environmental Order”, *India Quarterly*. (New Delhi), 51(2-3), April-September 95, p.67.

OVERCONSUMPTION: US on behalf of developed countries argued that changes in consumption patterns will 'reduce incomes' in the south as it will result in a reduction of export earnings. On the other hand Fidel Castro, "blames high consumption societies for the 'atrocious destruction of the environment and demands to know how Third World Countries, 'exploited and sacked by an unjust world economic order', can be blamed for attempting to survive?"¹⁹ The breakthrough in the conflict reached with the establishment of Sustainable Development Commission to monitor the implementation of Agenda-21.

The above said debate clearly infers that the collective voices of the South were heard and many of their demands were incorporated with amendments in the FCCC. It was expected that both developed and developing countries will implement the FCCC but the progress was very slow. The failure was primarily due to the dispute on time frame and targets for the reduction of carbon dioxide emission by the developed countries and between the developed and developing countries. "Absence of carbon dioxide emission target in UNFCCC was due to reluctance of USA. In 1992, then president George Bush threatened not to attend the Earth Summit in Rio if the convention included any binding commitments to stabilizing GHGS"²⁰.

¹⁹ Op.cit; *Down to Earth*, p.31.

²⁰ *Just a lot of hot air? A Close Look at the Climate Change Convention*, (Panos Institute. London), 2000. p.8.

The other reason was, developed countries wanted India and China should also have some commitment to reduce the carbon dioxide emission. The argument of developed countries is primarily based on expanding use of fossil fuel in developing countries relative to the industrialized nations in percentage terms. For example, China envisages expanding its coal consumption five fold to three billion tones a year by 2020, this alone would add nearly 50% to current worldwide carbon emission.

This demand continued in the successive conferences. However, if one look at the implementation measures, then one would find that developing countries, not only have included global warming's potential impacts in their national planning policies and procedures, but also they have all set in motion a wide range of policies. China, inspite of being the world's second largest consumer of coal has taken the most dramatic steps to curb growth in coal use. "Subsidies for coal fell from 37% to 29% between 1984 and 1995 and petrol subsidies were slashed from 55% to 2% between 1990 and 1995. Between 1998 and 1999, clean air legislation and energy efficiency measures reduced China's coal consumption by 16.8% and its overall fuel use by 10.7%"²¹.

On the other hand coal use in US has increased by 1.6% during 1998 and 1999. Moreover, U.S.A. has implemented no major policies that would significantly

²¹ Ibid., p.33.

reduce its dependence on carbon and has instead pursued measures to maintain supplies of inexpensive fossil fuels in spite of being the first industrialized nation to ratify the FCCC. Non-fulfillment of the proposal is mainly due to the involvement of heavy cost for eco-friendly technology, which could implicitly affect the growth of the country. This discourages the politicians of the developed nations from taking any concrete measures.

On the other hand developing countries have larger goal in adopting energy efficient method because change in climate is likely to jeopardize their growth. Growth would be affected largely because of their dependence on natural resources and natural systems (cropping, grazing lands, forests, fisheries and monsoon pattern). Furthermore, renewable energy in rural areas could generate additional employment and manufacturing. It is also true that the measures taken by developing countries could have been expedited if the developed countries had generously contributed their share in GEF. Instead of enhancing the contribution it was lessened. "The funds allocated to GEF during (1994-1997 was merely \$3 billion) which is a tiny amount compared to the massive international flows of funds that take place through normal economic transactions and also compared to the funds needed to implement sustainable development"²². Therefore, there is need for establishment of GEF with proper representation of developed and

²² Op.cit., Owen Greene, pp.334-35.

developing countries to chalk out an acceptable programme for both. These funds must be new and additional rather than redirected from existing development aid and it should be brought out from the ambit of the World Bank.

Factors that Influenced the Developed Countries:

European states' tough stand against the carbon dioxide emission was mainly due to awakening among the masses regarding the likely impact of climate change. Moreover, "growth of Green Parties in more than two third of the European countries including Germany, Austria, Sweden, Belgium, Finland, Italy, France and the Netherlands worked as a Catalyst role in Europe"²³. Besides Green Parties, 'Climate Network Europe (CNE)', that was established in 1989 and a regional sub network of the global 'Climate Action Network', have played an important role.

The European states are large importer of fossil fuels and due to fluctuation in the prices of fossil fuels the economy of Europe gets affected. Hence, to avoid the dependence the European states have launched energy policy to promote sustainable development. Since 1990 European Union has been relatively successful in reducing its carbon dioxide emission. Whereas, on the other hand the USA opposition for hard target is largely determined by its position as the

²³ Oberthur Sebastian, Ott.E.Hermann, *The Kyoto Protocol International Climate Policy for the 21st Century*. (Springer- Verlag Berlin Hiedelberg), 1999, p.23.

world's largest producer of coal, oil and gas and the presence of the well organized industry lobby groups which play vital role through financial support during electioneering period. "The industry lobby group, the 'Global Climate Coalition, have spent \$13 million a year since its establishment in 1989 persuading people and politicians that the threat of climate change was exaggerated, and fanning fears about the costs of taking action."²⁴

Japan depends largely on the import of fossil fuel. In order to get rid of the dependence it has adopted, various measures to reduce dependence on the fossil fuel. It also has a larger goal, for example if the international control on green house gases emissions are implemented than the energy efficient technologies of Japan's are likely to experience higher demand in international market. Whereas, Russia's position on climate change is largely influenced by its large fossil fuel resources"²⁵.

OPEC, economy is largely dominated by the export of oil and natural gas. Therefore, any curb on the use of these resources would jeopardize their entire resource strategy and long-term prospects. Due to this it opposes any curtailment of these resources, whereas, AOSIS, which are most vulnerable, demands very high emissions reductions. In other developing countries, central concerns have

²⁴ Op.cit., Panos,p.29.

²⁵ Op.cit., Oberthur Sebastian, p.23.

been 'equity'. They vociferously oppose any resolution, which put emission reduction target on them.

Elaborating the position of developed countries, Narrotam Gaan, has said that, "the rich nations have taken positions essentially get them off the hook for their past production and consumption patterns and treat past as past and now seek to ram an inequitable system for future global environmental management down the throats of the poor Third World countries"²⁶.

In summation one could say that Earth Summit has helped in generating the enthusiasm for environment friendly future among the peoples of the world and the summit provided international stature to the climate change problem. Several institutions were established prominent among them were the Commission for Sustainable Development (CSD) and the Global Environment Facility (GEF), working in association with UNEP, UNDP and other UN bodies. The Summit also made it clear that developing countries need a leadership, which can strongly denounce the immorality of the North and at same time work hard to ensure that the morality, which they are talking about, is incorporated into domestic policies.

FCCC, provided for the INC to continue meeting and to prepare the ground for the Conference of the Parties (COP), comprising all the 170 plus states that have ratified the convention. It was decided and agreed COP will meet on a yearly

²⁶ Op.cit., 'New Global Environmental Order', p.67.

basis unless the parties decide otherwise. The COP's role is to promote and review existing commitments in light of the convention's objective, new scientific findings and the effectiveness of national climate change programming. It was entrusted with the task to adopt new commitments through amendments and protocol as and when circumstances require. The INC met twice a year from signing of the convention until the first COP met in Berlin between 18 March and 7 April 1995.

Conference of the Parties-1:

The first session of the COP was convened in pursuant to Art. 7.4 of the UNFCCC, at the International Center, Berlin from 28th March to 7th April 1995. In the opening message to COP-1; Secretary General of UN conveyed that, "the role of the conference was to take the convention to its next stage, from consensus to cooperation, from commitment to actions. Actions under the convention could be brought into a process of intergovernmental policy coordination in which appropriate linkages could be established between climate protection and the key issues of sustainable development"²⁷.

At COP-1 it was decided to begin the negotiation immediately to establish more stringent commitments by industrialized countries to limit their emissions of

²⁷ *Report of the Conference of the Parties its First Session, held in Berlin 28 March-7 April 1995*, (UN), 1995, p.43.

green house gases. Mr. James Gstave Speth, Administrators of the UNDP, “asked for a clear recommitment by Annex-1 countries to return to their climate threatening emissions to 1990 levels by the year 2000; a clean commitment to negotiate, without delay, a protocol yielding a significant global reductions in climate altering emissions, particularly carbon dioxide, by the early date in the next century”²⁸. Adhoc Group on Berlin was established to draft a protocol or another legal instrument for adoption at COP-3 in December 1997 Kyoto.

On the question of emission reduction, “AOSIS, advocated for 20% reduction in industrial country emission by 2005.OPEC, campaigned strongly against any substantial commitments for developed countries, fearing that emissions reduction measures would reduce demand for oil and thus threaten their incomes. The European Union and some other West European states broadly supported emission reduction targets by 5-10% by 2010.Whereas, several other developed countries including the USA, Japan, Australia and Canada were reluctant to support any obligations requiring emission reductions”²⁹.

In accordance to the Art.4.2 (d) of UNFCCC, COP-1 established a pilot phase for Activities Implemented Jointly (AIJ) among Annex-1 countries and on a voluntary basis, with non Annex-1 countries. It was said no credits would accrue to any party due to AIJ. In accordance to Art.9 and 10, Subsidiary Body for

²⁸ Ibid., p.46.

²⁹ Op.cit., Greene Owen, p.332.

Scientific and Technological Advice (SBSTA) and Subsidiary Body for Implementation (SBI) were established.

Member states, agreed that no new commitments should be introduced for developing countries and a restructured GEF was given another year term as the interim financial mechanism. From the above it may be inferred that countries were not willing to make any compromise with their fossil fuel. The positive fallout of the conference was that the countries agreed for international review of national measures to limit emission.

Conference of the Parties-2:

The COP-2 met from 8-19 July 1996 in Geneva. The conference was opened with recognizing and endorsing the second IPCC report. The report suggested that without specific policies to mitigate climate change, the global average surface temperature to 1990 is projected to increase by about 2⁰C (between 1⁰ C and 3.5⁰ C) by 2100; average sea level is projected to rise by about 50cms(between 15 and 95cms) above present level by 2100. It also recommended that stabilization of atmospheric concentrations at twice pre-industrial level would eventually require global emissions to be less than 50% of current levels. USA supported the IPCC 2nd report and called to take urgent action. "For the first time since the early days of climate negotiations, the USA called for intensified negotiations on a binding medium-term emission target and a longer-term goal for atmospheric

concentration of GHGS. The new stance was part of President Bill Clinton's re-election campaign for the US Presidential elections scheduled for Nov. 1996"³⁰.

The outgoing President of COP, MS Angela Merkel, "informed the conference that in spite of the efforts made by all participants, it had not proved possible to arrive at a final solution and urged all delegation to consider the issue further and work towards an agreements"³¹.

AOSIS and African countries stated their concern for climate change and the lack of technical and financial resources for prevention and adaptation measures. They asked, GEF should be reconstituted in order to meet the developing countries commitments. Responding to the demands of these countries COP-2 in accordance to Art.4.5 of the UNFCCC urged to further enhance the progress report on access to, and the transfer of environmentally sound technology. It called on the GEF to provide expeditious and timely support to developing countries and initiate work towards a full replenishment in 1997.

USA delegation urged for international emission trading and they also emphasised for legally binding targets. COP-2, instructed the representatives to accelerate the negotiations on the text of legally binding protocol or another legal instrument to be completed in due time for adoption at the COP-3. Regarding

³⁰ Anil Aggrawal, Sunita Narain & Anjul Sharma (ed), *Green Politics, Global Environmental Negotiations. I* (CSE New Delhi), 1999, p. 47.

³¹ *Report of the Conference of the Parties its Second Session Held at Geneva 8-19 July, 1996.* (UN), 1995, p.8.

IPCC report the member states stated that the IPCC report should provide a scientific basis for urgently strengthening action at global, regional and the national levels particularly action by Annex-1 countries to limit & reduce emissions of GHGS.

Conference of the Parties-3:

From Dec 1-11 1997 COP-3 was convened at Kyoto in Japan. It is landmark among the conferences pertaining to climate change. The Adhoc Group of Berlin that was constituted during COP-1 (Berlin) had reached no agreement on a target of emission reduction. Among the various recommendations made by COP-3, the important ones are-

(a) Annex-1, countries are asked to reduce their overall emissions to 5.2% below 1990 levels by the first commitment period (2008-12), with differentiated targets for various parties. The EU assumed a commitment to reduce emissions 8% below 1990, USA 7% and Japan, Canada 6%. The emission cut only for Annex-1 countries agreed is in the recognition of FCCC, “common but differentiated responsibilities” for countries at different stages of development. “This position is based upon the principle that industrialized countries developing using fossil

fuels, and hence are responsible for approximately three-quarters of accumulated green house gases in the atmosphere”³².

(b) In order to reduce the GHGs the Protocol provides several mechanisms, which facilitate multilateral cooperation between and among countries. (1) Clean Development Mechanism (CDM), between developed and developing countries. Its inclusion in protocol was guided by the interest of Annex-1 countries. Later on it created dispute among the Annex-1 countries on the question of percentage cap. Developing countries have also expressed reservation on their inclusion because CDM would enable Annex-1 countries to finance emissions reducing projects in developing countries and receive credit for doing so. It would be advantageous for the Annex-1 countries because reducing emission in developing countries would cost less than doing it in own country. CDM could promote raising awareness about climate change in the developing countries because it will affect on the ground projects. In order to make it effective “the choice and type of CDM projects must be determined by the development needs of the developing country. with the CDM process serving as a funding vehicle”³³.

(2) Emission trading (Whereby a country that exceeds its emissions quota can buy another country’s unused quota). It is considered as a flexible means of achieving

³² Williams Moomaw, Kilaparti Ramakrishna Kevin, Gallagha Jobin Freid. *The Kyoto Protocol: A Blueprint for Development*, (Tufts University, London), 27 Feb. 1998, p.2.

³³ Ibid., Blueprint, p.7.

emission targets because it will allow firms or countries to keep down the costs of reducing GHGs. “NAM countries agreed on emissions trading and said that it can only commence after allocation of emissions entitlements on an equitable basis to all countries that has been agreed upon by the parties”³⁴.

However, it has raised some questions like, how will the permit system be administered and enforced? Will the permits be traded among nations or among firms? Will the trading regime be extended to developing countries in the long term?

(3) Joint Implementation Activities: It is designed to allow Annex-1 countries to cooperate on emission reduction projects and share the benefits. It could prove out to be very effective in reducing the GHGs because actions taken jointly can reduce the net cost of building clean power plants or promoting energy efficiency systems.

(c) Kyoto protocol has two articles relating to land use, land use change and forestry activities. Art 3.3 of the protocol allows countries to get credit for reducing carbon dioxide concentration through land use change & forestry activities. In order to make the above said provisions successful, the secretariat or some newly created body must be set up to determine whether nations are meeting their obligations under the treaty, and report their findings to all of the

³⁴ Op.cit., Global Politics, Global Environmental Negotiations-1, p.13.

parties. Moreover, efforts should be made to continue the success of projects under AIJ voluntary program initiated at the end of COP-1 among the developing countries.

In spite, of these incentives provided to developed countries to reduce the emission, the developing countries are far ahead in adopting and implementing the major policies of the Protocol. “According to paper published by World Watch Institute (WWI) in Nov 1997 India, China and Brazil have implemented meaningful policy in the past e.g. politically difficult reductions in fossil fuel subsidies and improved energy efficiency. India’s wind generating capacity has increased from 39 mw in 1992 to 820 Mw in 1996”³⁵.

Developing countries could do more if financial and technological support is provided as they are witnessing economic transformation They could also take a lead in creating global market for zero –carbon energy technologies because of two distinct advantage “They have more solar energy than most of the developed countries and they could provide a huge niche market in hundreds of thousands of their villages that are not yet touched by carbon grid”³⁶.

The Kyoto Protocol is just the first step towards meeting the mandate of Article 2 of FCCC, to avoid adverse anthropogenic alteration of the climate system.

³⁵ *ibid.*, p.55.

³⁶ *Making The Kyoto Protocol Work, Ecological and Economic Effectiveness, and Equity in the Climate Regime.* (Paper by Centre for the Science and Environment, New Delhi), p.10.

Commenting on the target of 5.2% Michael Grubb, has said, “even if the Protocol commitments are fulfilled to the letter, global emissions could actually be 31% above 1990 levels by the Protocol’s commitment period of 2008-12. However, the positive aspect of the Protocol is, it has started confidence in the various processes and has enhanced the political commitment to make the negotiations and commitments easier.

Conference of the Parties- 4:

It was held at Buenos Aires in 1998. The major issues which were debated during COP-4: -

(a) On the Kyoto Protocol mechanism COP-4 specifies that detailed rules for all mechanisms should be adopted in one package at COP-6.

(b) On the question of ‘sinks’ after lengthy discussions parties at COP-4 linked both the treatment of forest sinks and the inclusions of further categories of sinks to a IIIrd Assessment Report by the IPCC in 2001.

(c) Argentina’s President Menem, stated that his country would adopt voluntary commitments by COP-5, coupled with a call for equal access to emissions trading”³⁷. The statement catalysed the issue of voluntary commitment by the developing countries to reduce their emissions. It was strongly supported by US.

³⁷ Hermann E. Ott and Sebastin Oberthur, *Breaking the Impasse Forging an EU Leadership Initiative on Climate Change*, (Heinrich Boll Foundation , Berlin), June 2001, p.17.

This was strongly objected by developing states who stated that these types of voluntary emission limits could threaten to further dilute industrialized countries' reduction obligation. The announcement by Argentina was guided by its own interest it consumes very low levels of fossil fuel because of abundant hydropower. The announcement might have been made to get support and investment of developed states to harness the hydropower potential

(d) COP-4 strengthened the provisions related to the transfer of financial mechanisms that were approved as part of the Buenos Aires Plan of Action. The GEF was entrusted with the operation of the financial mechanism, which would be reviewed after every four years.

(e) G-77 and China proposed a technology transfer mechanism (TTM) on commercial and preferential terms. US opposed the proposal claiming that it would be difficult to agree on its terms of reference and opposing the reference to non-commercial, preferential terms.

(f) The concept of equity was incorporated in the Buenos Aires Plan of action agreed at the COP-4. But the fulfillment of equity is very difficult because "if equity is taken as the goal, the cuts industrialized countries would have to make would be enormous. The US currently uses 12 times the allowable amount per capita, while the UK nearly six. It does not look achievable voluntarily in a short

time”³⁸. Saleemul Haq, commenting on absence of equity from the negotiations so far, said that “many northern non-governmental organizations might be expected to support the idea of equity, but they are accused of pushing it aside, for’ ‘pragmatic’ reasons- principally, because they know it would be major obstacle to US ratification”³⁹. However, incorporation of the equity concept in the Protocol would benefit developing countries, as their share in emission is miniscule.

Conference of the Parties-5:

From October 25 – Nov 5,1999 at Bonn, the COP-5 discussed issues like deciding penalties against countries that fail to meet their commitments and the adverse effects on countries due to climate change. It was comparative lackluster in politics, but underlying tensions remained. “Disagreements between developing and industrialized countries revolved around the experimental AIJ programme. Developing countries made it clear that no credits would be given to industrialized countries for projects undertaken in this pilot phase”⁴⁰.

On the issue of emission trading USA wanted no cap whereas, EU raised reservation against the US demand and urged for a minimum of 50% reduction from domestic action. No agreements were reached on any of the contentious issues and were deferred for COP-6.

³⁸ Op.cit.,Panos, p.13.

³⁹ Ibid.,p.12.

⁴⁰ Anil Aggarwal, and Others, *Global Environmental Negotiations-2*, (CSE, N.Delhi), 2001 p.238.

CONFERENCE OF PARTIES-6:

It was convened at The Hague from 13-25 November 2000 with lot of expectation. The Executive Secretary of the conference Michael Zammit Cutajar said, “The Hague conference is a make or break opportunity for the climate change treaties. He also said that unless governments of developed countries take the hard decisions that lead to real and meaningful cuts in emissions and to greater support to developing countries, global action on climate change will lose momentum”⁴¹.

The main contentious issues were relating to finance, technology transfer, sinks, adaptation and compliance. On the issue of including forest management activities in CDM in the first commitment period (2008-12) EU, G-77 and China raised objection but on the other hand, US argued that the provisions of Art.3.4 were applicable to the first commitment period without any restrictions and argued to ensure that sinks would be included as valid activity under the CDM. Finally, no consensus was reached on these issues.

It was expected that an effective compliance regime would be drawn during COP-6. “G-77 and China proposed for the creation of a compliance fund and further stated that in the event of failure to meet emissions reduction target, a country can pay into this fund at a pre-determined penalty rate. The penalty rate must be high

⁴¹ Ibid, p.102.

enough to act as a deterrent. It was also suggested percentage of funds be allocated to finance projects to reduce emissions”⁴². US strongly opposed any financial penalties for the non-compliance. Finally it was decided that compliance procedure would only apply to the KP and not to the commitments under the convention.

On the issues of GEF, industrialized countries wanted that all financial assistance to be channeled through the GEF. Developing countries opposed this because they found GEF too bureaucratic. The issue was relegated to the background due to the negotiations centering on the US and EU priority areas of sinks and emission trading.

Contrary to expectations the Hague conference ended with a deadlock. The developing states could not participate meaningfully because of the dispute among the industrialized countries. EU tried to placate US in vain by softening its stand on the issue of credits that can be gained through activities other than domestic action to cut emissions and was willing to accept qualitative target instead of quantitative limit. Commenting on the negotiations under the auspices of COP till now George Bush in June 2001 made statement that US does not recognize anything as global warming. He declared, “USA instead would solve

⁴² Anju Sharma and Others, “Climate on a Skid”, *Down to Earth*, (CSE, N.Delhi), vol.19, no.15, Dec.31,2001,p.36.

the problem by leading the way, advancing the science on Climate change”⁴³.
“USA argued that it would not ratify the protocol without generous provisions on carbon sinks and hinted darkly at the far greater difficulties that negotiations would encounter under a Bush administration”⁴⁴.

As Bush-Cheney administration has declared the Kyoto protocol dead, and Senate has rejected it. The option left is that the “EU, Russia, Japan, developing countries and others have to co-operate jointly and ratify the treaty. The co-operation is essential because protocol can only be implemented, when at least 55 countries including developed countries accounting for at least 55% of emission ratify it”⁴⁵.

The COP-6 deliberation and the deadlock mainly on the list of eligible CDM projects and whether sinks should be a part of CDM showed that the protocol would be jeopardized and all the negotiations held under COP till now would go waste. However, “the Bonn meeting on 23 July 2001 was able to break the impasse through compromises on the following major areas: Kyoto mechanisms, land use, land use change and forestry (sinks), compliance and financing for

⁴³ Anil Agarwal, “Blow Hot and Cold”, *Times of India*, 15 June 2001.

⁴⁴ Op.cit, Panos, p. 264.

⁴⁵ Op.cit, Hermann E . Ott and Sebastin Oberthur, p.27.

developing countries, it reflects another landmark in international climate policy”⁴⁶.

BONN JULY 2001:

“The agreement reached after more than 48 hours of non-stop negotiations, paves the way for the ratification of the Protocol, binding industrialized countries to reduce emissions of heat trapping gases by a specified percentage”⁴⁷. Regarding emissions trading a new term is added “reserve”. This reserve intends to prevent a country overselling, which may result into non-compliance and it should not drop below 90% of that country’s emission budget or 100% of 5 times the most recently reviewed inventory, whichever is lowest. Regarding joint implementation, countries have agreed to refrain from using emission reduction units generated from nuclear facilities.

At Bonn the issue of sink was amicably resolved with an agreement on the rules and modalities on activities related to land use, land use change and forestry (LULUCF). Regarding the compliance, the countries agreed to choose more “rewarding” approach and to set for the first commitment period at a so called restoration rate of 1.3 meaning that 130% of the excess would be subtracted from the assigned amounts in the second commitment period. “For developing

⁴⁶ MG Jden Elzen and Apade Moor, *Evaluating the Bonn Agreement and Some Key Issues*. (RIVM, Berlin). 2001. p.6.

⁴⁷ Neelam Singh, “Compromise on Climate”, *Down to Earth*, (CSE, N.Delhi), vol.10, no.6.Aug 15 2001. p.6.

countries three new funds were created. Special climate change fund, least developed countries fund and Adaptation fund”⁴⁸. Bonn has left door open for USA, which has walked out of protocol negotiation.

The Bonn agreement is in a right direction for the ratification of the protocol. “Mr. Oliver Deleuze, chief negotiator of the EU said that “an imperfect living deal was preferable to a perfect but dead deal” and hoped that US would now “come on board the boat we have constructed for the protocol”⁴⁹. However, it is to be seen how enthusiastically and speedily the EU, Japan, Canada and Russia ratify the Protocol.

Conference of the Parties-7

It was held at Marrakech, Morocco, from 29th Oct. to 9th Nov. 2001, attended by environment and energy ministers from around 165 countries. They agreed to the first ever detailed rulebook governing the 1997 Kyoto Protocol. The important issues that were discussed at COP-7 are given below in brief.

Regarding the controversial issue of credits accruing from the projects based investments in developing countries and developed countries; it was decided, “industrialized countries could bank credits generated from projects-based investments in developing and developed countries but only up to 2.5% of the

⁴⁸ *ibid*, p.9.

⁴⁹ Kyoto Protocol Rescued by Agreement in Bonn, *The Hindu*, July 24, 2001.

amount they were allowed to emit”⁵⁰. It was also decided that now developing countries could unilaterally start a project and sell credits to industrialized countries.

Kazakhstan was included in the list of Annex-1 party of KP and Russia's allowance for forest management credits were increased. The decision on the controversial issue of legally binding if industrialized countries failed to meet was deferred to the COP-1 after the KP has entered into force.

The Marrakech agreements have paved the way for ratification of the KP by enough countries to bring the treaty into force. However, it largely depends how US react to the agreement because it has pulled out from KP in March 2001. Nevertheless, Bonn and Marrakech agreements have been successful as the EU said it would ratify the Kyoto Protocol by 2002. Both the countries on 1st and 4th June delivered it respectively. One could hope Russia's ratification as it cabinet supported ratification on April 11th, 2002. Till now “84 countries have signed the KP and 74 have ratified it so far, their emissions account for only 35.8% of the emission”⁵¹. Therefore one could hope for some breakthrough during ‘World Summit on Sustainable Development’, scheduled for 2nd –11th Sept. 2002 at Johannesburg.

⁵⁰ Neelam Singh, “ Green Future”, *Down to Earth*,(CSE, N.Delhi), vol.10, no.13, Nov30,2001),p.6.

⁵¹ Neelam Sng, “A Forceful Endorsement”, *Down to Earth*, (CSE, N.Delhi), vol.11,no.3, June30, 2002. p.

Overall, the chapter two has provided brief glimpse about the negotiations and politics related with climate change. The analysis of KP will be discussed in conclusion chapter. The coastal countries like Bangladesh will be on receiving end due to change in climate. The next chapter provides description about the Bangladesh and the climate change. The chapter will mainly concentrate on the impact of climate change, mitigation measures and in a brief account of Bangladesh–India cooperation for climate change.

CHAPTER: III

BANGLADESH AND CLIMATE CHANGE

Introduction:

Bangladesh has an area of 1,47,570 sq km and population of 126 million in 1999. It has a humid, warm, tropical climate, which is fairly uniform throughout the country. Most parts of the country have an elevation of less than 10 meter above sea levels. The geographical location of Bangladesh is such that the impact of climate change will be of higher magnitude. The flat terrain, low economic growth, high population density, intensive dependence on agriculture and agricultural production, lack of infrastructure etc., combine to make the country vulnerable to any nuance in climate and sea level. Vulnerability is likely to get accentuated with high population density and increase in poverty. "The population density is 868 per sq km and is likely to increase to 1400 per sq km by 2050 and during same period population would be 218 million. It is one of the world's poorest and least developed countries with GNP/Capita in 1990 being \$370."¹ The growing population and increase in poverty would compel people of Bangladesh to rely more and

¹ World Bank Report, *Bangladesh Climate Change and Sustainable Development*, (World Bank Group), 2001, p.9.

more on natural resources in a manner that is undesirable in terms of environmental sustainability.

According to UNEP, “the five coastal South Asian Countries are the most vulnerable countries due to climate change, Bangladesh and Maldives being in list of ten vulnerable countries”². Recognizing the vulnerabilities, Bangladesh government have taken various measures to mitigate the impact of climate change. Moreover, it has been in forefront in ratifying the proposals of conferences related to climate change. Bangladesh is party to the major environmental treaties like ozone convention 1985, Montreal Protocol 1987, UNFCC of 1992, and Biodiversity Convention of 1992. In 1992, the government of Bangladesh signed the UNFCC and ratified in April 1994. In 1997, representatives from the government of Bangladesh attended the conference of parties-3 at Kyoto. “It has ratified or acceded to more than 44 multilateral environmental treaties, conventions and protocol”³. Alongwith, member of Alliance of Small Island States (AOSIS), Bangladesh has been advocating for stringent carbon emission target e.g., 20%. In spite of being parties to various agreements, the progress is very dismal mainly due to its own limitations and national priorities.

² C.R. Abrar and Others, “Environmental Security and Migration in South Asia” in D.D. Khann (ed.), *Sustainable Development Environmental Security*, (Macmilan Press Ltd., Delhi). 1997, p.425.

³ Liaquat Ali siddiqui, “Implementation of Global Environmental Treaties in Bangladesh”. *BISS Journal*. (Dhaka), vol 21, no.3. 2000, p.324.

Government's Approaches to Tackle Climate Change:

Government of Bangladesh has been addressing the problem of sustainable development in general and climate change in particular since the Second Five Year Plan. The *Second Five-Year Plan (1980-1985)* envisaged development of local energy and to substitute imported oil by natural gas. “The plan emphasized that efforts should be directed to harness natural endowments such as solar and wind energy”⁵. The *Third Five-Year Plan (1985-1990)* was the first plan that discussed about the cyclone warning system of the coastal area. Climate change committee was created in 1992 under a climate change vulnerability assessment project supported by the government of the Netherlands and is entrusted with the responsibilities for coordinating climate change activities in Bangladesh. The Ministry of the Environment chairs the committee. “Department of Environment is mostly responsible for the enforcement of environmental laws and policies in Bangladesh. Department of environment has established separate administrative unit to act as focal points under the multilateral treaties as ozone depletion, climate change and bio-diversity convention”⁶. But after 1998 the committee has become inactive.

⁵ M.Q.Mirza & Ainul Nishat, “Development and Environment in Bangladesh: Past Approach, Present Concerns & Future Issues”, in Q.K. Ahmad,(ed), *Bangladesh Past Two Decades and the Currents Two Decades*, (BUP Academic Publishers, Dhaka), 1994, p.90.

⁶ Op.cit., Liaqat Ali Siddiqui, p.327.

The *Fourth Five Year Plan (1990-1995)* gave priority to environmental problems because of global environment concern. The plan was also influenced by the first report of IPCC, which had recognized the reality of climate change and vulnerability to coastal states. It envisaged rehabilitating the denuded and degraded national forest land. Regarding the energy sector the plan suggested introduction of improved earthen cook stoves and mud chollas in rural areas for biomass conservation. It also recommended to train government/semi-government/NGO personnel and later to train up private entrepreneurs for the same purpose. "It was estimated that it would save energy equivalent to 17,000 tones of kerosene"⁷. Besides that, "Government have identified projects such as transition to efficient domestic lighting, cooking and refrigeration systems, conversion of its filthy two stroke auto rickshaws fleet to four stroke engines and much needed mass transit systems"⁸. In order to improve the environment the plan outlined development of appropriate environmental quality standards in industry and creation of public awareness programmes.

In 1995 Bangladesh government brought out a *National Forestry Policy* and *Twenty Year Forestry Master Plan*. The main objectives of the policy are the

⁷ Op.cit.,M.Q.Mirza, p.96.

⁸ Paper by Kaus Toepfer, (Under Secretary General of the UN and Executive Director of the UNEP). *The Challenge of Clean Development*, p.2.

fulfillment of national responsibility and commitments relating to global warming and desertification. “The forestry plan asserts that attempts will be made to bring about twenty percent of the country’s land under the afforestation programs of the government and private sector by the year 2015 by accelerating the pace of the program through the coordinated efforts of the government and NGO’s and active participation of the people”⁹.

In the *Fifth Five-Year Plan (1995-2000)* the government laid out some goals, for sustainable development. Oil and gas sector were given priority. The plan elaborately described the goals and objectives for the sustainable development. “Moreover, its Fifth Five Year Plan recommended establishment of a “Green Fund” to facilitate investment in clean technology for pollution control where other commercial moneylenders may not be willing to invest. Such a fund would partially help reduce local pollution in Dhaka, the country’s capital city”¹⁰.

The, *National Energy Policy* of 1995 strengthened the importance of energy sector which was outlined in Five-Year Plan. The important objectives of it are to-(a) Ensure optimum development of all the indigenous energy sources; (b) Ensure rational use of all potential energy source with balanced

⁹ Mozaharul Alam and others, “Bangladesh” in B.Biagini (ed), *Economic Priorities and Climate Protection in Developing Nation*, (National Environmental Trust (NET), Washington.DC), p.108.

¹⁰ *ibid.*, p.109.

energy mix, so that total dependence on single source viz. natural gas may be avoided. (c) Ensure environmentally sound sustainable energy development projects causing minimum damage to environment.

The Fourth Five Year Plan (1990-1995), Fifth Five year plan (1995-2000), and Energy policy of 1995 show the willingness and commitment of Bangladesh government to tackle the problem emanating from the deterioration of the environment. Apart from the attempts undertaken by Five Year Plans to address the malady of climate change, Bangladesh Constitution enshrines the “right to healthy environment”, (Article 31&32) as a fundamental right to life. Elaborating the Art.31 and 32 of the Constitution in 1996, Supreme Court of Bangladesh in two cases has resolved that the “right to life includes the right to a healthy environment”¹¹. In spite of Constitutional provision and willingness of the government, nothing substantial has taken place.

Government of Bangladesh in attempt to educate its people on subject, “environment was introduced as a subject in the curriculum of primary and secondary classes as ‘Parikesh Parichiti’ or ‘Know your Environment’. This is in the right direction, as it would lead to enhance the awareness about

¹¹ Philip Gain, *Bangladesh Environment: Facing the 21st Century*. (Society for Environment and Human Development (SEHD), Dhaka), 1998, p.261.

environment at the grass root level. However, the policy could become more effective with the involvement of NGOs.

Apart from the domestic measures addressed in various plans, Bangladesh has also played an important role in international fora. The government of Bangladesh in their country report for UNCED, Brazil 1992 has proposed several steps: “(1) Concessional finance on affordable non-commercial terms. (2) Compensation from polluters. (3) Waiver of any green conditionality unless additional fund is attached to aid, and (4) Special environmental fund. The government of Bangladesh declared the year 1990 as “The year of Environment” and 1990-2000 as “Decade of Environment” respectively”¹².

External Collaborations to Address the Climate Change:

During mid 90’s government of Bangladesh in collaboration with UNDP developed a remarkable National Environment Management Action Plan (NEMAP), through an unprecedented public consultation held nationally involving people from all strata of life. NEMAP was incorporated in the Fifth Five-Year Plan. “NEMAP, is designed to provide a participatory programming framework within which support interventions have been logically identified and prioritized including capacity building assistance to

¹² LL Mehrotra, *Towards a South Asian Community*, (Indian Council for Cultural Relations, New Delhi), 1997, p.99.

the government, NGO's and civil society bodies for environmental protection, regeneration and sustainable natural resource use and management"¹³. NEAMP envisaged setting up of environment courts. It was passed by Parliament in 2000, but little headway has been made in implementing the law.

The follow up to NEAMP is Sustainable Environment Management Action Plan (SEMAP). "SEMAP's, projects are clustered into five thematic areas: policy and institutions, participatory eco-system management, community-based environmental sanitation, advocacy and awareness and training and education"¹⁴. Overall, SEMAP will benefit grassroots level people, in eco-specific intervention areas enable the poor to have more access to environmental resources, and enhance capacity for making community environmental decision.

Role of Non Governmental Institutions: In order, to know the impact of climate change, institutions of Bangladesh have conducted various studies. A study was conducted by Bangladesh Center for Advanced Studies (BCAS) in association with Resource Analysis, the Netherlands and Approtec, ltd. The study concluded that climate change and sea level rise would affect whole country through inundation, drought, and salt-water intrusion. Second

¹³ *Environment and Natural Resource Management and Food Security*, www.un-bd.org/undp. p.1.

¹⁴ *ibid*

study undertaken by BCAS with the Bangladesh Institute of Development Studies (BIDS) and Bangladesh Unnyan Parishad (BUP) examined the country's vulnerability and adaptation, mitigation options and information dissemination. It stated that the southern part of the Bangladesh would be most vulnerable in terms of inundation and salt-water intrusion. "A third study, Asian Least Cost Green House Gas Abatement Study (ALGAS) completed in 1998, by the BCAS in association with BIDS, BIET and BUP considered three components: Green house gas emission inventory for energy, the agriculture and forestry sector, analysis of several mitigation options for GHG reduction and portfolio of bankable project"¹⁵.

Apart, from studies conducted by various institutions of Bangladesh in collaboration with other countries, Bangladesh has also made important contributions in the science of climate change but has done less so in the negotiation. Several of the lead authors of the third assessment report of IPCC are from Bangladesh and Bangladeshi experts have been invited to carry out training of scientists in other countries (such as in Myanmar, Bhutan and Mongolia). Bangladeshi experts and institutes have recognition in the field of climate change studies, particularly on assessment of vulnerability and adaptation measures. The irony is that very little has been

¹⁵ Op.cit., B.Biagini, p.106.

done in Bangladesh to mitigate the impact of climate change due to poverty, exploding population, and other priorities of the government.

Necessary Measures to be Taken by Government of Bangladesh:

The progress has been very dismal primarily due to the poverty and increasing population. The dismal performance could also be attributed to centralized system of planning and management, which sometime considerably affect projects that are designed to promote changes in land use through participation of end users and beneficiaries. There is need of coordinated institutional response to climate change by the government of Bangladesh. Coordination is required to analyze climate data, to make projection of climate change, to assess vulnerability to climate change, to develop coordinated research agendas and policies and to develop guidelines for inclusion of climate change impacts on resource and project planning. The planning for climate change should be incorporated in long term planning. There is need for improvement in information dissemination network and corresponding extension services.

On one hand, Constitution of Bangladesh addresses the environmental problem and on the other hand “Bangladesh constitution ratification of a treaty does not automatically become a part of the laws of the land, Parliament should pass legislation in order to transform the treaty provisions

into domestic law”¹⁶. This would help in putting place a legal framework supportive to the effective implementation of and compliance with environmental treaty obligations. Moreover, there is need for the revivalism of administrative unit, which was created under DOE, and it should be entrusted with the task to address adaptation to climate change. “In addition to natural resource/environment agencies, there is requirement for the involvement of ministry of external affairs so that Bangladesh negotiating positions for the UNFCC gets strengthened”¹⁷.

By the above said points it may be stated that Bangladesh faces with multiple of problems which create obstacles in tackling the menace of climate change, most prominent amongst it are poverty, and backwardness, education system. Collaboration with India could prove to be important and it will be in the interest of both the countries. Some collaboration has taken place, for example in 1996 the government of Bangladesh and India signed agreement on sharing the low Ganges flow. It is one if the historic agreement between both the countries. However, “discussions on sharing of cross-boundary river flows need to include contingencies for changes in runoff and demand due to climate change because, out of 57 cross boundary rivers in Bangladesh, 54 are shared with India. Agreement related with river

¹⁶ Op.cit., Liaqat Ali Siddiqui, p.325.

¹⁷ Op.cit., World Bank Report, p.78.

water could also lessen the burden on transport sector by making the river more navigable”¹⁸.

Dr. Saleemul Huq, Executive Director of the BCAS, suggested that, “Bangladesh government should take a more active role in the international climate change negotiations to persuade other developing countries to reduce their emissions. This requires acting independently instead of lining up with the majority of the developing countries as Bangladesh usually does in international fora, because many countries have very different interests”¹⁹. He also proposed that a climate change impact assessment should be added to the environmental impact assessment already required for major new development projects. With the participation in the environmental treaty regimes, Bangladesh can gain most and evade the global environmental problems. Apart from receiving financial and technical assistance, it would help in its sustainable development programme by restructuring its energy, industry and forestry sectors.

Bangladesh needs to take much more serious and strategic view of the global negotiations on the climate change and use its known expertise and talents to maximum effect. The Government of Bangladesh should cooperate and

¹⁸ Ibid., World Bank, p.17.

¹⁹ *Just a Lot of Hot Air? A Close Look at the Climate Change Convention.* (Panos Institute. London), 2000,p.5.

participate vigorously on the issue of “action for equity and global solidarity”, raised by India in the climate change negotiations. Per capita carbon dioxide emissions are closely related to a country’s level of economic development and standard of living. It is a very important issue, especially for countries like Bangladesh, which need space for its future economic growth. To head a team of governmental experts a chief negotiator should be appointed who has the necessary negotiating skills and knowledge of international negotiations.

Alertness in the global negotiations is very essential as the discussion is going on the provisions of the Kyoto Protocol like, Clean Development Mechanism (CDM). “By which developed countries can finance emissions reducing projects in developing countries, gaining certified emission reductions to help them meet their own emission reduction targets”²⁰. Moreover, by CDM, Bangladesh could gain investment in forestry sector because Bonn agreement has incorporated afforestation, reforestation projects to be eligible under CDM in non-annex countries. Tropical rain forest in coming days is likely to become a source of strength in future bargaining with the developed countries that needs these genetic resources in their industrial process, such as biotechnology.

²⁰ Ibid., Panos, p.18.

The Bonn agreement of July 2001 has strengthened the Kyoto Protocol with the inclusion of three new funds (see chapter 2 for the details). The new funds would be important for Bangladesh because it falls under least developing countries and is party to Protocol. The next section of the chapter will focus on the likely impact of the climate change on the Bangladesh.

Likely Impact of Climate Change: -

The impact of climate change is likely to be experienced by various sectors, prominent among it are loss of land due to sea level rise and agriculture. The coastal land area would experience the adverse impact. There is possibility of intensification of internal strife among the peoples for the land and there is also possibility of dispute with India due to migration to adjoining territory of India. The sectors of Bangladesh coastal resources identified as most vulnerable to climate change and sea level change are agriculture, aquaculture, fisheries, forestry and tourism.

Land Resources: The coastal land area would experience the adverse impact. More or less half of the Bangladesh would be affected because half of Bangladesh lies at elevation of less than five meters. “One-meter rise in sea level by the middle of century is expected to inundate about 5.608 million acres of existing coastal land which is about 15.8% of the total area of Bangladesh. The total of 62 Upazilas (out of 464 Upazilas) of 13 new

districts (out of 64 districts in the country) will be affected by one meter sea level rise”²¹. “It is estimated that in the adverse case sea level would rise by 209 cm. The likely impact would render 17 million people as environmental refugees and 18% of the habitable land would be under water. By the year 2100, the really worst scenario shows that 35 % of the nation’s population- 38 million would be forced to relocate”²². The higher sea level will increase salt water, which will reduce mangrove forest cover and will disrupt major fisheries within the fragile ecosystem. One-meter rise in sea level would destroy the entire 401,600-hectare of mangrove forest in the sunder ban as well as 36,000 hectare of mangrove forest along the coast. It is estimated that it will inundate 11.5% of land area, displace 9% of the people and threaten 8% of GDP. “According to another estimate “45cm sea level rise along the Bay of Bengal coast would submerge some 15,700 sqkm of land (about 11% of the total land area) including 75% of the Sunderban mangrove forests. Several ports would also be affected”²³.

The combined effect of warmer climate and higher seas will increase the frequency of tropical storm and cyclones. It is said that the 1991 catastrophic cyclone was due to rising sea level and warmer climate. Increase in

²¹ *Regional Study on Green House Effect and its Impact on the Region*, (SAARC Secretariat, Kathmandu). December, 1992, p.53.

²² Narottam Gaan, *Environment and National Security: A Case of South Asia*, (South Asian Publishers, New Delhi), 2000, p.67.

²³ Hemayet Hossain, “Environmental Planning”, in Zafarullah, M.A. Taslim Anis Chowdhury (ed) *Policy Issues in Bangladesh*, (South Asian Publishers, New Delhi), 1994, p.255.

temperature will also lead to melting of Himalayan ice cap, which would result in massive flooding. In Bangladesh flood has always hampered the growth in general and agricultural production in particular. Normally each year 18% of the country gets flooded. Since 1961 Flood have killed more than one million people.

Agriculture Sector: By the middle of century it is expected that the rise in sea level will cause “inundation of 2.915 million acres of net cropped land and 28.99% of forest area of the country will be lost due to sea level change, resulting in production losses of more than 2 million tones of rice, 1300 tones of wheat, 214000 tones of jute, 97000 tones of vegetables, 37000 tones of oilseeds, 37000 tones of oilseeds and 97000 tones spices.”²⁴ It will amount to a “loss of nearly Tk29.71 billion worth of agricultural crops and Tk 441.95 bn worth of physical assets, land and other structures are likely to be affected”²⁵.

Migration: Sea level rise is likely to intensify the erosion and scarcity of Bangladesh’s resource base resulting in large number of people’s displacement. Migration is not confined to the territory of Bangladesh. Over the last four decades; millions have migrated and continued to migrate to the neighbouring Indian states of Assam, Tripura, West Bengal and Orissa. It

²⁴ Op.cit., Narottam Gaan, p.85.

²⁵ Op.cit., C.R. Abrar, p.425.

has been calculated at 12 to 17 million with 7 million alone in Assam. These refugees have added to its current total of 22 million. An estimate suggests that as many as 1000 people a month are coming to West Bengal. Many of the refugees were involved in the rioting and carnage after 6 December 1992. As projected from the continued migration from Bangladesh to India, by the year 2020 there will be 220 million Bangladeshi and more than one billion Indians competing for land and job. It is expected that the problem of migration will accelerate with sea level rise. This will compound the problems for India and will further downgrade Indo-Bangladesh relations. Due to migration there is feeling of frustration and deprivation among the peoples of Bangladesh. According to “Narottam Gaan”, “one of the primary reasons of democratic regimes not being successful in Bangladesh can be traced to the deepening poverty and internal calamities like floods, cyclones and surges”²⁶.

Tourism Sector: Rise in sea level would inundate some of the pristine sandy beaches along the Chittagong coastline. It would affect the prospect of tourism development in the coastal area. Moreover, high intensity storm surges would jeopardize the extension of energy recovery activities in the coastal areas and supporting industries especially in the offshore areas. Due

²⁶Op.cit., Narottam Gaan, p.192.

to this apprehension no new heavy industries have emerged in recent years despite expansion of the infrastructure facilities in the coastal areas.

Economy: In terms of monetary loss, “Asuduzzaman has suggested that the overall macroeconomic impact of sea level rise would amount to some 30% of current GNP in the coastal zone or some 5% of overall Bangladesh GNP. Damages in absolute terms would be perhaps \$4.8 billion in terms ‘lost’ output in 2070.”²⁷ 45cms sea level rise would affect 195,000 jobs and some 790 kms of roads. The sea level rise also seriously affects the country’s trade due to disruption of road and rail links between Dhaka and Chittagong/Khulna.

According to the above stated points one could say that the impact of climate change on Bangladesh will be of multidimensional. Almost each and every sector will be affected. The next section will focus on the measures to mitigate the impact of climate change.

Measures to Mitigate the Impact of Climate Change:

The irony for Bangladesh is that its own emission is miniscule i.e., 0.1% of the global total but its geographical location are such that the magnitude will be very high. “55% of the total energy consumed in Bangladesh comes from

²⁷ D.W. Parce, and others, “The Social Cost of Climate Change; Green House Damage and the Benefits of Control”, in , James P. Bruce Hesung Le, Erik F.Haites (ed) *Climate Change 1995, Economic and Social Dimensions of Climate Change, Working Group IIIrd*, Pub. for the IPCC. (Cambridge University Press. USA), 1996, p.210.

the traditional organic fuels, 24% comes from natural gas, 19% comes from the import of coal and mineral output and 2% comes from hydroelectric generation”²⁸. It is observed that energy from natural gas is increasing gradually and the revenue from this sector is also increasing steadily. It was Tk 2 billion in 1986 and in 1993 it was Tk.7.3 billion. The sector could become more profitable if the government of Bangladesh foster some co-operation with government of India because the total estimated natural gas reserve is around 22.90 trillion cubic feet (Tcf) of which 13.60 Tcf is considered recoverable. Regarding the carbon dioxide emission Table 3.1 below presents the contrast between Bangladesh and US.

TABLE: 3.1

| | GDP/Energy use | | Traditional fuel use | | Carbon dioxide emissions. | | | | | |
|------------|-----------------------|------|-----------------------|------|---------------------------|---------|------------------------|------|-----------------------|------|
| | PPP \$ oil equivalent | | % of total energy use | | Total million metric tons | | Per capita metric tons | | Kg per ppp \$ of GDP. | |
| Country | 1980 | 1999 | 1980 | 1997 | 1980 | 1998 | 1980 | 1998 | 1980 | 1998 |
| Bangladesh | 5.7 | 10.8 | 81.3 | 46.0 | 7.6 | 23.4 | 0.1 | 0.2 | 0.2 | 0.1 |
| US | 1.6 | 3.9 | 1.3 | 3.8 | 4,626.8 | 5,447.6 | 20.4 | 19.8 | 1.6 | 0.6 |

Source: World Development Indicators (World Bank) 2001, pp.162-64.

In order to lessen the burden on fossil fuels for energy India’s co-operation could prove vital because Eastern Bangladesh and northeast India have the

²⁸ Farah Hasin, “Population Carrying Capacity and Sustainable Development in Bangladesh” *BIS Journal*, (Dhaka), vol.21,no.3,2000, p.296.

same geological structure. There is need to strengthen the arrangement which India and Bangladesh had finalized for sharing surplus power. “Under the arrangement there was provision for exporting the surplus power from the Eastern States of India to the deficient western region of Bangladesh and in turn the surplus power from eastern part of Bangladesh will be exported to the North East states of India”²⁹. The proposed arrangement will be in the interest of both the countries. By sharing seismic data more efficient explorations could take place and at lower costs.

Although, both the countries have taken some positive steps, due to internal politics of Bangladesh it is still not finalized. During Awami League rule there was “proposal regarding a joint pipeline from Tripura via Eastern Bangladesh, through Western Bangladesh on to West Bengal”³⁰. The proposal is in interest of both the countries because Assam can provide cheap transit route to supply gas from eastern and western Bangladesh. Despite the benefits outlined in the proposal, the proposal has not materialized due to the internal politics of Bangladesh. During Awami rule then opposition party BNP opposed the proposal and when BNP has come in power, the Awami League is opposing it. Saikh Hasina after loosing the

²⁹ *South Asia Development and Co-operation, Report 2001\02*, (Research and Information System for the Non-Aligned Countries, New Delhi), 2002, p.190.

³⁰ *ibid.*,p.199.

election alleged that India's gas pipeline proposal was the reason behind her party defeat and it was India's conspiracy that was done in the connivance with BNP to defeat her party. It shows that anti India feeling is very strong in Bangladesh, which from time to time, the politicians take advantage of. This type of internal politics is bound to thwart any meaningful agreement with India. The leaders of Bangladesh have to come out of this opportunist politics and should give serious thought on the issue so that something tangible takes place.

The "cumulative delay in developing the gas fields, delays in building the pipeline infrastructure and complexity in procuring other surface facilities poses serious constraint in moving ahead in natural gas exploration".³¹

Poverty is one of the biggest handicaps of Bangladesh and due to lack of money, installation of infrastructure and transportation facilities get jeopardized. Acknowledging the problem of finance, Bangladesh government in 1993 set up the Gas Infrastructure Development Board to augment gas supply and private investment in this sector. Still lot is to be done in this field by providing some incentives to private investor in general and to India in particular. India's role becomes important because of proximity and of similar typology. Moreover, India could also provide

³¹ Narottam Gaan, *Environment Degradation and Conflict: The Case of Bangladesh-India*, (South Asian Publishers, New Delhi), 1998, p.151.

market for the natural gas. It is estimated that “200mcf gas per year to India could fetch annual revenue of US \$400 million to Bangladesh”³².

Government of Bangladesh should chalk out plan for exporting the natural gas. USA in particular has been suggesting Bangladesh to export its natural gas. In 1999 then President of USA Bill Clinton, during his visit to Bangladesh had asked government to export natural gas and to finalize the gas pipeline with India. But nothing has been done to expedite the project. Again in March 2002 USA Assistant Secretary of State, Ms Christina Rocca during her visit to Bangladesh from 11-13 March told the new government that it is in the interest of Bangladesh to make a “positive decision” on gas export “to broaden its investment base and woo USA entrepreneurs”.³³ However, the Begum Khalida Zia government seems unlikely to take immediate decisions on the issue. The Khaleeda government has constituted two study teams to make recommendation on gas export. The issue should resolve as early as possible otherwise the new fund created by Bonn agreement would be of no use for Bangladesh.

Importance of Forest:

The impact of climate change could be mitigated through adoption of measures in land use changes and forest. Forest, reduces air pollution and

³² Op.cit; RIS Report, p.199.

³³ Hindu 14 March 2002.

improves the environment, checks green house effect, conserves the soil, maintains its fertility and stores water. There was some dispute on the vitality of forest as carbon sink, however, last year during Bonn meeting its vitality has been accepted and in coming days it is going to play very important role. Bangladesh had good forest cover area but due to reliance of people on the forest, its coverage has been decreasing. “According to the official estimate the total forested area has been reduced from over 20% in the 1960’s to less than 10.2% at present. “The rate of deforestation in Bangladesh is estimated to be four times higher than the region’s average of 0.68%”³⁴. Table 3.2 below provides statistic about the forest area in 2000 and average annual deforestation (1990-2000) of Bangladesh.

TABLE-3.2

| Country | Forest area in 2000 | | Avg. annual deforestation 1990-2000 | |
|------------|---------------------|----------------------|-------------------------------------|------------------------|
| | Thousand Sq. Km | % of total land area | Sq. Km | % of total forest area |
| Bangladesh | 13 | 10.2 | -165 | - 1.3 |

Source: World Development Indicators (World Bank), 2001, p.138.

“The destruction of forest in Bangladesh is due to limitless demand and need for poles, posts, fuel wood, grazing, shrimp cultivation and humans have made a large part of the mangrove forest in Chakaria sunder ban denuded. Sundari and Gewa in the Khulna sunder-ban have declined by 40-50%

³⁴ SAARC Survey of Development and Cooperation 1998\99. (RIS, New Delhi), 1998. p.104.

respectively”³⁵. Besides the human demand, many wood based industries both in public and private sectors are equally responsible for the deforestation. International financial institutions aided projects of planting exotic species have also contributed to the destruction of forest. Destruction of the mangrove in particular is a matter of concern for Bangladesh because, “mangroves play crucial role like protecting coastal areas from cyclone and storms, saving coastal lands from tidal surge and wind erosion, harboring a wide range of flora and fauna etc”³⁶.

The Fourth Five-Year Plan (1990-1995) recognized the importance of forest and expressed concern about the rapid deforestation, and envisaged to rehabilitate the denuded and degraded national forest. Contrary to the program outlined by Fourth Five-Year Plan and the forestry master plan, it is found that the massive deforestation takes place in the reserved area, where bureaucratic management is in force and where people have no access. It is primarily because the environmental administration in Bangladesh is not effective and resulted in expanding the bureaucratic machinery because too many ministries and departments run the environmental programmes. The pre-requisite measure is to tighten the bureaucratic circle.

³⁵ Op.cit., Narottam Gaan, p.25.

³⁶ M. Akhtar Hamid and Bruce R.Frank, “Ecotourism Under Multiple Use Management of the Sunderban Mangrove Forest in Bangladesh: Issues and Options”, in Md. Alauddin and Samiul Hasan (ed). *Development, Governance and the Environment in South Asia: A Focus on Bangladesh*, (Macmillan Press Ltd, UK), 1999, p.279.

Land use policy reform needs primary attention based on multi disciplinary intersectoral approaches in order to ensure optimum use of land, protection of land from degradation, reclamation of utilized or degraded land for suitable use and improvement of land for future generation. Environmentally sound agricultural and livestock policies need to be devised for suitable sustainable use of the land resources. Protection of existing tropical forest and mass scale afforestation programs should be undertaken to prevent environmental degradation. Flooding in Bangladesh is also associated with deforestation within and outside of its boundary mainly in the region of Himalayas. Regional and international efforts should be initiated to control the frequency of floods.

Importance of Non-Conventional Energy Sector:

Efforts should be directed to harness alternative energy like solar, wind and hydro electricity in order to reduce people's dependence on fuel wood. In non-conventional energy sector India's help could prove to be fruitful because India is far ahead in these field especially in solar and wind power generation. Bangladesh also has the required infrastructure for these objectives like abundance of solar energy and the geographical location. To save the forest people's participation in managing and assessing the resources has to be at the core and appropriate policy changes have to be

made by the government and international financial institutions aiding forestry sector. Protection of existing forest and mass scale afforestation programs should be undertaken to prevent environmental degradation. For this environmental education is necessary to create awareness among the people to preserve the forests. NGO, the Press, Radio, Television and Cinema could play vital role in imparting knowledge through various mediums, which common peoples could easily understand.

Geographic Information System (GIS) can help an optimal and balanced utilization and management of Bangladesh resources. It will also help in “determining the geographic location, the extent of the affected area, and why the problem concerned has occurred, what are the specific environmental factors, how long the problem has existed, process over time that caused the problem etc”³⁷. GIS, makes planning and management exercises easier by providing easier and faster access to recent, relevant and reliable data. India’s role could be beneficial as it has global recognition in GIS field.

Importance of Multilateral Institutions:

Multilateral institutions like UNDP and UNEP aid could be of immense importance as they are involved in projects, which mitigate the impact of

³⁷ Op.cit., Hemayet Hossain, p.260.

climate change. UNDP also supports integration of global environmental concerns and commitments in national development planning. “UNDP is supporting the government of the Bangladesh to develop policies and model practices towards integrated pest management, intensification of agriculture through technology transfer, agricultural planning using GIS data base, horticulture development for nutritional support and community empowerment sustainable coastal fishing”³⁸.

There is need of collaboration on other issues while dealing with the problem of climate change, the most important among it is the alleviation of poverty because almost all the problems have symbiotic relation with it. Environmental policy (draft) published by government of Bangladesh have underlined that, “no environmental policy can be a practical proposition as long as vast mass of people remain illiterate and in abject poverty”³⁹. Therefore education and training needs to be enhanced with active participation of different organizations formal and informal to achieve required levels of public awareness regarding various problems faced by the peoples. Specifically, the alarming rate of population growth and its effect on natural resources and environment should be accorded priority.

³⁸ Op.cit., www.un-bd.org/undp, p.2.

³⁹ Op.cit., Hemayat Hossain, p.258.

Bangladesh government has to take some strict measures at domestic level to curb the pollution like preservation of forest, reduction of subsidies on fossil fuels and pollution created by transport sector. The government of Bangladesh should follow the example of India and China's example, "China has reduced the subsidies on coal from 37% to 29% between 1984 and 1995 and petrol subsidies were reduced from 55% to 2% between 1990 and 1995."⁴⁰ In transport sector India is partially successful in converting the polluting mode of transport to CNG in major cities. This would only be possible in Bangladesh, if the political parties cooperate, as it requires Parliament approval.

Overall, the chapter has provided description about Bangladesh and climate change. As Bangladesh is least developing country it is unable to take the mitigation measures because of various limitations. Therefore it will be appropriate if regional approaches were adopted to address the impact of climate change, as all the SAARC member countries would be facing the problem. In order to know about measures taken at SAARC level, the next chapter will focus on the regional approaches to tackle the impact of climate change. The chapter will also provide description about the measures taken and ought to be taken at SAARC.

⁴⁰ *Just a Lot of Hot Air? A Close Look at the Climate Change Convention*, (Panos Institute, London), 2000 p.33.

CHAPTER-IV

REGIONAL APPROACHES TO TACKLE CLIMATE CHANGE

Regionalism in international politics has become very important component in the post cold war period. It was present during the cold war period but the basic motto of it was vindicated due to the super power rivalry and their global designs. During cold war period, “approaches to the regional conflicts were made not according to the merit of the cases or regional demands, but to super power’s global outlook. As a result, many conflicts instead of being resolved aggravated”¹. The most prominent among it, is the environmental degradation in general and climate change in particular.

Regionalism in totality cannot be viable option in case of environmental problem. “Climate change for example is in one sense a global phenomenon, but its impacts are very unevenly distributed, and that unevenness does not take regional form”². Nevertheless, “regionalizing logic does comes into play in the environmental sector if either of the requirements get fulfilled: (a) A geographically coherent group of actors behave in such a way as to create a common problem in their own environment, or (b) An

¹ Narottam Gaan, “Comprehensive Security for the South Asia: An Environmental Approach”. *BISS Journal*, (Dhaka), vol.19, no.2, 1998, p.105.

² Barry Buzan, “The Logic of Regional Security in the Post-Cold War World”, in. *The New Regionalism and the Future of Security and Development*, vol.4. Bjorn Heithen Andres Inotai and Osvaldo Sunkel (ed). (UK, Macmillan Press Ltd.). 2000, p.17.

environmental impact with causes elsewhere happens to encompass a region”³. The both stated conditions apply to South Asian region (SAR) in case of environmental degradation due to climate change because it is common problem for all the countries with impact ranging from high to low magnitude. Therefore regional approaches could be most appropriate for the region to tackle the climate change.

If one goes through the various statistics, one would come to conclusion that South Asian Countries (SACs) have emitted very miniscule amounts of carbon dioxide in the atmosphere relative to the developed countries but the irony is that the impact is likely to high magnitude in the SAR due to its geographical location. For details see Table 4.1.

TABLE- 4.1

| COUNTRY | Carbon dioxide Emission in 1985 (in metric tones) | Carbon dioxide Emission in 1995 (in metric tones) |
|------------|---|---|
| Bangladesh | 7.6 | 23.4 |
| Bhutan | NA | NA |
| India | 347.3 | 1,061.0 |
| Maldives | NA | NA |
| Nepal | 0.5 | 3.0 |
| Pakistan | 31.6 | 97.1 |
| Sri Lanka | 3.4 | 8.1 |
| USA | 4626.8 | 5447.6 |
| Germany | NA | 825.2 |
| Japan | 920.4 | 1133.5 |

Source: World Development Indicators, 2001, pp. 162-64.

³ Ibid., p.18.

Apart from the table the statistics given in the below Table 4.2 illustrates that there are enormous inequity in terms of per capita emission of SACs relative to US per capita emission. Table 4.2 given below provides details.

TABLE-4.2.

Per capita Capita Emissions of US and South Asia:

| COUNTRY | Per capita Emissions (million metric tons) | | No. of Citizens Equivalent to one US Citizen. | |
|------------|---|------|--|------|
| | 1990 | 1996 | 1990 | 1996 |
| USA | 5.8 | 5.37 | 1 | 1 |
| Bangladesh | 0.04 | 0.05 | 130 | 107 |
| Bhutan | 0.02 | 0.04 | 259 | 134 |
| India | 0.22 | 0.29 | 24 | 19 |
| Maldives | 0.19 | 0.31 | 27 | 17 |
| Nepal | 0.01 | 0.2 | 518 | 269 |
| Pakistan | 0.16 | 0.18 | 32 | 30 |
| Sri Lanka | 0.06 | 0.11 | 86 | 49 |

Source: “CSE Statement, Making the Kyoto Protocol work Ecological and equity effectiveness, and equity in the climate regime”, Anil Agarwal, p.12.

Both tables clearly illustrate that there is huge gap between the industrialized countries and the South Asian countries in terms of carbon dioxide emission and per capita emission. Furthermore, the region is likely to experience the devastating impacts more than the industrialized countries.

A regional approach becomes important due to the failure of global negotiations. Moreover, all the South Asian countries are and will be experiencing the problems occurring due to change in the climate. It is likely to get aggravated due to number of factors like, poverty, high rate of

population growth and the dependence of the population on the environment. Most vulnerable sector would be, reduction in agriculture production, decline in economic growth, population displacement, and disruption of regular and legitimized social relation. These in turn would cause specific types of acute conflict, including scarcity disputes and violence both at intra-state and inter-state levels, each with potentially serious repercussions for the security interests of the human and other living beings.

Therefore, “there is a natural need for the SAARC member countries to cooperate with each other and share experiences and resources in their common endeavor to ensure a safe, sustainable and better future for their peoples”⁴. Though regional approach is imminent however, the region’s countries have also taken measures to ratify the treaty related with climate change, and have, “established sound policy positions, administrative systems and methods of resource management for a solid environmental base. They are thus in a situation in which co-operation and exchange of skills and experience would constitute mutual support to their national efforts in development and environment”⁵.

Before going in details about the regional approaches, which are taken and discussed at SAARC level, I would like to give brief description about the

⁴ Op.cit., Narrotam Gaan, p.108.

⁵ C.Suriya Kumaran, “Nature of the Environmental Problems in South Asia”. *South Asia Journal*, vol.3,1&2, (New Delhi, Sage Publications), 1989, p.3.

pre-SAARC measures adopted by the region's countries to tackle the environmental degradation. "South Asia Co-operative Environment Programme (SACEP) was set up by a ministerial plenary meeting at Colombo on 25 February 1981. The 'Colombo Declaration' and 'Articles of Association' were adopted and subsequently ratified by the governments of the countries concerned- Afghanistan, Bangladesh, Bhutan, India, Iran, the Maldives, Nepal, Pakistan and Srilanka- with a Directorate and Headquarters at Colombo, Srilanka."⁶ Apart from SACEP, the U.N. Economic and Social Commission for Asia and Pacific has taken an active interest in preventing environmental degradation in the South Asia region.

Furthermore, the region has program to tackle the sea level rise "The South Asian Regional Seas Programme" initiated by UNEP in 1983, was adopted on 24'th March 1995 in New Delhi. It is operated through the effective implementation of an 'Action Plan'. SACEP is designated as Secretariat of the programme. The objective of the 'Action Plan' is to protect and manage the marine environment and related coastal eco-systems of the region. This includes the promotion of sustainable development and sound management of regional marine and coastal resources by: establishing and enhancing consultants and technical co-operation among states of the region;

⁶ Ibid., p.1.

establishing a regional cooperative network of activities concerning concrete subjects or projects of mutual interest for the whole region.

SAARC's Role in Mitigating the Impact of Climate Change:

Environment is identified as one of the eleven areas of co-operation within the 'Integrated Programme of Action' (IPA) of the SAARC. The Technical Committee on Environment and Meteorology is responsible for monitoring the implementation of the projects related to environment. The first major initiative on environmental issue was taken during the *Third SAARC Summit*, held from 2-4 Nov.1987 at Kathmandu. The Head of States (HOS), expressed concern over the danger posed by the global sea level rise and its impact on SACs. In order to tackle the malady of sea level rise, they decided to intensify regional cooperation with a view to strengthening their natural disaster management capabilities. The summit decided to commission a study on causes and consequences of "Natural Disasters and Protection and Preservation of the Environment". National studies were undertaken and subsequently consolidated into a regional study, which was approved by the 6'th SAARC summit (Colombo, 1991).

The *Fourth SAARC Summit* held at Islamabad from 29-31 Dec. 1988. “The HOS expressed profound sorrow at the natural disasters suffered by Bangladesh, Nepal, India and Pakistan in 1988 and urged that the study on the ‘Causes and Consequences of Natural Disasters and Protection and Preservation of Environment’ be completed in the shortest period of time so as to provide a rational basis for identifying areas keeping in view the potentials and possibilities of evolving a regional plan of action, particularly to strengthen disaster management capabilities and to protect and preserve the environment”⁷.

The summit decided to undertake a joint study on ‘Green House Gas Effect and its Impact on the Region’ SAARC Secretariat published the Report in 1992. The study suggested number of programmes to tackle the potential danger of green house effect on the region. The Seventh SAARC Summit, held in Dhaka in 1993, formally approved the study. In the same year Technical Committee on the Environment decided on number of modalities to successfully implement the recommendations made by the study, which includes:

“(a) Improving climate monitoring capability through networking arrangement and through SAARC Meteorological Research Center (SMRC).

⁷ SAARC Secretariat, *Declarations of SAARC Summits (1985-98)*, (Kathmandu), August, 2001, p.44.

arising from climates and sea level rise”⁹. In the summit it was agreed that member countries should co-ordinate their positions at international fora on this issue. They also decided to observe 1992 as the “SAARC Year of Environment”.

During Sixth SAARC Summit at (Colombo, Dec. 1991), SMCs were of the view that that regular environmental ministers meeting should be held to formulate a common regional strategy. In the same year a report by the SAARC Secretariat was brought out titled “Green House Effect and its Impact on the Region”. The report highlighted possible dangers for the region due to green house effect and suggested certain policy measures. According to the report, “the energy sector is the primary contributor of carbon emissions in all the SMC’s. The table given below provides details.

TABLE- 4.3.

| COUNTRY | SECTOR | FUEL |
|------------|----------|-------------|
| Bangladesh | Industry | Natural gas |
| Bhutan | Domestic | Fuel wood |
| India | Industry | Coal |
| Maldives | Domestic | Oil |
| Nepal | Domestic | Fuel wood |
| Pakistan | Industry | Oil gas |
| Sri Lanka | Domestic | Fuel wood |

Source: SAARC Secretariat, Regional study on green house effect and its impact on the region, Kathmandu, 1992(a) p.46.

⁹ Op.cit., Declarations of SAARC Summits, p.51.

- (b) Developing climate change and sea level rise scenario through country specific studies and sharing of data.
- (C) Making available to member states expertise on climate research and monitoring green house gases emission.
- (d) Identification of training and research institutions and ongoing programmes.
- (e) Exchange of information and data.
- (f) Exchange of experience on strategies for developing, migrating and adaptive responses to climate change”⁸.

The establishment of ‘Technical Committee on the Environment’ and the publication of the first IPCC report by UN in 1990, that confirmed the reality of climate change, stimulated the flurry of seminars and discussion related to climate change and the environmental issues started featuring in the SAARC summit agenda.

During the *Fifth SAARC Summit*, at Male from 21-23 Nov.1990 the SAARC Member Countries, noted with alarm the unprecedented climatic changes predicted by the IPCC report. “They urged the international community to mobilize additional finances and to make available appropriate technologies to enable the developing countries to face the new challenges

⁸ RIS, *SAARC Survey of Development and Co-operation*, 1998/99, (New Delhi,), Jan.1999, pp.114-115.

During the *Seventh SAARC Summit* at Dhaka from 10-11 April 1993, SMC's expressed their commitment to implement at all levels-national, bilateral, regional and global-program for the protection and preservation of the environment and prevention of the environment of its degradation. The HOS recognized that the completion on the "Green House Effect and its Impct on the Region" was a significant step forward in promoting regional cooperation in this vital field"¹⁰. "They welcomed the outcome of UNCED, held at Rio in 1992, and urged that all international actions in the area of environment should be based on common but differential responsibilities, collective endeavors and a balanced perspective"¹¹. Such actions, they stressed, must consider the protection of environment, economic growth and eradication of poverty as mutually reinforcing. They reiterated their determination to continue in future the practice of intra-SAARC consultations on matters of common concern. SMC took step beyond the intra-regional level interaction, "SAARC and ASEAN meeting held in 1994 at Bangalore, to address the environmental issues through co-operation among the two regional blocs"¹².

During *Eighth SAARC Summit* at New Delhi from 2-4 May 1995, "the member states recognized that international co-operation is vital for building

¹⁰ Ibid., p.80.

¹¹ Op.cit., K Bhushan, p.121.

¹² Op.cit., RIS 1999, p.115.

up national capabilities, transfer of appropriate technology and promotion of multilateral projects and research efforts in natural disaster reduction”¹³. They expressed their commitment to implement at all levels-national, bilateral, regional and global-programmes for the protection and preservation of the environment and prevention of its degradation. They also recognized the tardy progress in implementing the recommendation of 1992 report published by SAARC Secretariat. They stressed the importance of effective and speedy implementation of the recommendations and requested member states to take all necessary steps without further delay in vital areas such as sharing and developing scientific capabilities to protect and manage the environment. “They further directed the technical committee on environment to monitor the progress, and submit a report to the IX’th summit through the Council of Ministers”¹⁴. The HOS urged that the GEF should be of much larger order if the needs of FCCC are to be met.

During *Ninth SAARC Summit* that held at Male from 12-14 May 1997 the member states pointed out, “Unsustainable consumption patterns in the developed countries and widespread poverty in the developing countries are major factors contributing to ecological degradation in different parts of the

¹³ Op.cit., K.Bhusan, p.140.

¹⁴ Op.cit., Declaration of SAARC Summits, p.101.

world”¹⁵. During the summit Maldives offered to host a meeting of the SAARC environment ministers to focus more directly on the environment concerns of the region including the formulation of plan of action for immediate implementation of recommendation contained in the two studies. The HOS observed that the meeting might also consider the feasibility of drawing up a ‘Regional Treaty on Environment’ in the context of existing international conventions on the subject. “They reiterated their view that member states should take all necessary steps in vital area such as sharing and developing scientific capabilities to protect and manage the environment”¹⁶. Focusing on the global scenario the HOS expressed dissatisfaction at the slow progress in the implementation of Agenda 21 of UNCED 1992 for reduction of green house gas emissions by developed countries.

During *Tenth SAARC Summit* at Colombo from 29-31 July 1998, the member states welcomed the adoption of the Kyoto Protocol to the UNFCCC in Dec 1997. “HOS urged all industrialized countries to ratify the protocol and to undertake urgent and effective steps to implement the commitments undertaken by them to reduce their emissions of greenhouse gases”¹⁷.

¹⁵ Ibid; K.Bhusan, pg-158.

¹⁶ Op.cit., Declaration of SAARC Summits, p.119.

¹⁷ Op.cit., p.182.

During *Eleventh SAARC Summit*, the HOS reiterated their call for the early and effective implementation of the SAARC environment plan of action and devise a mechanism for co-operation in the of the early warning system.

The above said deliberation of SAARC Summit shows that the environment has become a very important component of SAARC. Moreover it also shows that member states are very keen to find mitigation measures for the impact of climate change. By going through the discussion that have taken place at regional forum one could also say that from time to time they have kept reminding the developed countries to implement the international declarations.

Adaptation Measures Taken by SACs:

Apart from SAARC initiatives, the number countries have also under taken programmes and projects in their respective country in order to mitigate the impact of climate change. “Bangladesh is emphasizing appropriate watershed and water management technologies. Bhutan is promoting afforesting programmes and developing a national pastures policy to control overgrazing. Sri Lanka is interested in soil conversation programmes, conservation of coastal areas, and development of land use policies and plans. India has major programme for soil conversation and wastelands development and in developing a national land policy. Maldives is trying to

identify species appropriate for coastal island ecosystems and has undertaken afforestation program on a large scale. Nepal is emphasizing forest watershed and water management techniques. Pakistan has numerous programmes to control and reclaim water logged and salinic lands”¹⁸.

Although, SMCs have shown enthusiasm in tackling the problem of climate change but little progress has been made at ground level primarily due to the lack of resources, research facilities, trained personnel etc. Apart from these bottlenecks it has been observed that intra-SACs politics plays dominant role in supply demand equation. It could be illustrated by citing the example, sharing of water and hydel energy between India and Nepal, the Problems of exporting natural gas to India from Bangladesh and the recent proposals to sell electric power by Pakistan to India. In all these counts, sale or distribution of surplus energy have been viewed in some quarters as a depletion on the part of the countries holding surplus energy and the recipient countries like India have been reluctant to take the offers on the grounds of its perceived vulnerability, should adversarial situations lead to war in future”¹⁹. Therefore there is an underlying urgency for proper integration and co-operation between governments and citizens. For this

¹⁸ *Regional Study on the Causes and Consequences of Natural Disasters and the Preservation of the Environment*, (SAARC Secretariat, Kathmandu), p.199.

¹⁹ Lawrence W. Prabhakar, “Energy and Environmental Issues in South Asia, in Sudhir Jacob George (ed). *Intra and Inter-State Conflicts in South Asia*, (South Asian Publishers, New Delhi). 2001. p.162.

beginning should be made within the nations with greater degree of linkages horizontally among actors across political boundaries. One way out is by allowing the rich plurality of institutions working on climate change in the region a much wider and positive role than before in the way business was done earlier.

Role of NGOs:

Center for the Science and Environment (CSE), Tata Energy Research Institute (TERI), based in New Delhi, Bangladesh Center for the Advanced Studies (BCAS), Bangladesh Institute of Development Studies (BIDS) based in Dhaka, National Conservation Strategy (NCS), Sustainable Development Policy Institute (SDPI) based in Islamabad, all these institutions need to work together and synergise their research inputs. Moreover, the integration between these institutions would provide people's participation in resource management and interaction between the environmental NGO's.

Apart from above stated possible co-operation between non-governmental bodies, there are tremendous scope for cooperation between the governmental bodies of the member countries. Countries have established various governmental bodies to check the environmental degradation; ministry of environment is steering bodies in this field amongst all the country.

Role of Government Institutions:

In Pakistan, “the government, chiefly through the ministry of environment, local government and rural development (MELGRD) coordinates climate-relevant activities (project funding, studies, communications, awareness creation, climate negotiations, networking and capacity building)”²⁰. On the NCS recommendations “most of the provinces have created environmental cells in their planning and development (P&D).” “In India, Ministry of Environment and Forests (MOEF) is the apex body, all policy formulations, implementations and international negotiations on climate change are the responsibility of this agency. It coordinates all climate change related activities with the IPCC, UNFCCC, related international organizations such as the GEF and world Bank”²¹.

In Bangladesh, ‘Department of Environment’ has been designated as the focal point in the government for matters relating to climate change and it has produced a number of reports, publications and media advisories on climate change. In Sri Lanka also MOE is the nodal agency for formulation of strategy related with climate change. It has also set up district environmental agencies.

²⁰ Shaheen Rafi Khan, Iqbal, “Pakistan”, in B. Biagini (ed), *Economic Priorities and Climate Protection in Developing Countries*, (NET, Washington), p.78.

²¹ Kalipada Chatterjee, “India”, in B. Biagini (ed), *Economic Priorities and Climate Protection in Developing Countries*, (NET, Washington), p.39.

As in all countries the MOE is the nodal agency therefore, there is need for regular meeting of SAARC environmental ministers in order to know the development in their respective country to formulate a common regional strategy. Meetings have taken place in the past but not on regular basis as it was envisaged by SAARC. “The first SAARC environmental ministers conference was held in New Delhi in April 1992 to formulate a common strategy in the event of 1992 ‘Rio Earth Summit’”²². The second meeting took place in Male in October 1997 to formulate a common strategy in the event of 1997 Kyoto conference. Same year during the ninth SAARC Summit in Male the meeting of environmental ministers was institutionalized. During the tenth SAARC Summit in Colombo in 1998, “the SMC noted that the ‘SAARC Environment Ministers’ would be meeting in Sri Lanka in late 1998. They urged that in the forthcoming meeting ministers should also mandate specific measures required for SAARC to further strengthen cooperation on environment issues, with other international or regional organizations engaged in the same field”²³.

By the above stated points one could say that government and NGO’s are working, but outcome is not very satisfactory mainly due to the lack of co-ordination between government officials and NGO’s. In order to make it

²² Op.cit., RIS Report 1999, p.115.

²³ Op.cit., Bhusan, p.182.

effective, 'SAARC Environmental Board' should be set with a special cell of climate change. It should consist of official representatives of all the seven SAARC countries and some representatives from the NGO's active in the field of climate change. "Its primary responsibility should be to monitor the ongoing damage to the environment, and the impact of remedial measures under taken as an aid to official environmental agencies in each SAARC country"²⁴.

Apart, from the co-operation between the government's and NGOs to tackle the menace of climate change there is also scope from other sectors, which if channeled properly, could eventually lead to lessening the burden on the environment.

Following Initiatives Could be Appropriate in Tackling the Menace of Climate Change:

(1) Regular environmental ministers meeting of the SMC, strengthening the technical committee on 'Environment and Meteorology', fund provision for poor nations like Bangladesh and Maldives, adoption of joint strategy in global level conferences, like the collectiveness shown during 'Earth Summit' and 'Kyoto'.

²⁴ L.L. Mehrotra, *Towards a South Asian Community*, (ICCR. New Delhi), 1997, p.101.

(2) Concerted efforts should be made for trading and manufacturing on energy products and design capability. An information network should be established for exchanging data on demand supply gaps, policy changes, market conditions, investment opportunities, energy expertise, seismic, geological and environmental data.

(3) “South Asian countries must develop resource-conserving urbanization strategies, otherwise the urban demand for resources will also destroy the resource base in the rural areas”²⁵. For instance, increasing demands for timber can lead to tremendous deforestation resulting in acute firewood and fodder shortages for the village people. It is very important because many actions and projects in region failed to get translated into action due to lack of an integrated approach to urban management and a proliferation of agencies dealing with different aspects of urban growth and urban life, which has led to confusion and indecision.

(4) SAR is blessed with enormous hydropower potential, “Nepal alone has the potential for 83,000 mw of hydropower, Bangladesh (52,000 mw), Bhutan (21,000mw), India (75,400 mw), Pakistan (2077 mw) and Sri Lanka

²⁵ Op.cit., N.Gaan, p.110.

(2000 mw).”²⁶ A regional plan should be chalked out to exploit the existing potential as it will help in lessening the burden on fossil fuels and moreover, it will help in removing constraints to the development of region. The exploitation of hydroelectric power at the regional level could be possible by carrying out studies, exchanging experiences in creating conditions for the inflow of foreign private investment.

Emphasising the importance of hydro-power resources the ‘The Group of Eminent Persons’ established by the ‘Ninth SAARC Summit’ recommended- “to implement the suggestion made at the trilateral business summit held in Dhaka in January, 1998 for the creation of an ‘Energy Grid for South Asian Countries’, the group suggested the early commissioning by the SAARC Secretariat of a feasibility study on this proposal. This grid will in addition to hydroelectricity, also provide a basis for absorbing surplus energy resources, both gas and, from the Central and West Asian regions”²⁷.

Apart from the exploitation of the hydroelectric power concerted efforts should be made to exploit the enormous sunlight throughout the year. However, solar energy plants like Photovoltaic cells (PV) are cost-intensive and require an integrated market to bring down costs through the economies

²⁶ Mahendra P Lama, “Economic Resources and Environmental Concerns in South Asia: A changing Interface” in D.D Khanna (ed), *Sustainable Development Environmental Security, Disarmament and Development Interface in South Asia*, (New Delhi, Macmillan Ltd.), 1997, pp.225-26.

²⁷ Report of the SAARC Group of Eminent Persons (GEP), Established by the Ninth SAARC Summit. *SAARC Vision Beyond the Year 2000*, (Shipra Publications, Delhi), 1999, p.77.

of scale. India could share its experience and technology of solar Photovoltaic cells with other member countries.

(5) All the SAARC member countries have plan for the conservation of forest but the progress is dismal due to dependence of the peoples on the forest for livelihood. As nothing substantial is done in field of eradication of poverty, population explosion and alternative to fuel wood, the dependence is increasing. “It has been found that during (1990-95) Bangladesh and Pakistan have experienced the highest rate of deforestation, they are 2.9 % and 2.96 % respectively, which is four times higher than the region’s average of 0.68 %. While Nepal and Srilanka experienced forest loss at the rate of 1.08 % and 0.36% respectively, the same for India was 0.52 % and in Bhutan it was just 0.36 %”²⁸. The table 4.4 given below provides a data of forest area in SACs, in terms of thousand sq.km and percentage of total land area under forest area in 2000.

TABLE: 4.4

| Slno. | Country | Thousand sq.km | % of total land area |
|-------|------------|----------------|----------------------|
| 1 | Bangladesh | 13 | 10.2 |
| 2 | Bhutan | NA | NA |
| 3 | India | 641 | 21.6 |
| 4 | Maldives | NA | NA |
| 5 | Nepal | 39 | 27.3 |
| 6 | Pakistan | 25 | 3.2 |

²⁸ Op.cit., RIS Report (1998/99), p.104.

| | | | |
|---|-----------|----|------|
| 7 | Sri Lanka | 19 | 30.0 |
|---|-----------|----|------|

Source: World Development Indicators, pp.146-48.

The deforestation data and the table clearly illustrates that the region is undergoing massive deforestation. The pace at which deforestation is going has potential to aggravate the malady of climate change and could also deprive the SACs from taking the benefits of global development concerning to forestry sector. With the Bonn meeting of July 2001, forest has become very important for the mitigation of the climate change impact as it is recognized as sink for carbon dioxide. Apart from sink's role the SAR tropical forest are banks of fabulous genetic heritage and will be one of strong sources of strength in future bargaining with the advanced world, which needs these resources in their industrial process, such as biotechnology. In order to provide proper integration between the member states, 'SAARC Forestry Program' should be launched.

(6) A mechanism should be worked out under the aegis of SAARC for the entire region for baseline research, species recovery efforts and innovative programmes to educate local people about conservation values. Further "emphasis needs to be placed on inspiring in-country conservation expertise and awareness through training, environmental education and public outreach; developing eco-tourism in protected areas system to ensure

adequate representation to maintain forests and assessing the status of certain threatened species with a view to ensure their survival”²⁹.

(7) There is need for the establishment of an integrated environmental education programmes. “Such an integrated environmental course would yield a common environmental perception by people from different disciplines, enabling meaningful and socially acceptable translation of biospheric knowledge into resource-use patterns and sound development action”³⁰. In order to encourage the research and projects related with climate change, “the SAARC scheme of chairs, scholarships and fellowships may specifically make provisions for young students and ex-service personnel to attend training courses in priority areas in the field of environment recommended by their Government in other member states where such training facilities are available”³¹.

(8) The SAR have many agro-industries, the residue of these industries could account for an impressive contribution to total energy supply in an overall strategy, harmonizing both economic needs and environmental concern.

²⁹ Nancy Jetly, “Transformation of Conflictual Dynamics into Dynamics of Peace and Development in SAARC Region”, in L.L. Mehrotra, Chopra, and Kueck, (ed), *SAARC 2000 and Beyond*, (Omega Publisher, N.Delhi), 1995, p.101.

³⁰ Op.cit., C.Suriya Kumaran, p.7.

³¹ Op.cit., SAARC Report, p.205.

(9) “SAARC should institutionalize its response to environmental matters by setting up a permanent secretariat for ‘Environmental Affairs.’ This secretariat should provide support to the various national efforts and help evolve areas for regional cooperation”³². Moreover, a special cell of climate change should be established.

International Developments and its Relevance to SAR:

The Bonn agreement has provided avenue for mitigating the impact of climate change through forestry activities. Therefore there is need for strengthening forest management and protection in the region. “A ‘SAARC Forestry and Watershed Programme’ should be formulated which covers sharing experiences in afforestation and water management, exchange of scientific, technical and management related information, training for improving human skills and capabilities, sharing of knowledge and forestry research and findings, training in forest survey and monitoring and co-operative arrangements for tackling problems of forest and shifting cultivation”³³.

³² Parvez Hasan, “Regional Responses to Environmental Degradation in South Asia” *South Asia Journal* (Sage Publications, N.Delhi), vol.3,1&2, 1989, p.49.

³³ Narrotam Gaan, *Environment and National Security: The Case of South Asia*. (South Asian Publishers, New Delhi), 2000, p.231.

The most important component of environmental protection is the conservation of mangrove forest because day by day its area of coverage is dwindling. "Conservation measures should range from banning every activity that damages mangroves, to compromises based on the cost-benefit analysis of present use vis-a vis future utilization"³⁴. The establishment of heavy industries in the sensitive coastal and adjacent mangrove zones should be avoided because it threatens the mangrove forest.

The Bonn Agreement added three new funds for the developing countries.

(I) Special climate change fund (ii) Least Developed Countries Fund: to support a work programme for the least developing countries including National Adaptation Programmes of Action. (iii) Adaptation Fund: to finance concrete adaptation projects and programmes in developing countries that have become parties to the Protocol. SAR will be beneficiary of the new funds because all the countries are party to the Protocol and they come under developing and least developing countries categories.

The Kyoto Protocol has flexibility mechanisms which includes :

Emissions trading – between developed countries.

Joint implementation – by which developed countries can invest in emission-reducing activities in other developed countries.

³⁴ V.Asthana, T.N.Khoshoo and N.D.Jayal, "Regional Cooperation for the Protection of Coastal Environment in South Asia", *South Asia Journal*, (New Delhi), vol.3, 1&2, 1989, p.113.

The Clean Development mechanism – by which developed countries can finance emissions reducing projects in developing countries.

These mechanisms were finalized during the Bonn Agreement. The third mechanism would be important for SAR because the countries have low carbon dioxide emission. Therefore it could provide opportunities to SAC to know more and more about eco-friendly technology through various projects that would be enunciated in order to reduce the carbon dioxide emissions.

Therefore, there is an underlying urgency for the formulation of proper mechanism by all the seven countries through which they could get maximum benefits. It could be possible if SMC's collectively adopts stand in the international summits (like they showed during 'Earth and Kyoto Summit).

All the above stated measures adopted and ought to be adopted will be of no use if the region's population and poverty continue at the present level. Emphasizing the relation between climate change and population. Gro Harlem Brundtland, then P.M. of Norway and Chairman of the 'World Commissions on Environment and Development' declared in her statement to the Earth Summit that we must curb population growth by more effective means than we were able to agree upon here. US scientists James E Hansen and Andrew A Lacis of NASA's Goddard Institute for Space Studies have

written in scientific journal, “ Nature”, that it is obvious that even sizeable reductions of per capita green house gas emission will be negated if global population continues to increase at present rate.

Regarding poverty, Mrs. Indira Gandhi then P.M. of India, during 1972 Stockholm Conference on “ Human Environment “ said that poverty was the world’s greatest pollutant. Elucidating the importance of removal of poverty the ‘Brudtland Report’ has also stressed that poverty stimulates greater population growth, which in turn place further pressure on scarce resources.

As climate change is the problem for all the member states, therefore it is very much possible that it would turn out to be ‘blessing in disguise’ in development of ‘oneness’ which till now is absent among the members. Moreover, it would serve as confidence building measures for the resolution of conflicts on other issues between India and other SAARC countries particularly between India and Pakistan. Furthermore, “establishment of comprehensive security on the very foundation of environmental security will foster regional security on a more sustained basis because the security system will be built on local elements through a local process rather than extraneous considerations as has been the case in the past”³⁵.

³⁵ Op.cit; Comprehensive Security for the South Asia: An Environmental Approach. p.114.

CHAPTER-V

CONCLUSIONS

When the negotiations on climate change began in 80s it was anticipated that new era in international politics has begun. That could help in bridging the gap between developed and developing countries. Rio Summit of 1992 was on the anticipated line, during which 178 developed and developing countries participated to give final shape to UNFCCC, which was drafted by INC after brainstorming of five sessions involving negotiators from over 150 countries between February 1991 and May 1992.

However, during Rio developed and developing countries differed on the mitigation measures for the climate change. After the summit INC was entrusted to find amicable solutions, in 1995 INC role was taken by COP, which till now have met, seven times with very little success, due to adamancy of both the involved groups. Consequently, the gulf has widened and has led the division of world into number of groups. The partial success of negotiations are because in all seven COPs the negotiations have revolved around the peripheral aspects like transfer of technologies, economic aid, funds, conservation of forest and reluctance on part of developed countries to reduce the carbon dioxide emissions.

To make the negotiations meaningful, it's sphere should be broadened with the incorporation of issues like removal of poverty, writing off debt of least developing countries like of Bangladesh, restructuring of GEF by bringing it out of the ambit of World Bank. As most of the views of countries are influenced by their domestic compulsions, there is urgency of building confidence between governments, business elites and peoples of the eco-friendly technologies.

Regarding the proceedings of COPs, COP-3 is most important during which the industrialized countries (Annex-1) agreed to reduce their emission by 5.2% below the 1990 level. Though reduction of 5.2% below 1990 level would be very little as findings by the scientific communities have suggested that the global emission could actually be 31% above 1990 level by the Protocol first commitment period (2008-12). Nevertheless, the positive aspect of the Kyoto Protocol (KP) is that it has started confidence building measures to tackle the nuance of climate change. In spite, of small target, the requisite number of Annex-1 countries have not ratified the KP. In a bid to get the KP ratified, numbers of concessions have been conceded to Annex-1 countries by incorporating flexible mechanisms in the KP like CDM, ET, JI and LULUCF. Earlier, there were some contentions on these mechanisms however, in the successive COPs they were sorted out like during COP-6

countries agreed to accept a qualitative target instead of a quantitative limit on the credits that can be gained through activities other than domestic action to cut emission. Other important gain was achieved during COP-7 when the countries agreed that the industrialized countries could bank credits generated from project based investments in developing and developed countries but only up to 2.5% of the amount they were allowed to emit. Moreover, during COP-7, regarding controversial issue of legally binding if industrialized countries fail to meet was deferred to COP1 after the KP has entered into force.

With the confirmation of change in climate due to the anthropogenic activities and increase in global surface temperature by 0.6⁰ Celsius ($\pm 0.2^0$ C) over the 20th century, by the IIIrd Assessment Report of IPCC, it has become very necessary to implement the KP so that damage could be lessened. KP can only come into force if ratified Annex-1 countries represent at least 55% of the total carbon dioxide emissions in 1990 (Art.25 of the KP).

Will The Protocol Be Implemented? :

When US walked out of KP in March 2002 by saying that it is, 'fatally flawed', it was appeared that it had run into uncertainty phase. However, the timely leadership of EU has succeeded in convincing the world community

that it can come into force even without US, provided, it is ratified by EU, Russia and Japan. In order to set an example for other countries EU ratified the KP on 1st June 2002 and its gesture was followed by Japan who ratified on 4th June 2002. The ratification by these countries has once again revived the hope of KP. Till now 84 countries have signed the KP and 74 have ratified it so far. Table-5 given below provide a list of Annex-1 countries that have ratified KP.

TABLE-5

| Country/Group of countries | % of emissions in 1990 |
|----------------------------|------------------------|
| EU | 24.2 |
| Czech Republic | 1.2 |
| Iceland | 0.0 |
| Japan | 8.5 |
| Norway | 0.3 |
| Romania | 1.2 |
| Slovakia | 0.4 |
| Total | 35.8 |

Source: Down to Earth, June 30, 2002, p.13.

The table clearly shows that the KP could be enforced if country like Russia and Canada ratify the treaty as they account 17.4 and 3.3 percent of emissions in 1990. Their ratification will fulfill the Art.25 of the KP. One could anticipate Russia's ratification as its cabinet supported ratification on 11th April 2002. It is yet to be seen how Russia and Canada are going to respond the gesture of EU and Japan. Apart from EU and Japan ratification,

an important event, which has recently taken place, is finding of 'US Climate Action Report 2002'. The report for first time has underlined that human actions are mostly to blame for global warming. One could say that the recent happenings have the potential for making the KP to come into force. However, in this direction more is to be done like making the benefits of KP to public in order to build confidence among peoples, governments and business elites. Apart from Annex-1, countries there is need to convince the developing countries in order to receive their cooperation, by stating the benefits that could accrue if the KP comes into force.

Bangladesh

Being a least developing country, coupled with coastal location, it is most vulnerable to climate change and its survivability is on stake due to rising sea level. It is found that in the past few decades sea level has increased by 15 cms., and is consistently going up by at least 3 millimeters every year. It is anticipated that sea rises by 0.5 m. would threaten three-quarters of the Sunderbans in India and Bangladesh. In backdrop of grave threats, Bangladesh government have adopted various ameliorating measures (see chapter 3 for details) but with little success due to various others priority areas. It could be addressed through domestic, regional and international supports.

Regarding, domestic action, it should include proper management of natural resources most important including conservation of forests. Forest plays very significant role in mitigation measures due to its potential of absorbing the carbon dioxide gas. It also helps in minimizing the damage caused by cyclones and from encroachment of landed area by cyclones. Apart from sink's role, tropical forest of Bangladesh provides resources for the development of biotechnology. In spite, of well-known advantages of forest, Bangladesh government has failed to stop the deforestation. It has only forest cover of 10.2% of total land area and since 1990 average annual deforestation is 1.3% of total forest area. Bangladesh's future is likely to be bleak if the present pace of deforestation continues.

Apart from the conservation of forest, Bangladesh government should check the increasing population because growth in population would lead to increase in dependence on nature's limited resources, which could aggravate the menace of climate change. The best possible measures could be the involvement of NGOs on a larger scale and by increasing the literacy rate. There is also a need of tightening the bureaucracy so that measures on papers are implemented meaningfully. At the top of all, there is urgency of good leadership because till now various measures have failed to materialize primarily due to opportunist politics as most of the time they get occupied in

settling their personal vendetta. An example could be export of natural gas to India. This could provide ample money to Bangladesh to invest in other sectors and could further improve the relation with India that could be mutually beneficial in long run. But due to opportunist politics, it has failed to materialize. Good leadership could only help in delivering the Constitution Art.31&32, which advocates “Right to healthy environment”. Regarding international cooperation, Bangladesh could gain most and evade the severe consequences of climate change. Apart from receiving financial and technological assistance, participation in the environmental treaty regimes could help Bangladesh in strengthening its sustainable development programme by restructuring its energy, industry and forestry sectors. Bangladesh has the potential to extract more by fostering international cooperation because it has natural resources, which is likely to be demanding in coming future after the implementation of KP. Besides being least, developed country, Bangladesh could easily mobilize resources from the GEF for viable clean development projects.

Regional Approaches:

The case of Bangladesh clearly illustrates that the rich natural resources are of no use in addressing the problem emanating from climate change unless country has fair all round development in all the fields. This applies to the

SAR as some of the member countries are in developing stage whereas other are categorized in least developing category. Therefore, regional approaches could be beneficial for all the member countries because region has all the required resources to address the problem of climate change.

Amongst the important sector where regional approaches could prove beneficial for the entire member countries are exploitation of non-renewable source of power like hydroelectric power with a total estimated potential of 84000 MW. Exploitation of the solar and tidal energy, which the region has, in abundance due to its geographical location could lessen the burden on fossil fuel to generate power more.

Regarding human resources, India's role could be significant, as it has gained excellence in various technological fields like meteorological field, which could help in providing information about the natural calamities. GIS, could help spotting new sites for natural gas, conservation of forest etc. Moreover, it could help in optimal and balanced utilization and management of region's resources.

The above stated measures could be delivered by the active role of SAARC. SAARC has been addressing the problem of the environmental degradation in general and climate change in particular since 1989. It is true that environment has become one of the important topics for discussion during

Summits but the SMCs pay very little attention to the proposals due to their other pressing compulsion. The best example could be recommendations of two SAARC Reports published by its Secretariat, which are still not implemented in totality. The formulations and implementations measures could be addressed properly by making the problems and actions taken by the member countries public. In order to solve the problem of climate change at regional level, there is urgency for regularising the meeting of SAARC environment ministers.

In nutshell, could say that domestic adaptation measures, regional approaches and international cooperation have the potential to successfully tackle the menace of climate change in Bangladesh. Regarding international negotiations on climate change, recent happenings have arisen the hope for implementation of KP, with or even without participation of the United States.

SELECT BIBLIOGRAPHY

PRIMARY SOURCES:

Asian Development Bank, *Climate Change in Asia: Bangladesh Country Report*, (Manila, July 1994).

Ministry of Environment and Forest, Government of Bangladesh, *Bangladesh Country Report for UNCED, 1992*, (Dhaka, 1991).

Report of the SAARC Group of Eminent Persons Established by the Ninth SAARC Summit, *SAARC Vision Beyond the Year 2000*, (New Delhi, Shipra Publications, 2000).

RIS, *SAARC Survey of Development and Cooperation 1998/99*, (New Delhi, Jan.2002).

RIS, *South Asia Development and Co-operation Report 2001/02*, (New Delhi, 2002).

SAARC Secretariat, *Declarations of SAARC Summits (1985-98)*, (Kathmandu, August 2001).

SAARC Secretariat, *Regional Study on Green House Effect and its Impact on the Region*, (Kathmandu, December 1992).

SAARC Secretariat, *Regional Study on the Causes and Consequences of Natural Disasters and the Protection and preservation of the*

Environment, (Kathmandu, 1992).

TEDDY, *Energy Data Directory and Yearbook, 1999-2000*, (TERI New Delhi).

UN, *A Report of Earth Summit, Press Summary of Agenda 21*, (UN, 1992).

UN, *Report of the Conferences of the Parties its First Session*, (Berlin 28th March – 7 April 1995).

UN, *Report of the Conferences of the Parties its Second Session*, (Geneva 8th –19th July, 1996).

World Bank, *Bangladesh Climate Change and Sustainable Development*, (World Bank Group, 2001).

World Bank, *World Development Indicators*, (World Bank Group, 2001).

SECONDARY SOURCES:

BOOKS:

Agarwal Anil and Others, (ed), *Green Politics, Global Environmental Negotiations-1*, (New Delhi: 1999).

Agarwal Anil and Others, (ed), *Green Politics, Global Environmental Negotiations-2*, (New Delhi: 2001).

Ahmed Q.K. (ed), *Bangladesh Past Two Decades and the Current Decades*, (Dhaka: BUP, 1994).

Alauddin Md. and Hasan Samiul (ed), *Development, Governance and the Environment in South Asia*, (UK: Mac Millan Press Ltd., 1999).

Alauddin, M and S, Hasan (ed), *Bangladesh: Economy, People and the Environment, Economic Conference Monography Scientist*, (Brisbane Queensland: Department of Economics, the University of Queensland, 1996).

Baylis John and Steve Smith (ed), *The Globalisation of World Politics. An Introduction to International Relations*, (New York: Oxford University Press, 1997).

Bhushan, Katyul G., *SAARC Challenges Before New Millenium*, (New Delhi: APH. Publishing Corporation, 2001).

Bigaini B.(ed), *Economic Priorities and Climate Protection in Developing Nations*, (Washington: NET, 1999).

Burroughs, William James, *Climate change Multidisciplinary Approach*, (USA: Cambridge University Press, 2001).

Gaan, Narottam, *Environment and National Security: The Case of South Asia*, (New Delhi: South Asian Publishers, 2000).

Gaan, Narottam, *Environmental Degradation and Conflict: The Case of Bangladesh-India*, (New Delhi: South Asian Publishers , 1998.)

Gain Philip (ed), *Bangladesh Environment: Facing the 21st Century*, (Dhaka:

SEHD, 1998).

George Jacob Sudhir (ed), *Intra and Inter- State Conflicts in South Asia*,
(New Delhi: South Asian Publishers, 2001).

Ghosh Pradipto, (ed), *Implementation of the Kyoto Protocol: Opportunities
for Developing Countries*, (Manila: Asian Development Bank,
2000).

Grubb, Michael and Anderson Dean, *The Emerging International Regime
for Climate Change: Structures and Options for Berlin*, (London:
The Royal Institute of International Affairs;1995).

Gupta Joyeeta, *The Climate Change Convention and Developing Countries
from Conflict to Consensus?* (Netherlands, Kulwer Publishers,
1997).

Gupta Sujata, Pacchauri R.K. (ed.), *Global Warming and Climate Change
Perspectives from Developing Countries*, (New Delhi: TERI,
1989).

Hethne Bjorn and Others (ed), *The New Regionalism and the Future of
Security and Development, vol.4*, (Great Britain: Mac Millan
Press Ltd., 2000).

Jacobsen, Susane, *International Relations Theory and the Environment. A
Case Study of Brazilian and Indian Policy Making on Climate*

Change. (University of Copenhagen: Institute of Political Science, 2000.)

Kayathal, Kumar Mukesh, *South Asia and Emerging Trends in International Relations*, (Jaipur: Pointer Publishers, 1999).

Khanna, D.D (ed), *Sustainable Development, Environmental Security, Disarmament and Development interface in South Asia*, (New Delhi: Macmillan Press Limited, 1997).

Mehrotra, L.L, Chopra, H.S. and Kueck, (ed), *SAARC 2000 and Beyond*, (New Delhi: Omega Scientific Publisher, 1995).

Mehrotra, L.L., *Towards a South Asian Community*, (New Delhi: ICCR, 1997).

Mingset Karen, *Essentials of International Relations*, (USA: W.W. Norton & Co., Inc., 1999).

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

Moomaw Williams and Others, *The Kyoto Protocol: A Blueprint for Development*, (London, Tufts University, 1998).

Naim Parvez and Pradhan Neera, (ed), *First Annual South Asian Environment Assessment Conference (4-7 Dec. 1999)*,

- (Kathmandu: IUCN, March, 2000).
- Oberthur, Sebastian, Ott, E.,Hermann, *The Kyoto Protocol International Climate Policy for the 21'st Century*, (Berlin: Hiedelberg, Springer-Verlag,1999).
- Parikh, K. Jyoti, Cuspeper Roy, Rumalls David, Painuly, J.P., *Climate Change and North South Co-operation Indo-Canadian Co-operation in Joint Implementation*, (New Delhi,Tata McGrawhill Publishing Company Limited, 1997).
- Patterson Matthew, *Global Warming and Global Politics*, (London: Routledge, 1996).
- Shrecker, Ted, *Surviving Globalism: The Social and Environmental Challenges*, (New York: St. Martins Press Inc., 1997).
- Tim O'Rordan and Jill Jager,(ed), *Politics of Climate Change – A European Perspective*, (London: Routledge, 1996).
- Warrick, R.A., Barrow E.M, Wigley,T.M.L., *Climate Change and Sea Level Change: Observations, Projections and Implications*, (U.K: Cambridge University Press,. 1993).
- Warrick,R.A., Buiya, A.H.and Mirza, M.Q., *The Green House Effect and Climate Change*, (Dhaka: Publisher, Bangladesh Unnayan Parishad (BUP),1994).

Watson Robert T., and Others, (ed), *IPCC Working Group II, The Regional Impacts of Climate Change. An Assessment of Vulnerability*, (US: Cambridge University Press, 1998).

Zafarullah Habib and Chowdhary Anis Taslim (ed), *Policy Issues in Bangladesh*, (New Delhi: South Asian Publishers, 1994).

ARTICLES IN PERIODICALS:

Asthana V., and Others, “Regional Cooperation for the Protection of Coastal Environment in South Asia”, *South Asia Journal*, (New Delhi), vol. 3,1&2 (1989), pp109-28.

Clair Gough and Shackley Simon, “The Respectable Politics of Climate Change the Epistemic Communities and NGO’s”, *Foreign Affairs*, (New York), vol.77,no.2, April 2001, pp.329-40.

Gaan Narottam and Das Sudharsubala, “A New Global Environmental Order”, *India Quarterly*, (N.Delhi), vol. 51(2-3), April-Sept. 1995, pp.65-88.

Gaan, Narottam, “Comprehensive Security for South Asia: An Environmental Approach”, *BIISS journal*, (Dhaka), vol.19,no.2,1998, pp.103-14.

Gaan, Narottam, “Environment and Conflict: The South’s Perspective”,

- Strategic Analysis*, (New Delhi), vol.18 no.6, September, 1995, pp.827-41.
- Gaan, Narottam, “Rethinking Security: The Environmental Approach”, *International studies*, (New Delhi), vol.38,3,2001, pp.299-310.
- Grubb Michael and Yamin, Farhana, “Climatic Collapse at the Hague: What Happened, Why, and Where do we go From Here?”, *International Affairs*, (London),vol.77,2 April,2001, pp.261-76.
- Hasain Farah, “Population Carrying Capacity and Sustainable Development in Bangladesh”, *BISS Journal*, (Dhaka), vol.21, no.3, 2000, pp.284-319.
- Hasan Parvez, “Regional Responses to Environmental Degradation in South Asia”, *South Asia journal*, (New Delhi), vol.3,1&2,1989, pp.43-52.
- Jacob D Henry and Reiner M.David, “Getting Climate Policy on Track After the Hague”, *International Affairs*,(London),vol.77,2, 2001, pp.297-312.
- Kalam Abul, “Environment and Development: Widening Security Frontier and the Quest for a New Security Framework in South Asia”, *BISS Journal*, (Dhaka), vol.19, no.2,1998, pp.109-54.
- Karunakaran C.E., “Climate and Contradictions”, *Frontline*, (New Delhi),

July 5, 2002, pp. 83-86.

Kumaran C.Suriya, "Nature of the Environmental Problem in South Asia",
South Asia Journal, (New Delhi), vol.3,1&2, 1989, pp.1-15.

Najam and Robins Nick, "Seizing the Future: The South Sustainable
Development and International Trade", *Foreign Affairs*, (New
York), vol.77,no.1, Jan. 2001, pp.49-68.

Otte, Herman, "Climate Change: An Important Foreign Policy issue",
International Affairs,(London), vol.77,2, April 2001, pp.277-96.

Patterson Matthew, "Interpreting Trends in Global Environmental
Governance", *International Affairs*, (London), vol.75 no.4,
Oct.1999, pp.793-800.

Rigzin Dorji, "Protection of the Environment in South Asia", *South Asia
Journal*, (New Delhi), vol. 3,1&2 (1989), pp.35-41.

Rio Notebook, "Diary of Political Carnival", *Down to Earth*, (New Delhi),
vol.1, no.4, July 15, 1992, pp.27-39.

Sharma, Anju and Others, "Climate on Skid", *Down to Earth*, (New Delhi),
vol.19,no.15, Dec.31, 2000, pp.27-39.

Siddiqui Liaquat A., "Implementation of Global Treaties in Bangladesh",
BISS Journal, (Dhaka), vol.21,no.3, 2000, pp.320-43.

Singh Neelam, "A Forceful Endorsement", *Down to Earth*, (New Delhi),

vol.11, no.3, June 30, 2002.

Singh Neelam, “Compromise on Climate”, *Down to Earth*, (New Delhi),

vol. 10, no.6, Aug. 15 2001, p.6.

Singh Neelam, “Green Future”, *Down to Earth*, (New Delhi), vol.10, no.13,

Nov.30,2001, p.6.

Vayrynen, Raimo, “Environmental Security and Conflicts: Concepts and

Policies”, *International studies*,(New Delhi),vol.35,1998,pp.3-21.

RESEARCH REPORTS

A Paper by Klaus Toepfer, *The Challenge of Clean Development*, (UNEP,

2000).

A Policy Paper by Hermann E.Ott and Sebastian Oberthur, *Breaking the*

Impasse Forging an EU Leadership Initiative on Climate

Change, (Berlin, Heinrich Boll Foundation , June 2001).

Center for Science and Environment Statement, *Making the Kyoto Protocol*

Work, Ecological and Economic Effectiveness, and Equity in the

Climate Regime, (New Delhi, 1998).

London, *Just a Lot of Hot Air? A Close Look at the Climate Change*

Convention, (Panos Institute, 2000).

MGJ Den Elzen and APG De Moor, *Evaluating the Bonn Agreement and*

Some Key Issues, (RIVM Rapport, 2001).

JOURNALS:

BISS Journal.

Down to Earth.

Foreign Affairs.

Frontline.

International Affairs.

International Studies.

Strategic Analysis.

NEWSPAPERS:

The Hindu.

Times of India.

WEBSITES:

www.bcas.net

www.worldbank.org

www.teriin.org

www.unfccc.de

www.cseindia.org