INTRODUCTION

The proposed study aims at analyzing the policy positions of three classes of similarly situated states within the global South on the issue of greenhouse gas emissions. The main concern of the study is the investigation of drivers of foreign policy making on emissions issue vis-à-vis the chosen classes of states. Within the South, three classes of states namely the Major Developing States (China, India and Brazil), oil-exporting states represented by OPEC and the Small Island States from Pacific, Indian and Atlantic oceans qualify as relevant cases. These cases have been chosen due to their varying degrees of threat from global warming as well as the varying impact of the proposed international emissions regulation. Thus, this study analyses the problem of cooperation on the emissions issue within the global South.

Over the last two decades environmental issues have emerged as a major concern of international relations theorists. The very nature of environmental problems like global warming, their emergence, impact on human societies and possible solutions has international ramifications. Although all states are not affected equally, their impact is not confined to the boundaries of the concerned states alone. It has potential political dimensions as well leading to inter state conflicts. It is a question of security categorized under non-traditional security threats that include economic, social, humanitarian and ecological problems. The degradation of environment is reaching a stage at which the well being of humankind is threatened. Major threats are emerging from global environmental problems like ozone layer depletion and global warming that need international attention. This study is mainly concerned with the emission of greenhouse gases that are responsible for global warming.

Ever since scientific evidence has shown that the excessive accumulation of greenhouse gases in the environment has been responsible for increasing temperature of the atmosphere, there have been debates over the science, severity and prevention of global warming. An outcome of these debates has been a consensus that the emission of greenhouse gases should be controlled so as to avoid further warming of the atmosphere.
that would otherwise be harmful to living beings irrespective of their status or location. However, international attempts made for this purpose have not been very successful. Nine rounds of the conference of parties under the United Nations Framework Convention on Climate Change (UNFCCC) have failed to give any conclusive result on emissions reduction. On the Kyoto Protocol that deals with the mode of regulation of emissions, a division has emerged between the developed North and developing South. However, North and South are again not totally unified. There are differences within the North as well as the South. Within the global North, the USA has rejected the Kyoto Protocol whereas the EU supports it. The recent ratification of the Kyoto Protocol by Russia itself proves differences within the North and how decisions are influenced by the impact of the proposed international regulations. After the collapse of the USSR, the emissions level has come down in Russia by almost 30 per cent and Russia does not need any immediate emissions reduction. In fact, Russia will be benefited under the provisions of the flexible mechanisms. However, this study is basically concerned with the policy positions of the global South on the issue.

Although developing countries show some degree of consensus on their argument against North, there are differences even within states in the South. The major developing countries namely China, India and Brazil raise the issue of development. They are in support of emissions regulations but do not want to take immediate responsibility. Their main argument is that "common but differentiated responsibilities" should be the norm of emissions reduction and, thus, immediate obligations must apply to the developed states. According to them, developing countries are facing problems of widespread poverty, unemployment and illiteracy overcoming which needs development. Therefore, the pace of development in the developing countries should not be hindered in the name of cutting emissions. Apart from that, there are two contrasting blocks within the South namely oil producing and exporting nations and small island states. While for oil exporting countries (OPEC countries), regulation of emissions concerns their economy, global warming puts a question mark on the very survival of the small island states from the Pacific, Indian and Atlantic oceans. OPEC countries question the very evidence of global warming whereas small island states advocate very strict regulations on emissions.
Although severe threats due to global warming are calculated in the long term, any attempt to prevent global warming needs immediate action to limit the emission of greenhouse gases that are responsible for global warming. Again, there is a critical gap in the literature dealing with environmental issues of global South. A proper analysis of the policy stance of the global South on the emissions issue is absent. Thus, the problem of cooperation on the global warming issue is worth studying.

Review of Literature

The last two decades have witnessed the emergence of a wealth of literature in international relations dealing with the problems linked to environmental degradation. International relations literature on the environmental issue is mainly concerned with the threat posed to human society due to environmental degradation and possible solutions to the problem. Environmental problems are considered to be posing existential, physical and political threats to human society (Levy 1995: 36). Homer-Dixon predicts a three-fold threat to the human society namely simple scarcity conflict between states, group identity movements due to scarcity-ridden migration and civil strife due to economic deprivation (Homer-Dixon 1994: 18-31).

From the perspective of solutions, the global nature of environmental problems limits the scope of bilateral cooperation or regional cooperation. Two probable ways of dealing with global environmental problems can be international governance through soft rules or regime formation (Vogler 2001: 205-206). Soft rules are guidelines for good environmental behavior that do not have the full force of international treaty. Whereas, "international regimes are principles, norms, rules and decision making procedures around which actor expectations converge in a given issue area" (Krasner 1982: 2).

The problem of cooperation on the issue can be understood under the terms of the neo-realists and neo-liberals debate over international cooperation. Neo-realists analyse cooperation in terms of relative gains. According to the neo-realists, states want to enhance their relative position in the international system or at least want to maintain their present relative position. Thus, cooperation is limited by the prediction of outcomes by the concerned states. On the other hand, neo-liberals believe in absolute gains attained
by mutual cooperation. To them, states will cooperate because each state will gain something absolute (Grieco 1993: 116-121).

In the context of the empirical cases, the neo-realist approach seems to be better suited to explain the problems of cooperation on the emissions issue. Different countries are affected differently by global warming and proposed regulations on emissions. So, whenever it comes to cooperation each state thinks in terms of its relative gain as no state wants to loose its relative position in the international system especially when the emissions regulations have significant commercial implications on a state's economy.

On the other hand, the neo-liberal approach is more appropriate to explain possible cooperation on global warming issue. Cooperation is possible only when states start to think in terms of absolute gains. Although, the threat is immediate for some settlements, global warming is a long-term threat to all the states. Thus, a regime on emissions issue would be a condition of absolute gain for all states concerned.

Global warming is one of the various sources of environmental threat to the human society to be faced in the coming years. It is a scientific phenomenon that implies an increase in atmospheric temperature due to natural processes as well as human activities. Various scientific investigations have shown that the average temperature of atmosphere in the last one hundred years has increased and the process is continuing. Established for the assessment of the state of existing knowledge about the climate system, Intergovernmental Panel on Climate Change (IPCC) released its first assessment report in 1990 and for the first time confirmed the scientific evidence of global warming. It has projected, if present trends continue, a rise in global temperature by about 1.4 to 5.8 degree centigrade by the year 2100. In second and third assessment reports IPCC has provided a detailed picture of global warming. These reports had a powerful effect on both policy makers and the general public and provided the basis for negotiations on various conventions.

Various natural and human activities are responsible for global warming. However, this study is mainly concerned with the emission of greenhouse gases out of human activities. Carbon dioxide, methane, nitrous oxide and halocarbons constitute the major part of greenhouse gases. Burning of fossil fuels is the largest single source of greenhouse gas emissions from human activities. It emits gases like carbon dioxide,
methane, nitrous oxide, carbon monoxide, and hydrocarbons. Deforestation is the second largest source of the release of carbon dioxide. Forests are the carbon sinks that absorb carbon dioxide from the atmosphere. When these sinks are cleared, most of the carbon dioxide trapped in the forest escapes to the atmosphere. Similarly afforestation helps in decreasing carbon dioxide in the atmosphere. Apart from these major causes domesticated animals and rice cultivation release methane while the use of fertilizers increases nitrous oxide emissions.

There is a cyclic process in the atmosphere that maintains an optimum temperature. An optimum level of greenhouse gases in the atmosphere contribute a lot in maintaining this temperature but its excessive accumulation is harmful. Solar energy arrives mostly in the form of ultraviolet and visible radiations having short wavelengths. Some of these radiations are reflected away by the earth’s surface or atmosphere while the rest is absorbed by earth. In the process, the earth gets heated and behaves like a blackbody at a temperature of 287 Kelvin. A black body at such a low temperature emits energy in the form of long wavelengths. These remarkably long wavelengths are not absorbed by the principal atmospheric gases oxygen and nitrogen. However, water vapour, carbon dioxide and other greenhouse gases trap these long wavelengths. These gases prevent energy from passing directly from the earth surface into the space and prevent the earth from becoming extremely cold. However, due to excessive accumulation of greenhouse gases, a greater extent of high wavelength energy is being trapped in the atmosphere and thus disturbs the very balance between incoming and outgoing energy. The result is global warming.

The consequences of excessive accumulation of greenhouse gases in the atmosphere and consequent global warming are estimated to be very harmful to all communities. However, some of them are more susceptible and highly vulnerable to the estimated change. In general, social and economic systems tend to be more vulnerable in developing countries with weaker economies and institutions (Gaan 2000: 92). In addition, people who live in arid and semi arid lands, low lying coastal areas, flood prone areas or on small islands are at particular risk. Agriculture, sea level, oceans and coastal regions, biological diversity and ecosystem, water resources, human health, and human settlements are likely to be affected by global warming.
It is estimated that some agricultural regions will be threatened by global warming while others may benefit. Added heat stress, shifting monsoon and drier soils may reduce yields in the tropics and sub tropics where crops are already near their maximum heat tolerance. Meanwhile longer growing seasons and increased rains may boost yields in temperate regions. However, changing other variables may curtail the benefits. The degree and intensity of precipitation are going to be irregular because of global warming. Evaporation is expected to increase and the texture of soil moisture will also register change. On the other hand, more carbon dioxide in the atmosphere could boost productivity. In principle, the high level of carbon dioxide will stimulate photosynthesis in plants (O’Neill et al. 2001: 151).

Due to thermal expansion of warming ocean water and an influx of fresh water from melting glaciers and ice will result in the rising of sea levels by 9 to 88 cm by the year 2100. It will not only threaten the inhabitants of low lying areas and small islands but also the very ecosystem of the coasts like mangroves, coral reefs and sea grasses (O’Neill et al. 2001: 26-27).

Biological diversity, the source of enormous environmental, economic and cultural value will be threatened by various climatic changes related to global warming. The composition and geographic distribution of ecosystem will also change creating a problem of adaptation for various species. Species that cannot adapt quickly enough may become extinct. Deserts and arid and semi arid ecosystems will become more extensive (Aber 1992: 116).

Various computer models on climate change have shown that increased precipitation in some areas would be accompanied by increased evaporation. It would increase runoff and floods while the ability of water to infiltrate the soil will decrease. Thus, ground water supply will be affected. How much water can be captured artificially is a big question. In the drier places increased evaporation will pose greater threat to the local hydrology. Again, rising seas could invade coastal freshwater supply.

Heat waves are directly linked to various cardiovascular, respiratory and other diseases but extreme changes in weather conditions and reduced fresh water supply will affect human health in many other ways. Human settlements that depend heavily on commercial fishing, subsistence agriculture and other natural resources are going to be
adversely affected. In the process of adaptation, poor settlements would be left behind and they are going to be the worst sufferers (Frankhauser 1995: 184).

In the light of above threats a two-way solution is possible. First is the attempt to avoid this situation by cutting the very emissions of greenhouse gases. The second alternative is to adapt with the changing situations. Nobody knows exactly the cost and viability of adaptation but a conscious effort can be made towards reducing emissions as a preventive measure. In fact, even if emission is stabilized, the present level of greenhouse gases in the atmosphere is enough to bring a remarkable change in the near future. Therefore, there is a need of a dual policy giving importance to both emissions reduction as far as possible as well adaptation with the new situations.

In this direction the international community has made various attempts. However, modes of controlling emissions are yet to be finalized. The United Nations has taken up the issue. It has sponsored various reports and organized a number of conferences. Two major outcomes related to emissions reduction are the Montreal Protocol and the Kyoto Protocol. The Montreal Protocol is concerned with the conservation of ozone layer. It proposed a 50 per cent reduction in chlorofluorocarbon (CFC) by 1995, an 85 per cent reduction by 1997 and a complete phase out by 2000 beyond the calculated level of production.

The Kyoto Protocol deals with the emission of greenhouse gases. It set for the first time a legally binding emissions reduction target of greenhouse gases in a limited time framework for the industrialized countries. To meet the target without much stress, it provided flexible mechanisms like emissions trading (Art 17), joint implementation (Art 6) and clean development mechanism (Art 12). Emissions trading imply that countries with high marginal abatement costs may acquire emissions reduction from countries with low abatement cost. Joint implementation allows industrialized countries to exchange emissions reduction units among themselves on a project-by-project basis. Under clean development mechanism, industrialized countries would receive credit on a project-by-project basis for reduction accomplished in developing countries.

However, operational part of the protocol is yet to come into force. After nine rounds of talk under the aegis of the United Nations Framework Convention on Climate Change (UNFCCC), no consensus emerged on the issue. The coming into force of the
protocol got a big setback when the United States refused to follow the obligations under the protocol. However, recent ratification of the Kyoto Protocol by Russia has cleared the path for its coming into force. Russian emissions amount to 17 per cent of the total emissions and together with other countries that have already ratified the protocol this figure of total emissions goes up to 56.8 per cent. The Kyoto Protocol sets a criterion of total emissions by ratifying states amounting to 55 per cent for it to come into force. Since, Russia has ratified the protocol and total emissions by ratifying countries is now more than 55 percent, the protocol came into force in February 2005. However, its comprehensiveness would be limited with the greatest emitter, the US (responsible for 36 per cent of emissions) not being party to the protocol.

During eleven rounds of Conferences of Parties (COPs) organized under the aegis of the UNFCCC, a variety of differences have emerged. These differences are basically governed by two criteria namely energy and impact criteria. However, there are internal differences even within the countries falling under a particular criterion. When policy stands are analyzed on individual level, various other factors come in consideration. It is a fact that energy is central to any nation’s development. Thus any policy change required for reducing emissions raises politically difficult question of who should bear the immediate cost. On the basis of energy safety, states may be categorized into three groups (Porter et al. 2000: 35-43).

First, those states that are relatively dependent on imported energy and have learned to maintain high living standards while reducing the use of fossil fuel. Japan, Germany, Italy, France, Netherlands and Denmark fall in this category. Secondly, those states that have supply of cheap energy resources and have a culture of highly inefficient energy use. The US, Russia, China, India, Brazil and Mexico can be put under this category. Finally, those states that have been highly dependent on fossil fuel export for income. Arab states represent this category.

On the other hand, there are low lying and small island states whose energy requirements in comparison to other states are very less. However, energy is not the issue for these countries. Their main concern is the threat posed by global warming. The impact of global warming, thus, influences policies of these states.
Apart from that, a North-South divide has emerged. This divide is based on responsibility and obligation. Developing countries clubbed under South advocate that for the present level of greenhouse gases in the atmosphere only developed countries are responsible. Therefore, in the first place it is obligatory on North to take measures and assist developing countries so that they could maintain their pace of development (Williams 1993: 24-26). In the name of cutting emissions, developing countries cannot be prevented from pursuing development. The immediate problems in developing countries are poverty, unemployment, and illiteracy. Overcoming these problems need development, development for a large population. Therefore, the global South demands emissions to be counted on per capita basis and not on the basis of absolute emissions. The concept of per capita emissions was first proposed by the Centre for Science and Environment in 1991 (Agarwal 1992: 39). The Kyoto Protocol has recognized this stand of developing countries and fixed targets for only developed countries. Developing countries have been asked to assist developed countries in their effort. On the other hand, developed countries maintain that emissions level in developing countries is increasing very fast. Therefore, at least leading developing countries like India, China and Brazil should be made responsible immediately. This argument was one of the two grounds on which the US walked out of the Kyoto Protocol. The second ground was the adverse impact of the protocol on the US economy.

Developing countries led by China, India and Brazil have protested the attempt to fix targets even for leading developing countries. Since the developing countries have not been given any target to be met within a fixed period, their policy stance seems to be in line with the North-South divide. However, realities are different at the ground level. While India and China are two big consumers of fossil fuel Brazil has a good forest reserve that could be used as sinks. If flexible mechanisms like emissions trading or clean development mechanisms mentioned under the Kyoto Protocol are made operational, these developing countries will benefit differently. For under these clauses, fund, technology and projects would be transferred to these countries. These considerations are also supposed to influence the policies of developing countries (Watson et al. 1998).

Another set of countries is oil-exporting countries whose economy mostly depends on oil revenue. Although in general they come under South, their stand on
emissions reduction is not in consonance with that of other developing countries. They question the very strategy of reducing emissions by avoiding the use of fossil fuel. They are, however, not able to play the role of a veto state because their own emissions levels are very less. Although they are wealthy, they are actually not highly industrialized. Any cut in their income from the export of oil would adversely affect their socio-economic condition.

In contrast to oil exporting countries, small island states advocate very strict regulations on emissions and remarkable cut in fossil fuel combustion. The concern of these countries is not economic but their very survival. If present trend continues, it has been projected that 9 to 88 cm rise in sea level by 2100 would submerge a number of small island states. Even before that they would face a number of natural calamities. It is a question of life and death for the small island states. However, due to their weak position in international politics, they are not able to play a lead role. They are playing a supporting role and try to put their grave concern before the international community. In 2005, the Small Island States have reaffirmed their commitment and support to the UNFCCC and gave a clarion call to the international community to reaffirm its commitment to the spirit of the UNFCCC (Draft Mauritius Strategy 2005: 3-4).

Thus, in terms of politics, major aspects are the North-South divide, general concern of developed and developing countries and that of oil exporting and Small Island states. However, a proper analysis of the factors influencing developing countries is missing. The existing gaps in the literature are the main concerns that this study seeks to address. This study would try to take up the constraints of the countries categorized under three groups namely the leading developing countries—China, India and Brazil, the oil exporting countries and small island states. In the light of the Kyoto regulation what course would these countries follow? What viable options are available to them?

**Scope of the Study**

The study is based on the assumption that the accumulation of greenhouse gases in the atmosphere is one of the major causes of global warming. It deals with only those environmental problems that are linked to greenhouse gas emissions and have international ramifications. After a brief overview of global divide on global warming,
this study concentrates on the study of global South. Even within South, it deals with only three classes of states namely the leading developing states (China, India and Brazil), oil exporting states represented by OPEC and the Small Island States from Pacific, Indian and Atlantic oceans. The analysis is made on the basis of present developments on emissions regulations and the present policy stances of the concerned classes of states. The analysis of the problem of cooperation follows insights provided by the neo-realist and neo-liberal approaches.

**Hypotheses**

This study hypothesizes that the policy position of a class of similarly situated states on the greenhouse gas emissions issue is influenced by the degree of threat caused by emissions to that class of states as well as the perceived impact of the proposed international emissions regulations.

This hypothesis is broken into three parts suited to three different clusters chosen for this study. They are:

First, the policy positions of major developing countries (China, India and Brazil) on the issue of greenhouse gas emissions tend to be dominated by treaty obligations.

Second, the policy positions of OPEC states on the issue of greenhouse gas emissions tend to be dominated by economic considerations.

Third, the policy positions of small island states on the issue of greenhouse gas emissions tend to be dominated by environmental considerations.

**Methods**

Towards the testing of the proposed hypotheses, this study is based on observations using the case study method. Three categories of states namely Major Developing Countries (China, India and Brazil), OPEC member states and the Small Island States qualify as relevant cases. The case studies have been tested by controlled comparison by means of the method of agreement (Van Evera 1997: 23). The method of agreement applies here because the cases chosen have different general characteristics but have common study variables. The different situations of the proposed cases have been investigated to see whether they correspond to the policies of three categories of states on emissions
reduction. On the basis of these three case studies, a conclusion has been built on inductive logic.

The analysis is based on a descriptive analysis of primary as well as secondary sources. Primary sources include the texts of major international agreements and conventions on emissions reduction, and reports of various expert groups on environment constituted under the aegis of the United Nations, status papers of the concerned states or group of states. The secondary sources include books, and articles in various journals.

Data Collection
Apart from different libraries and international organizations in Delhi, an internship in the OPEC Secretariat (Vienna) has been very useful for data collection as well as overall understanding of the subject. The Internship was for three months from 29 March to 22 June on a project similar to the present study. The internship was concluded under the title “Developing Countries and the Climate Change: Perspectives from Within”. During the internship the study benefited with inputs from a wealth of literature on different clusters of the developing countries including Major Developing Countries (China, India, Brazil and South Africa), OPEC member states and the Small Island States.

Chapter Outline
This study contains five main chapters along with a brief introduction and a conclusion. The first chapter titled as “Environmental Impact and the Politics of Greenhouse Gas Emissions” seeks to communicate existing scientific understanding with regard to the emission of greenhouse gases. However, the central focus of the chapter is politics involving the issue and theoretical approaches suitable for analyzing the problem. It outlines the global politics on emission issue and then narrow down to the global South and identifies the differences and similarities within the South on the issue.

The next three chapters deal with three classes of states chosen for the study. The second chapter dealing with Major Developing Countries focuses on the convergence of policy stances among the three developing countries China, India and Brazil. It finds that the policy positions of China, India and Brazil are influenced by their need of
development. They are truly representing the arguments of global South vis-à-vis North-South divide on the line of common but differentiated responsibilities.

On the other hand, chapters on OPEC member states and the Small Island States take up the commercial impacts of proposed emissions reduction and extreme vulnerability to global warming respectively. OPEC member states are very much concerned with the consumption patterns of energy in the light of proposed emissions reduction. This chapter comes to the conclusion that rejection of taking up any emissions reduction target by the major developing countries brings OPEC closer to G77 + China.

Emissions reductions as well as sustainable development are pressing needs of the Small Island States. Fourth chapter dealing with the Small Island States underlines that they are close to G77+ China and support their arguments for the sake of pressurizing developed countries for required emissions reduction and helping developing countries in their efforts for sustainable development.

The fifth chapter presents a comparative analysis of all the three classes of states and underlines their comparative policies on the emissions issue.

**Conclusion**

On the basis of these chapters this study concludes that in spite of varying drivers of foreign policy decision-making on the issue of greenhouse gas emissions, the policy stances of three clusters from the global South chosen for the study converge out of their calculation of absolute gains. It is in the interests of all the three clusters to continue the existing model of emissions reduction regime in the form of the Kyoto Protocol. They are demanding full implementation of the provisions contained in the UNFCCC and the Kyoto Protocol that are based on “common but differentiated responsibilities”. On the other hand, developed countries are in favour of extending emissions reduction targets also to the developing countries. They are also reluctant to fulfill their commitments under the UNFCCC and the Kyoto Protocol. Therefore, a North-South divide still exists and different clusters of developing countries are coming together for their own absolute gains.