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Liability for Injurious Consequences to the Global Climate

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LIABILITY FOR INJURIOUS CONSEQUENCES TO THE GLOBAL CLIMATE

by

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SUDHA RANI PEMMARAJU RAO
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I. INTRODUCTION

Preservation of the environment and regulation of human activities in relation to the forests, the seas, the outer space, the atmosphere and the climate have assumed overwhelming importance on the international agenda alongside the developmental issues of poverty alleviation and the meeting of basic needs such as nutrition, health and education. Environmental issues are inextricably linked with developmental issues and it is the impossibility of isolating one from the other, which gave rise to the concept of sustainable development, that not only came to be reflected in the report of the World Commission on Environment and Development but was also believed to be the spirit of the United Nations Conference on Environment and Development held in June '92 at Rio de Janeiro.

Among all the forms of pollution and degradation, global warming has been referred to as the 'paradigmatic' environmental crisis of the 90's.1 Human activities such as the burning of fossil fuels, deforestation, intensive cultivation and mining have increased the concentration in the atmosphere of the greenhouse gases such as carbon dioxide, methane and nitrous oxide resulting in a significant

rise of the Earth’s surface temperature. Even if the Earth’s average temperature changes are small, the consequences of global warming are expected to be of greater magnitude. For instance, the seas will expand and may cause floods in low lying areas. Some areas will receive greater rain and some will suffer droughts.\footnote{INTERGOVERNMENTAL PANEL ON CLIMATE CHANGES, \textit{The Greenhouse Effect And Magnitude Of Anticipated Changes}, in \textit{RESPONSES TO ANTICIPATED CLIMATE CHANGE}, 1-10 (1989).} The culprits are as much the common people as the states, the private corporations and the multinational companies.

The response of law to environmental issues has been sectoral and impressionistic. There is no comprehensive legal regime to deal with international matters nor are there uniform standards established to be made applicable at cross sectoral levels to different areas of environment.

In terms of global commons, separate legal regimes are established for outer space, Antarctica and the areas of the sea bed beyond national jurisdiction. The pollution of the international rivers as in the case of the \textit{Danube and the Rhine} is tackled on the basis of different applicable principles. The problems concerning ozone depletion are governed by a separate legal regime under the Vienna Convention, the Montreal Protocol and the London Conference. The transportation of hazardous substances is governed by the Basel Convention.

"Liability for Injurious Consequences Arising Out Of Acts Not Prohibited By International Law" itself is not
governed by any regime and is now being considered as a separate issue by the International Law Commission. In more recent years, the International Law Commission has begun to consider the question of global commons under the same topic. By and large, there is in this area, a lack of conceptual clarity.

Historically, the concept of liability in international law has been fraught with controversy over the distinctions between strict or absolute liability and fault liability, although both schools of thought have agreed on an internationally wrongful act as the basis of liability. A new form of liability has emerged which not only ignores fault as a consistent factor of an internationally wrongful act but does not even question if the act is wrongful. This is in response to the increase in abnormally dangerous activities of the states which are not unlawful in themselves and damage resulting from such activities is incidental to scientific advancement or economic development.

The International Law Commission has undertaken the study of "Liability for Injurious Consequences Arising Out of

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3 IAN BROWNLIE, STATE RESPONSIBILITY 49

Mr. Ago, the Special Rapporteur for the topic stated, "The Commission also agreed in recognizing the importance, alongside that of responsibility for internationally illicit acts, of the so-called responsibility for risk arising out of the performance of certain lawful activities such as spatial and nuclear activities. However, questions in this later category will not be dealt with those in the former category mainly in order to avoid any confusion between the two such sharply different hypotheses, which might have an adverse effect on the understanding of the main subject. Any examination of such questions will therefore be deferred until a later stage in the commission's work".

4 Id at 49.
Acts Not Prohibited By International Law* at its thirtieth session in 1978. But, it has approached the topic almost exclusively in terms of the direct interstate relationships where an activity in one state or under its jurisdiction or control will cause harm to areas or resources within the jurisdiction or control of another state generally known as transfrontier harm. It is only in recent sessions that the International Law Commission has considered the possibility of including liability for activities causing harm to the global commons within the purview of this topic. It is still at the very nascent stage and there is considerable scope and need to contribute to the evolution of an appropriate regime.

While the legal purpose of liability hinges on the social/ethical norm that a victim of injury due to the acts of another should not be left to bear his loss alone, in the case of global warming, there is a complexity of facts involved relating to the causation or the link between the alleged act and the damage caused, the plurality of victims who are sometimes one and the same, the technological assessment of harm that is latent and long range and the standard of liability to be applied. Therefore, some members in the International Law Commission felt that it was inappropriate to deal with it under the present topic.6

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Despite the absence of a clear conceptual basis for a liability regime for global commons in the case of global warming, there is a certain level of agreement on common but differentiated responsibility. If it is to be considered that everyone - states, private firms, multi-national corporations, individuals and groups of individuals are all wittingly or unwittingly responsible for the generation of greenhouse gases beyond the tolerable limits of the environment, the question arises as to who are mainly responsible.

There are two aspects of responsibility and liability for global warming:

(i) prevention of further emissions of the greenhouse gases into the atmosphere

(ii) reparation or remedial measures to clean up the damage that has already occurred.

This gives rise to the important question of not only who are responsible for causing, preventing or taking remedial measures but also what is the mechanism available to identify and apportion the responsibility, and what is the cost factor involved.

Any international legal regime aimed at adequately governing global warming and climate change should correspond to the larger community response that has nearly emerged. It is necessary to view the problem from the preventive as well as the redressal angles, with the goal that existing levels

are controlled and future emissions are prevented. The main legal issues consequently, pertain to alternative or environment friendly sources of energy, and the fixing of responsibility and liability for the adverse effects that have already been caused, and the costs of remedial measures.

The need for alternative sources of energy raises questions such as What are those alternatives? What is the cost of transferring technology related to them? As some countries do not have the necessary resources, what are the funding facilities and mechanisms to be made use of for this purpose? Are they adequate and effective? Or is there a need for new mechanisms? What are the conditions of transfer of technology? The developing countries in order to switch over to alternative sources of technology demand financing and transfer of technology from the developed countries. Specifically, they demand new, additional and adequate funding.\(^8\) The World Bank's assessment of the cleaning up costs or the costs of remedial measures is $70 billion to $140 billion, and Maurice Strong, the Secretary General to United Nations Conference on Environment and Development assessed the costs as $125 billion for the next five years.\(^9\) There are the problems of raising such astronomical sums, the allocation of contributions between the developed and the developing countries and within the developed world itself.

The Global Environmental Facility is not considered

\(^8\) Environment Fund To Be Restructured, TIMES OF INDIA, NEW DELHI, May 11 (1992).
\(^9\) W.B. says $75b to $140b Needed To Clean Globe, TIMES OF INDIA, NEW DELHI, May 18 (1992).
satisfactory by the developing countries. Even to accept it as an interim financial instrument, they demand its restructuring so as to make it more transparent and equitable in decision making by removing the donor bias.\textsuperscript{10}

But, the question remains, if after the restructuring the Global Environmental Facility, would it be beneficial to the developing countries or would it still be dominated by a few in the developed world with a greater say in the management of funds as in the case of the International Monetary Fund?

The present study seeks to explain the scientific basis of the global warming theory and its predicted impacts as yet clouded by uncertainties, as well as the policy options available. It examines the evolution of principles of environmental responsibility and the International Law Commission's work on "Liability For Injurious Consequences Arising Out Of Acts Not Prohibited by International Law", in the context of climate as a global common. Finally, the Framework Convention on Climate Change and the peculiar problems of the developing countries at the cross roads of development are discussed.

\textsuperscript{10} Id.
II. GLOBAL WARMING: SCIENCE AND POLICY

The relationship of man to his environment is undergoing dramatic and sometimes irrevocable changes due to scientific and technological advances. The awesomeness of these advances and their physical consequences accentuated by the fact that they defy all geographical or political bounds and barriers, has in recent times begun to absorb almost entirely the attention of scholars everywhere none of whom can grapple with it in isolation or within the confines of a particular discipline.

It becomes important to ask at this stage if it is not premature to attempt to develop a liability regime to regulate complex phenomena such as global warming, which are as yet the subject of debate amongst scientists.

Yet, if we were to await scientific consensus allowing technological progress to continue without corresponding social controls and perhaps, more effectively, legal controls, we may be up against catastrophic situations and poorly equipped to deal with them. Therefore, it becomes necessary to sometimes make legal and policy decisions on the basis of scientific speculation and assumptions rather than certainty.
In the ultimate analysis, it is the combined knowledge of different disciplines that offers wholesome solutions characterizing and enriching much of contemporary research. The examination of legal controls emerging in the area of global warming must necessarily be preluded by an understanding of the scientific basis of the theory of global warming, interlocked with issues such as its probable impacts on society, the skepticism it has generated and the decisions that need to be made in the absence of absolute conclusive evidence.

A. The Greenhouse Effect And Global Warming:

The average surface temperature of the earth rests on a delicate balance. The solar energy radiated by the Sun must be balanced by heat radiation re-emitted from the Earth to space.\footnote{11 INTERGOVERNMENTAL PANEL ON CLIMATE CHANGES, supra note 2, at 1-10.}

The Sun radiates solar energy in the form of visible light, ultraviolet and infrared rays or heat. The nitrogen, oxygen and ozone molecules in the stratosphere absorb the ultraviolet radiation and prevent it from reaching the earth and causing harmful effects on living organisms, while the remaining infrared radiation or heat and visible light reach the Earth and get reflected back by the Earth to space. The intervening atmosphere absorbs some of the radiation radiated back while allowing most of it to escape to space, thus
trapping some heat. It is the carbon dioxide and water vapor in the atmosphere which are responsible for the trapping of heat, acting exactly as the glass of a greenhouse would. Therefore, this reduction in the outgoing infrared radiation and the consequent trapping of heat by the Earth is known as the Greenhouse Effect.\textsuperscript{12}

It is important for the greenhouse effect to take place in order to maintain the Earth's energy balance or else the Earth would be uninhabitable with freezing temperatures of $-19^\circC$, instead of the warm $15^\circC$ it is today.\textsuperscript{13} Nature thus has devised fascinating ways of sustaining life on earth - in the form of ozone to protect creatures on the Earth from harmful effects of ultraviolet radiation and the greenhouse effect to make the planet warm and habitable. But, it has been observed by the scientists for sometime now that not only was the ozone shield being eaten away by man made chlorofluorocarbons but also the earth's energy balance is being threatened by excessive amounts of carbon dioxide, methane, nitrous oxide, tropospheric ozone, CFCs 11 and 12, and other trace gases accumulating in the atmosphere due to various human activities such as burning of fossil fuels, land clearing deforestation, intensive cultivation and mining.\textsuperscript{14}

\textsuperscript{12} Id.  \hfill \textsuperscript{13} Id.  \hfill \textsuperscript{14} Id.
These gases absorb more energy from infrared radiation trapping excessive amounts of heat resulting in a heightened greenhouse effect.\textsuperscript{15}

In other words, natural conditions in the atmosphere ensure that the global mean temperature remains reasonably steady but a disruption in the radiation balance causes severe fluctuations.

Although water vapor is the most abundant of the greenhouse gases constituting 0\% to 2\% of the atmosphere and absorbing nearly six times as much solar energy as all the other gases together, its effect is not nearly as significant as that of carbon dioxide and other trace gases. The reason for this is that the light absorbing characteristics of each chemical compound are unique.\textsuperscript{16}

By and large, many of the sources of carbon dioxide are associated with fossil fuels. When large quantities of fuel are burnt, enormous amounts of carbon dioxide stored in the earth for millions of years is transferred to the atmosphere at the rate of three million metric tons annually.\textsuperscript{17} Deforestation also contributes to the accumulation of CO\textsubscript{2} in the atmosphere. Nitrous oxide has as its sources both fossil fuels and de nitrification. Methane is produced mostly by

\textsuperscript{15} Id.
\textsuperscript{16} See Daniel Botkin, *Global Warming: What It Is, What Is Controversial About It, And What We Might Do In Response To It?*, 9 UNIVERSITY OF CALIFORNIA JOURNAL OF ENVIRONMENTAL LAW 122 (1991). The authors point out that Carbon dioxide absorbs in different parts of the infra red spectrum and prevents emissions through some bands of the light spectrum in which water is transparent, metaphorically ‘closing’ an atmospheric window. Due to different chemical properties, the other greenhouse gases close other atmospheric windows.
\textsuperscript{17} INTERGOVERNMENTAL PANEL ON CLIMATE CHANGES, supra note 2.
fermentation that occurs in ruminants, cattle and sheep as well as rice paddies, wet lands and other biological sources. Chlorofluorocarbons are manufactured gases. Their build up in the atmosphere is the result of industrial and residential use of the gases primarily in refrigeration and as propellants in spray cans.\textsuperscript{18}

In a nutshell, while our climate is the result of a gigantic and complicated system that humans cannot control or direct, it is possible for human activities to damage critical leverage points in the climatic system.\textsuperscript{19}

B. Impacts Of Global Warming:

The sea level rise as a result of greenhouse warming has been described as the most dramatic of the possible greenhouse implications. It is believed that a 5$^\circ$C rise in the temperature would bring a rise in sea level of about 1 meter. Some scientists like Mercer predict a much higher rise of sea level of almost 5 or 6 feet within a few decades due to the melting of the ice sheet of the West Atlantic that rests on the sea.\textsuperscript{20}

The implications for United States were studied by Stephen Schneider, who concluded that there would be much damage in terms of people and property due to coastal

\textsuperscript{18} Id.
\textsuperscript{19} Jon Tinker, EARTH SCAN PRESS, \textit{The Climate And Man}, 34-35.
\textsuperscript{20} Id.
flooding, particularly in areas like Texas, Florida and New Mexico.21

In Australia, there would be a rapid loss of beaches, some coastal erosion and increased storm damage and increased salinity in low lying coastal areas.22

In the South Pacific, a rise in the sea level would have devastating effects on their crop production system and social structure. Some of the small islands like Takelau and Tuvalu will cease to exist.23

The sea level rise would be most disastrous for low lying areas like Bangladesh, Maldives and Indonesia where the highest spot is said to be 1.5 meters above the sea level. In Maldives, which is very small in area but has a large teeming population, loss of land due to sea level rise would be catastrophic. Tourism on which the Maldivian economy thrives would cease to contribute to the GNP. Sea level rise combined with the lowering of the reef surface may lead to loss of significant areas of the maldivian exclusive economic zone and the resources in that area.24

It is believed that the sea level rise, changes in the temperature and rain fall might destroy the eco systems and endanger different species. Scarce resources like fresh water are expected to become even more scarce. Effects of

21 Id.
22 AUSTRALIAN CONSERVATION FOUNDATION, Greenhouse Abatement Policies For Australia, GLOBAL CHANGE 4-6 (1990).
23 PORT MORESBY ENVIRONMENTAL INSTITUTION, A Climate Of Crisis, Global Warming And The Islands Of The South Pacific 2-10 (1989).
24 Peter Usher, Global Warming, ESCAP NEWS., April-June 1989, at 4-6.
global warming would be felt on agriculture, commercial forestry and fisheries.

'Global Warming' would lead to increases in temperature, and changes in climate could cause droughts in some regions and flooding in some others.

Forests, for example, are expected to undergo 'rapid and severe changes beginning with a die back of existing species followed when conditions were appropriate by an influx of species from drier and warmer habitats'. That would have a major impact on the uses and benefits of forests.

Global warming leading to changes in climate and forests would cause the extinction of different species. It is also expected to lead to drier soils and limited water resources and consequently, decrease in irrigation and reduction in crops.

"The increases in the variability of climate could also have negative effects on agriculture. For example, Corn, Soybeans, Wheat and Sorghum are sensitive to high temperatures, especially when flowers are formed."  

The regional effects of global warming are expected to be varied with much of the warming taking place in the higher altitudes such as Finland and North America. On the other hand, Japan, Turkey and Spain are expected to be much cooler. It is predicted that rainfall would decrease over United

25 Botkin, supra note 16, at 139.
26 Tinker, supra note 19, at 35-40.
States, Europe and Russia and increase in a bigger than average way in the Middle East.²⁷

A study of different epochs was undertaken in order to gauge the impacts of a progressively warmer climate on the world in future - according to which, a warmer earth would mean less grain for North America and presently drought stricken areas like West Asia and Mexico would become grain exporters. It is feared that a reduction in the North American grain production, a vital aspect of their political influence and a simultaneous increase in the grain production of Africa and Middle East, would cause shifts in geopolitical power.²⁸

Global warming is also expected to produce a flood of environmental refugees.²⁹

C. Models Used In Predicting Climate Changes:

Several methods have been used by scientists in order to study the effects of global warming. Of these, Paleoclimatic studies or attempting to reconstruct the historical climatic conditions using rings and ice core samples are quite important.³⁰

"Reconstruction of the concentration of atmospheric carbon dioxide and the Earth's average surface temperature

²⁷ Id.
²⁸ Id.
²⁹ Id.
³⁰ Id. at 36-37.
during the past 150,000 years shows a surprisingly strong correspondence between the two. When the concentration of carbon dioxide was low, the average earth temperature was also low. Similarly, when the concentration of carbon dioxide was high, so was the temperature.31

Although these predictions are suggestive, they provide only circumstantial evidence.

With the help of mathematical models called General Circulation Models or GCMs, scientists have predicted that a doubling of carbon dioxide will bring a 2°C rise in the global mean temperature.32

These models are highly complex, but, it is difficult to make accurate predictions with the help of these models because the climatic system is so complex and consists of so many inter-related elements that are not completely understood. The greenhouse theory assumes that holding everything else constant, changing the composition of the atmosphere by adding large quantities of greenhouse gases will warm the earth.33

D. Critique Of Models:

Some climatologists and scientists questioned the figures of temperature rise as predicted by the GCMs. Sherwood Idso of the United States Water Conservatory

32 Tinker, supra note 19, at 25.
33 Id.
Laboratory being one of the first ones to do so. The dissenting climatologists suggest that the computer modellers produced too big a figure and the rise in temperature may not be 2°C. They have their own set of arguments to tone down the global warming theory.\textsuperscript{34}

Global warming has been intensely debated. Its main proponents are Dr. James of NASA and Stephen Schneider of the National Center for Atmospheric Research and the main critic was Dr. Williams Berg, Director Emeritus of Scripps Institute of Oceanography. "The greenhouse effect controversies focus on how a complex atmosphere - one with liquid water, life and tectonics will respond to a single change."\textsuperscript{35}

The greenhouse effect itself is not questioned. The scientists generally agree that the concentration of greenhouse gases in the atmosphere is increasing. The reason for this is that programs to measure the concentration of greenhouse gases in the atmosphere have been developed, such as the Mauna Loa Observatory in Hawaii which has been gathering these measurements since 1957, and there exists data showing that the concentration of carbon dioxide has increased from approximately 330 parts per million (PPM) to 360 PPM, almost 1 PPM per year. But, the United States government has not attached much significance to the Mauna Loa measurements and operates the measuring programs through

\textsuperscript{34} Id.
\textsuperscript{35} Id.
other facilities such as the National Oceanic and Atmospheric Administration.\textsuperscript{36}

The idea that human actions could change the atmosphere seems presumptuous and is received with skepticism by many scientists.

The controversy surrounding the global warming theory has to do with how the biosphere as a whole will respond to an increase in the concentration of greenhouse gases, and how these increase with change in the entire temperature and precipitation characteristics of the biosphere.\textsuperscript{37}

For example, the effect of global warming on water vapor is an important factor. The warming of the earth's surface would increase the rate of water evaporation by lakes, rivers and oceans as well as forests, grass lands and farms. There is a controversy with regard to whether this increased water vapor would increase or decrease the earth's average atmospheric temperature.

In the event of the water remaining as vapor, it would act as an additional greenhouse gas and lead to a further warming of the atmosphere. There is also the possibility of the water vapor condensing into clouds, which would then by reflecting much of the sun light and allowing less energy to reach the Earth might cool the surface of the Earth, thus balancing out the increased greenhouse effect or even bringing about a cooling rather than warming of the Earth.\textsuperscript{38}

\textsuperscript{36} Botkin, \textit{supra} note 16, at 140.
\textsuperscript{37} Id. at 125.
\textsuperscript{38} Id.
The interaction between the oceans and the atmosphere is also considered significant as the distribution of heat energy from the atmosphere by the ocean currents could be in ways which might slow down global warming.39

Moreover, climate change and vegetation influence each other. Changes in vegetation affect the amount of light reflected, the amount of water evaporated from the surface, the speed of the winds at the surface and the amount of carbon removed annually from the atmosphere. "If global warming occurs, changes of vegetation might cause positive or negative feedback, further increasing or compensating for the greenhouse effect."40

E. Scientific Uncertainty And Policy Making:

It is difficult, if not impossible, to provide conclusive scientific evidence of global warming. Contrary to general belief, science is not 'an objective, cognitive activity' that produces unimpeachable conclusions.41

Besides the disagreement with regard to the critical role of carbon dioxide and other greenhouse gases in producing global warming, the magnitude of such increases, and its various impacts, there is much controversy

39 Id.
40 Id.
surrounding the issue of policy responses to this scientific uncertainty.

The two separate investigations carried out by the Environmental Protection Agency (EPA) and the National Academy of Sciences (NAS) illustrate this. While the EPA report emphasized the importance and immediacy of different policy responses to limit global warming, the NAS report envisioned the necessity only in the far future.

In fact, the presidential science advisor, George Keyworth, in response to these reports found the EPA conclusion "unwarranted and unnecessarily alarmist". Decision making in this context becomes a very controversial issue. There is a strong likelihood but not absolute proof of global warming. It may be comparable to the inherent risk of modern living. The history of the introduction of chemical technology in retrospect reveals the extent of ignorance about risks involved. The latency period due to the reluctance to act now can be disastrous in the long run. It is therefore important that decisions be made about risks despite pervasive uncertainty.

In fact, global warming has often been referred to as a "phantom dragon" comparable to an invasion by aliens from space by those who caution against the "cost of overreaction". But, a real dragon may be just around the corner if we do not head the growing evidence of its

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42 Id. at 230.
43 Id. at 231-232.
44 Id. at 237.
existence. To begin with, despite the uncertainty with regard to the effects of global warming, despite the ambiguity surrounding the theory itself, there is more agreement than disagreement that global warming is here and can hardly be wished away.

Moreover, while it is possible to establish absolute proof of global warming, delaying action until that time could prove very costly in more than one sense. It certainly is a "classic example of the need to make decisions with imperfect information" and has been described as 'transcientific'.

Taking into account the effects of global warming primarily on ecology, agriculture, forestry, human habitat and in a much more remote sense on human health and life, it becomes important to ask to what extent should steps be taken to avoid or adapt to these inherent risks. The science of risk evaluation or assessment and risk management are relevant in this context. Risk in one form or another is endemic to modern living. In the case of global warming, the effects of which are expected to be long range and possibly irreversible, there is a need for prioritization, in other words, deciding which risk to eliminate or reduce as well as finding out more about the nature of the risk and choosing appropriate risk reduction actions.\textsuperscript{46}

\textsuperscript{45}Id.
\textsuperscript{46}Id. at 244.
The comprehensive approach to policy making has gained much support. It is two fold - stressing the need for the full accounting of all anthropogenic influences on the environment and at the same time, allowing flexibility to choose the most cost effective actions in response to such influence. The first element aims at the assessment of environmental impacts and the second element addresses the market based incentive approaches to environmental policy.47 The comprehensive approach also asserts that any measures dealing with global climate such as scientific research on the causes and consequences of global climate change, projections of future net greenhouse gas emissions, trends, technology to assess any R&D policy, analysis and so on should take into account the net emissions (the sources and sinks) of all greenhouse gases.48

The 'No-Regrets' policy is a novel approach based on the idea that many of the policies to avert global warming are of merit in themselves for economic, energy, security or environmental reasons and also help in generating a political environment which is conducive to international cooperation.

In some of the European countries, 'No-Regret' measures are already being under taken, driven by concerns relating to energy independence, economic efficiency or environmental

48 Id.
problems other than global climate change.\textsuperscript{49} This approach has also been recommended to the developing countries.\textsuperscript{50}


\textsuperscript{50} Rogelio Gonzalez Garis et. al., \textit{Climate Change And Environmental Policies In Mexico}, 9 \textit{ARIZONA JOURNAL OF INTERNATIONAL AND COMPARATIVE LAW} 229 (1992).
III. LIABILITY FOR INJURIOUS CONSEQUENCES TO THE GLOBAL CLIMATE

The continuing emphasis on the need to protect natural resources and prevent irreversible harm to the global commons on an endangered planet has forced even nations used to adopting adversarial positions with regard to each other to think in terms of interdependence and cooperation. International attention has focused increasingly on environmental issues. Some limited case law is available on the subject and several bilateral and multilateral agreements dealing with specific concerns have been entered into, usually in the wake a disaster. But, these instances of environmental concern have no point of convergence and remain scattered like individual pieces of a puzzle.

In order to develop into a normative discipline or a system of thought, environmental issues required, first of all, an identity distinct from other areas of law and secondly, a comprehensive framework based on sound legal concepts. It is this hiatus that the International Law Commission, a body as much concerned with the progressive development of law as with the codification of existing customary law sought to fill through its study of the topic,
"International Liability For Injurious Consequences Arising Out Of Acts Not Prohibited By International Law".\(^5\)

It proved to be a formidable and delicate task, for the activities that environmental law aimed at regulating are much different from activities regulated in the ordinary course of law.\(^2\) Yet, it was considered to be a task that was long overdue, for "without firm principles and precedents holding nations fully accountable for the effects of their activities in the environment beyond their borders, the resolution of every international environmental problem - from bilateral contamination of a shared river basin to world scale degradation of oceans and the atmosphere is negotiated through a web of reciprocal economic advantage and political expediency that impairs the effectiveness of the resulting agreement."\(^5\) Although this is true, it is important in a world of sovereign and unequal states without a centralized authority to guard against the promulgation of a liability regime that is not reflective of their interests and further

\(^{51}\) Int'l L. Comm'n, supra note 5.

\(^{52}\) Samuel A. Bleicher, An Overview Of International Environmental Regulation, 2 ECOLOGY LAW QUARTERLY 5-6 (1972).

a) Environmental Law aims at regulating activities that are inherently beneficial to society, activities which typically transform raw materials into consumer products and any harm that results from such activities is a by product. It is unlike the activities regulated by criminal law which have no redeeming social utility.

b) It is based upon notions of physical interdependence. Therefore, it is difficult to attach economic value to loss which cannot be immediately translated into personal loss or damage to property.

c) It's goal is to prevent or modify activities with continuing deleterious effects differing in this manner from tort law which focuses on compensating loss already sustained.

d) Unlike the laws relating to consumer protection and workman's compensation, in the case of environmental regulation, victims are not contractually related to the activities.

enhances existing inequality, for the concepts of environment and development go hand in hand. In order to preserve this balance and create a viable system, "the limits of traditional doctrines as well as the possibilities of new paradigms" are being explored by the international community and while the draft articles on International Liability For Injurious Consequences with regard to transfrontier harm were able to provide some semblance of a theoretical foundation, the issue of global commons remains on the brink of inquiry. While the conclusions of such an exercise may be foregone, it is nevertheless interesting from an academic perspective, to examine the need for theory as well as its limitations.

A. Emerging Legal Controls:

Some general principles of international law are being used as a basis for creating a liability regime to regulate environmental problems. The maxim *sic utere tuo ut alienum non laedas* believed to be fundamental to Roman law as well as Common law exists alongside the *laissez faire* doctrine of state sovereignty in international law. The complementing of self interest thus by the interests of the international community is also the essence of principle 21 of the Stockholm Declaration.54

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Article 21

States have in accordance with the Charter of the United Nations and the Principles of International Law, the sovereign right to exploit
Louis B. Sohn interprets principle 21 as nearly asserting that a state has unlimited sovereignty over its natural resources and as not explicitly condemning "the activities that states often engage in behind the shield of misguided sovereignty".55

How and whether international law can overcome this undeniable obstacle of sovereignty remains as much of a challenge in the case of environmental protection as in any other aspect of international life.

Principles such as sic utere form part of customary international law, whose role in the development of rules of environmental protection has been viewed differently by different scholars.

Allan Boyle, for example, sets a store by custom in the creation of principles of environmental liability in international law.56 Brownlie, on the other hand, while not denying the importance of custom particularly, "the logic and vitality of principles of state responsibility in setting the scene"57, does not believe that custom in itself is adequate. He feels the necessity of new institutions and instruments to

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deal with principles of transboundary harm.\textsuperscript{58} Some writers are skeptical of attempts to derive rules of liability from custom as embodied in state practice, treaties, charter declarations, the works of international lawyers and judicial decisions of international arbitrations as well as the International Court of Justice.\textsuperscript{59}

The problem with custom becoming a primary source of rules of liability is that it presumes the existence of consent among states where there may be none and when attempts are made to codify it in order to create a liability regime - filling it with determinate and hence controversial content, states are bound to protest.\textsuperscript{60} The rules of customary law are particularly anathema to developing countries who regard custom as a creation of the West and hence primarily suited to western interests. This would be especially so in the case of environmental protection where they strongly resist any interference in their efforts to develop. The principal defect in the approach which draws upon custom as the primary source is the reluctance of some states to accept such rules as binding.\textsuperscript{61}

If, on the other hand, custom is left uncodified, it would convey no normative expectations and states would

\textsuperscript{58} Id.
\textsuperscript{59} TRENDS IN INTERNATIONAL ENVIRONMENTAL LAW, 28 (HARVARD LAW REVIEW ed.,) (1992).
\textsuperscript{60} Id. at 28-29.
\textsuperscript{61} Id. at 29.
conduct themselves in a totally isolated fashion while at the same time appearing to conform to customary law.\textsuperscript{62}

One writer put the whole crisis of custom in a nutshell thus, "the development of an international legal regime requires a body of substantive norms that correspond to the myriad interests of the states. When the norms posit ideal much more ambitious than the interests of the states, international law detaches itself from the expectations of its subjects and becomes a utopian vision".\textsuperscript{63}

Nevertheless, an understanding of customary principles of state responsibility is a useful prelude to the quest for new principles.

Traditionally, state responsibility has been defined in the very narrow sense of a wrongful act or omission which causes injury to an alien but it has acquired a much more expansive meaning over the years.\textsuperscript{64}

The International Law Commission in its draft articles on state responsibility described an "international crime" as resulting from a "serious breach of an international obligation of essential importance for safe-guarding and preservation of the human environment, such as those prohibiting massive pollution of the atmosphere or of the seas".\textsuperscript{65}

\begin{flushright}
\textsuperscript{62} Id. at 31.  
\textsuperscript{63} Id. at 30.  
\textsuperscript{64} OLIVER, INTERNATIONAL LAW OF STATE RESPONSIBILITY FOR INJURIES TO ALIENS 61 (Lillich ed. 1983).  
\textsuperscript{65} Brownlie, supra note 57, at 33.
\end{flushright}
The term responsibility as defined by the International Law Commission has been interpreted by some scholars to include responsibility for the prevention of irremediable or non-compensable effects as much as it does liability for actual damage.\textsuperscript{66} This approach of course met with skepticism from critics who describe it as "the front-loading of the procedural requirements"\textsuperscript{67}, in other words, the application of the doctrine of state responsibility before rather than after the crime has occurred, in the form of duty to assess potential harm to other states, the duty to inform them of the threat, in other words, the duty to prevent the harm.\textsuperscript{68} While the proponents of this approach believe that it fosters cooperation and avoids the confrontation that usually marks the period after damage has occurred, the critics argue that it creates only a mirage of consensus offering in truth, no incentives making the benefits of membership outweigh the benefits of non-compliance.\textsuperscript{69} They conclude that neither the emphasis of form over substance nor the postulation of abstract norms of behavior and the derivation of rights and duties would help evolve a liability regime for environmental protection.\textsuperscript{70}

Actions occurring within the territory of one state causing damage within the territory of another state have often been the subject of international decision making. The

\textsuperscript{66} HARVARD LAW REVIEW, supra note 59, at 36.
\textsuperscript{67} Id.
\textsuperscript{68} Id.
\textsuperscript{69} Id.
\textsuperscript{70} Id. at 16-17.
most cited examples are the Corfu Channel Case, the Trail Smelter Arbitration and the Lake Lanoux Arbitration. These decisions have thrown up several important principles of environmental responsibility.\textsuperscript{71}

In the Corfu Channel Case\textsuperscript{72} for instance, the International Court of Justice held for Britain on the ground that every state has an obligation not to allow knowingly its territory to be used for acts contrary to the rights of other states, thus setting the scene for the emergence of a principle that international law imposes an obligation upon states "not to permit international environmental injury". Although environmental protection was not the primary concern in this case, by resorting to circumstantial evidence and inference of fact, the Court attributed to Albania, the knowledge of the existence of mines and thus established a principle that knowledge was a sufficient basis for state responsibility.\textsuperscript{73} Judge Alvarez in his separate opinion went a step further by stating that such knowledge on the part of the state in whose territories the activities were taking place "is not a presumption, nor is it a hypothesis, it is a consequence of its sovereignty".\textsuperscript{74}

\begin{itemize}
\item \textsuperscript{71} Bleicher, supra note 52, at 28.
\item \textsuperscript{72} ICJ 4 (1949).
\item \textsuperscript{73} Bleicher, supra note 52, at 16.
\item \textsuperscript{74} Id. at 18.
\end{itemize}
Further progress was made in the Trail Smelter Arbitration\(^7\) which dealt directly with transnational environmental injury wherein it was held explicitly that a state may not use or permit the use of its territory so as to cause serious transnational injury and implicitly that activities creating a risk of pollution or actual pollution occasionally may be continued, although any damage that results from such activities must be compensated. An analysis of this case reveals that this position while "consistent with a ruling that no damage shall be permitted", precludes "the conclusion that a state may not engage in activities which create a risk of transnational injury".\(^8\) Stated more clearly, the Tribunal made no attempts to abolish the risk or prohibit an activity even when it foresaw potential damage but concentrated on the compensation for damage that had actually occurred. Perhaps, the concept of liability for lawful acts arose from this implied decision.

The Lake Lanoux Arbitration\(^7\) was another trail blazing decision emphasizing the importance of adverse effects manifesting in change in the quality of water received by Spain from France in turn for the diversion of the waters of Lake Lanoux from Spain. In reply to the contention by Spain

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\(^8\) Bleicher, supra note 52, at 19.

In this case, a plant from a private corporation located in Trail, British Columbia emitted Sulphur Dioxide fumes which caused considerable damage to private agricultural and timber land in the state of Washington.

that the diversion and restitution alters the natural conditions of the hydrographic basin of Lake Lanoux and that the restitution of the waters of Carol river was physically dependent upon human will, the Tribunal responded by stating that states must be presumed to act in good faith and that potential grounds for relief lay not in the fact of diversion but in the adverse effects on Spanish interests whether from alterations of quality or quality of water which France guaranteed to return in turn for the diversion. While France did not have unrestricted rights on the use of the waters, the Court rejected the Spanish claim on the belief based on French persuasion that it would act in good faith. If Spain had argued that the diversion would affect its ecological interests in the form of pollution, it would have had a stronger case.\textsuperscript{78}

However, a few fundamental principles have emerged from these three decisions such as

\begin{itemize}
  \item[a)] States may not use or permit the use of its territory in a manner that causes substantial damage to another state.
  \item[b)] Knowledge of the existence of dangerous activities on a state territory can be imputed by resorting to circumstantial evidence and inferences.
  \item[c)] An activity causing damage or bearing the risk of damage may not necessarily be prohibited although damage must necessarily be compensated.
\end{itemize}

\textsuperscript{78} Bleicher, supra note 52 at 25.

Spain objected to a French plan to divert the waters of Lake Lanoux into the basin of the Arige River to generate hydro electric power and to restore to the Carol River, where the water would otherwise have flowed an equivalent amount of water from a higher point on the Arige. The Carol river flows in Spain, the Arige river does not. In addition to restoring the water, the French government agreed to guarantee a dialy minimum flow in the Carol river.
d) A state is not automatically responsible for activities which only cause a risk of injury or the capability to cause injury.

An important point to be noted in the context of these decisions is that in none of the three cases was there any necessity to balance the interests of the use of a particular activity versus its potential damage. The disconcerting prospect of prohibiting any activity that was inherently beneficial to the defendant state did not arise in these cases.79

There have been several treaties dealing with specific aspects of transnational environmental injury and although they have some features in common, they reach different solutions to the different problems they address and cannot be made generally applicable. A broad ranging international agreement that can be applied to all forms of international environmental injury was considered a far more effective solution to the substantive and procedural uncertainties of existing international law.

After the Trail Smelter decision, environmental responsibility as an aspect of international law receded in importance. The nuclear and space related activities of the early sixties were responsible for bringing it to the forefront. Multilateral treaty regimes for ultra hazardous activities were negotiated.80

79 Id. at 28.
80 Gaines, supra note 53, at 786.
The 1972 United Nations Conference On Environment And Development in Stockholm, laid down the principle of international environmental responsibility for the first time in concrete terms and yet paradoxically enough drew a veil of ambivalence over it by attempting a precarious balance between international responsibility and the principle of sovereignty.\(^{81}\)

In a more general context, however, it did create a spirit of cooperation among nations leading to the negotiation of several important conventions such as the 1985 Vienna Convention for the Protection of the Ozone Layer, the 1987 Montreal Protocol and the 1990 London Conference to amend the protocol. The Basel Convention establishes the basis for global management of hazardous wastes.\(^{82}\) More recently, the Framework Convention on Climate Change and Biodiversity at Rio de Janeiro confirmed "the new found political will among nations to act collectively and decisively to protect the common future even when no tangible harm had yet been observed".\(^{83}\)

At the same time, there were efforts to conceptualize the topic on the basis of principle 22 of the Stockholm Declaration by organizations such as the International Law Commission and the United Nations Environment Programme.\(^{84}\)

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\(^{81}\) Stockholm Declaration, supra note 54.

\(^{82}\) Gaines, supra note 53, at 781.

\(^{83}\) Id. at 786.

\(^{84}\) Id.
B. Examination Of The International Law Commission's Approach To Liability For Environmental Harm:

Ever since the International Law Commission undertook the study of the subject of liability for lawful activities under the title "International Liability For Injurious Consequences Arising Out of Acts Not Prohibited By International Law", it has been embroiled in doctrinal controversy. Brownlie for instance is of the opinion that the quest for principles of liability for lawful acts "seems to fly in the face of all existing legal experience". He offers the criticism that the references made in the preliminary report on the topic to the Trail Smelter Arbitration and the Corfu Channel Case are misconceived creating confusion between the so called primary and secondary rules. According to him, in the case of the Trail Smelter, the carrying out of the industrial activity is lawful and in the Corfu Channel case, the laying of mines in the territorial sea is lawful too. In fact, both activities are lawful per se. "In such cases, it is the content of the relevant rules which is critical and the global distinctions between lawful and unlawful activities is useless".

He presents the thesis that "much of state responsibility as long accepted by governments and tribunals is concerned with categories of lawful activities which have

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85 Brownlie, supra note 3, at 49.
86 Id.
caused harm. Except where dolus is proven - most cases of wrong-doing by states in practice involve the inadequacies, the negligent perversion of the ordinary business of administration.\textsuperscript{87}

In fact, a generally held notion among international lawyers is that injurious consequence is a necessary consequence in both wrongful and lawful cases. Quenten-Baxter, the Special Rapporteur for the topic, however, made a distinction between the two by stating that "wrongfulness itself supplied the element of injurious consequences so that it was the primary rule, the rule of obligation that must prescribe an element of injury. If there was a liability that arose without wrongfulness, it could arise only because legal obligation attached such a liability to the consequences of particular act."\textsuperscript{88}

Yet, the "idea that if something was not permitted by law it was wrongful to do it and that if it was permitted, one was accountable only to oneself" seemed so fundamental and invincible to many that it appeared almost paradoxical to speak of responsibility for lawful acts.\textsuperscript{89} It must be realized however that the study of this topic stemmed from the conviction that the problems it addressed, although 'permitted' or at least 'not prohibited' gave rise to consequences in territories and jurisdictions beyond one's own and therefore entailed accountability to other than

\textsuperscript{87} Id.
\textsuperscript{88} Int'l L. Comm'n, supra note 5, at 242.
\textsuperscript{89} Id.
oneself. In other words, a balance must be struck between the freedom of a state within its territory and the duty it owed to other states. From the point of view of the Special Rapporteur, "the notion of care had developed for beyond the point where it has been viewed solely in terms of an action and its consequences rather it sprang from a sense of community or interdependence so that if the action of one state seriously affected another even internationally, a form of legal relationship was created between that state and its innocent victim. There were rights and obligations distinct from the question of wrongfulness that arose out of a primary rule, and had to be regulated".  

In outlining the parameters of the topic, he clarified the use of certain terms. "Liability" for instance is used to mean not just the consequence of an obligation but the obligation itself. The phrase "injurious consequences" in the title signifies the fact that while any wrongful act entails a duty of reparation, an act not prohibited does so only if loss or injury is caused. The term "risk" may mean either an inherent danger or an exceptionally high level of danger. The term "ultra hazardous" is viewed as a danger which may assume catastrophic proportions, when it does materialize or it may also define dangers which build up over a period and have massive cumulative effects.

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90 Id.  
91 Id.  
92 Id.  
93 Id.  
94 Id.
According to the schematic outline of the topic prepared by the Special Rapporteur for the topic, Quenten-Baxter, there was an obligation to avoid, minimize and repair transboundary harm which was foreseeable as a risk associated with activities taking place in its territory or control. But this obligation did not give rise to right of action. Only when actual injury occurred, was reparation expected after the test of balance of interests is applied. The test of balance of interests included such factors as the importance of the activity in terms of its social usefulness, its economic viability, the probability and seriousness of loss or injury.95

The purpose behind the schematic outline was to reconcile the state's 'freedom of choice' with the adequate protection of the others and "to ensure that the innocent victim did not bear the whole of any loss and that protective measures reflected regional and international standards as well as the capability of the state in question".96

The second Special Rapporteur, Julio Barboza introduced the term "appreciable risk" thus expanding the scope and the nature of activities included under this topic, taking it beyond the expression "ultra hazardous".97 The Commission dealt with different aspects of the topic ranging from the interpretation of terms such as harmful effects, the distinctions between risk and harm, prevention and

95 Int'l L. Comm'n, supra note 5, at 262.
96 Id.
97 Int'l L. Comm'n, supra note 6, at 90.
reparation, between primary obligation and secondary obligation and to the obligation to negotiate. At its forty second session in 1990, the Special Rapporteur proposed a complete outline of a set of thirty three articles.98

It has been seriously questioned if it was necessary to make a distinction at all between state responsibility and liability for injurious consequences arising out of acts not prohibited by international law. The conceptual basis of such a topic was considered quite unsound and unnecessary and so was its usefulness as the basis for codification of existing environment law and practice. The whole idea of reconceptualizing of an already existing system of law was dismissed of as a retrograde step.99

The defense of the International Law Commission was that, by exploring the new topic, it had not disregarded what it described as its 'fundamental connections' with state responsibility and that the attempt to study liability in terms of the primary rules contained in conventional regimes was not to "parallel" but to complement its study of secondary obligations under customary law.100

While the Commission makes the distinction that obligations arising in respect of acts not prohibited are the product of particular "primary" rules: the violation of these or other primary rules brings into play the "secondary" rules of state responsibility for wrongful acts, it is not so

98 Id.
99 Boyle, supra note 56, at 1.
100 Int'l L. Comm'n, supra note 18, at 253.
important to dwell on it. The topic really revolves around the corollary of this distinction - namely the variable concept of harm. In other words, "where a state suffers substantial injury or reasonably believes that it is exposed to a substantial danger arising beyond its own borders from the acts or omissions of other states, there is a new legal relationship which obliges the states concerned to attempt in good faith to arrive at an agreed conclusion as to the reality of the injury or danger and measures of redress or abatement that are appropriate to the situation".101

C. The Global Commons:

There are certain resources of the globe which are shared or are open to the use of all states. At one time these included mainly the oceans and the resources therein. But with rapid advances in science and technology, control has been gained over previous inaccessible 'commons' such as the outer space, the celestial bodies, the Earth's crust and the atmosphere. Access and control inevitably led to the exploitation of resources embedded in the commons and too late to the panic that the resources are depleting and will not be replenished.

The need to retreat and impose limitations or regulate the use of these resources became a prominent concern in recent times. The international community has come a long

101 Id.
way from the time of the United Nations Conference on the Law of the Sea, when the deep sea bed was declared the "common heritage of the mankind" to the time when resolution 45/53 of the General Assembly declared climate the "common concern of mankind".102

It is true that the preservation of these shared resources in a form adequate to the needs of the global ecological system is not necessarily synonymous with the establishment of a regime which satisfies the economic interests or legal claims of all states, but, neither can be pursued to the exclusion of the other particularly in the case of the developing countries as they are the worst economic and ecological casualties either way.

D. Gaps In The Law And The Ongoing Discussions:

The topic, "Liability For Injurious Consequences Arising Out Of Acts Not Prohibited By International Law" has been conceptualized solely in terms of transfrontier harm where an activity in one state or under its jurisdiction or control will cause harm to areas or resources within the jurisdiction or control of another state. In such a case, the source states and the victim states are identifiable and there is a link of causation between the harm in one state and the


If "common heritage" was retained, the positive aspects of benefit sharing would become from the perspective of developing countries the negative notion of burden sharing.
activity in the other. The cause of action resting on harm to a jurisdictional person or property facilitates the measurement of harm in economic units. Despite the complexity and controversial nature of a concept of liability for lawful acts, with regard to the components of liability such as 'victim', 'culprit', 'causation', and 'compensation', it is not much different from the classical concept of liability.

In the case of global commons, these concepts need to be reexamined, and recasted or gotten rid of.

Whether the question of the global commons ought to be addressed within the context of the topic of liability for lawful acts was a matter of debate in the Commission.\textsuperscript{103}

Some members that there was a difficulty in "reconciling the theoretical foundations of the liability topic with what was needed to approach harm to the global commons".\textsuperscript{104} It was their opinion that since the Commission had approached the topic with the view that it concerned harm emanating from the conduct of activities in the territory of one state, there was no problem of identifying which was the state of origin and which was the affected state, in such a situation, and damage could be easily quantified.\textsuperscript{105}

One representative who supported the inclusion of global commons within the framework of the liability presented the view that "the main principles of cooperation, prevention and

\textsuperscript{103} U.N. DOC. GAOR A/CN.4/L.469
\textsuperscript{104} Int'l L. Comm'n, supra note 6, at 107.
\textsuperscript{105} Id.
so on should be appropriately applied to any harm caused beyond the limits of national jurisdiction whether to another state or mankind as a whole.\textsuperscript{106} He added further that "the fact that the problems of liability were even more complicated in the case of harm to the global commons than in respect of harm caused to the states and their citizens should not play a decisive role with regard to the extension of the scope of the instrument".\textsuperscript{107}

A few members were of the opinion that the question of global commons was distinct from the original topic and went beyond its scope especially when one considers the fact that "the more serious threats to the global environment were caused not by ultra hazardous activities but by everyday industrial and other activities which resulted in "creeping pollution" and that such activities and their transboundary effects did not lend themselves to the clear-cut application of a regime of the kind under consideration".\textsuperscript{108}

In the opinion of another representative, "if the international community were to give the unexplored field the thought it deserved and deal with it on the basis of professional scientific knowledge, it would first have to decide on an appropriate mechanism for international cooperation", and that "it would be premature to establish

\textsuperscript{106} Id.
\textsuperscript{107} Id.
\textsuperscript{108} Id.
any legal principles of international liability in this field".109

While the precautionary aspect or the concept of prevention of harm was relevant in both transboundary problems as well as in the case of global commons, perhaps more so in the latter case, the quantification of damage and identifying the victims were extremely tricky if not impossible in the case of global commons. While the harm occurring beyond national jurisdiction affecting persons or property did not pose that much of a problem and was taken care of by the liability topic, harm to the environment per se as an independent ground for liability was an entirely new and difficult area as it had to be determined in terms of its impact on persons or property. As the second Special Rapporteur Mr. Justice Barboza stated, "even though an overall correlation could be made between harm to the global commons, the environment in general and the well-being and quality of life of human beings, that did not seem to be enough to establish the causal link necessary under the international liability topic as currently formulated".110

The absence of a causal link in turn made it difficult to determine the victim or the affected state. As result of these obstacles perhaps, the Special Rapporteur tended to equivocate on the issue of global commons being included under the topic of 'International Liability For Injurious

109 Id.
110 Id. at 104.
Consequences Arising Out Of Acts Not Prohibited By International Law' and even made the suggestion that "the notion of a collective interest could be used to respond to the problem in the terms of the paragraph 2(f) of article 5 of part 2 of the draft articles on State Responsibility" and in any case that practice indicated that the problem was being dealt with in the context of responsibility for wrongful acts.111

In order to confront the problem, he felt a choice may have to be made between dealing with it within the framework of liability for lawful acts or within the framework of responsibility for wrongful acts in the topic of state responsibility.

One is inclined to disagree for there are elements in both topics as well as beyond them which can be made applicable in the case of the global commons and it does not seem material to classify harm to global commons as arising from acts prohibited or not prohibited by international law. Contrary to the view that state practice supports either of the two regimes, state practice in fact reveals little evidence of any principles of environmental responsibility for harm to the global commons.

Some of the earlier conventions concerning global commons addressed the questions of regulation of use of resources in order to preserve the quality and quantity

111 Id.
threatened by over-exploitation than with prevention and regulation of pollution.

Although harm to the global commons which affected the rights of other states in terms of their interests in the global commons is not a new phenomenon and is relatively easy to assess, imposing harm to the global commons per se is completely new. The Stockholm Declaration for the first time made reference to the responsibility of states "to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction".\textsuperscript{112}

The 1988 Convention on the Regulation of Antarctic Mineral Resources Activities is the most explicit agreement on the liability for injury to the global commons.\textsuperscript{113}

There are a number of components essential to the formulation of legal framework for harm to the global commons but which are problematic. For example, assessment of harm to the global commons in economic units is difficult because it cannot be immediately translated into deprivations to jurisdictional persons or property. It is not yet possible to determine particularly in the case of atmosphere where the pollutants do not remain in a confined space to establish the causation and link between the source state and the affected state.

\textsuperscript{112} Stockholm Declaration, supra note 54.
\textsuperscript{113} Int'l L. Comm'n, supra note 6, at 104.
In formulating a legal regime which can be implemented only by compensation, the component of assessment of harm is indispensable.

It appears from the foregoing discussion that the issue may be more easily dealt with under the state responsibility although if state responsibility is strictly applied only to wrongful acts, some areas of harm to the global environment including global warming as the result of certain lawful activities would be left out.

E. Trends In Decision Making:

As the assessment of the harm to the global commons per se proves to be ridden with problems within the traditional confines of liability, a more (un)conventional approach is called for such as the creation of a time table of pollutants and polluting agents introduced into the atmosphere and the corresponding permissible levels of emissions as well as the fines for exceeding those levels. Such an approach has already been adapted in the Vienna Convention on the protection of the Ozone layer and the Montreal Protocol. A number of chemicals were identified as harmful and the state parties entered into an agreement to reduce or phase out their usage and production.

The permissible levels may be determined on the basis of scientific data as well as on the basis on the ability of states to comply with it, depending on their state of
economic development. A grace period during which developing states might be allowed a lower standard of emissions could be provided for. Compensation could be in the form of financial assistance to prevent or minimize harm to the global commons, scientific research funding, granting financial assistance to developing countries.

The use of such a convention-protocol approach wherein states first adopt a framework convention that calls for cooperating in achieving broadly stated environmental goals and the parties to the convention then negotiate separate protocols each containing specific measures designed to achieve those goals seems to be the most viable and practical method of prevention of and regulating harm to the global commons.
IV. GLOBAL CLIMATE CHANGE AND THE PROBLEMS OF DEVELOPING COUNTRIES

The United Nations General Assembly in Resolution 45/53 declared the global climate as "the common concern of mankind". It is a global unity and any harm to it in the form of global warming and the resulting climate change may affect the entire community of states.

Hence, unilateral measures to mitigate the effects of such harm would have little or no effect. Therefore, it was considered quite important and a long term regulatory necessity that the climate change convention should be an inclusive process ensuring broad participation. The Framework Convention on Climate Change which opened for signature at Rio de Janeiro on 4th June 1992 is an effort in this direction.

Article 2 lays down the purpose of the convention,

"The ultimate objective of this convention and any related legal instruments that the conference of parties may adopt is to achieve in accordance with the relevant provisions of the convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".

115 Daniel Bodansky, Managing Climate Change, 3 YEARBOOK OF INTERNATIONAL ENVIRONMENTAL LAW 69 (1992).
116 Johnson, supra note 7, at 61.
The stakes of participating in this convention were very high for both industrialized countries with their enormous amounts of carbon dioxide and for the developing countries whose development plans would be jeopardized by restrictions on their agricultural and land use practices. They had differences of opinion with regard to substantive aspects of the convention. These differences stemmed from the disparate interests of the participants. The South Pacific countries for instance were concerned about being inundated by the sea level rise as a result of global warming while the Arab countries had no desire to cut down their emissions or make changes in their environmental policies. India and China reiterated their belief in the importance of economic growth over cuts in carbon dioxide emissions. Within the North, the United States opposed the European Community on the specific commitments to be made in order to limit their emissions. Negotiations proved to be extremely difficult in lieu of the overlay of North-North, North-South, and South-South interests.117

However, the present chapter shall address differences over the substantive issues, namely the specific commitments to be made and the financial mechanism to be used, between the principal negotiators, as well as, concepts relevant to the debate such as equity, sovereignty, and the right to development.

117 Jill Barrett, Negotiation and Drafting of the Climate Change Convention, in INTERNATIONAL LAW AND GLOBAL CLIMATE CHANGE (R. Churchill & D. Freestone eds., 1991)
A. Common But Differentiated Responsibility:

All the problems in arriving at an agreement stem from the single bothersome question ... Who is responsible for the present state of affairs? If everybody is, who is more responsible?

There is an increasing tendency lately to blame Brazil, China and India for problems of global warming. The World Resources Institute, for instance, presented data attributing half of the annual responsibility for global warming to India and China. Responsibility can be attributed only if the country in question is increasing its share of the earth's cleaning capacity or sinks. The World Resources Institute assigns a certain share of the carbon dioxide and methane sinks to each country in a totally arbitrary fashion - by correlating the distribution of sinks with the distribution of the world's GNP. This fact was brought to light by the Center for Science and Environment, New Delhi which countered and challenged the World Resources Institute figures.

The effect of the method employed by World Resources Institute is that the wealthiest country gets the largest share of the sinks, a share which will grow along with the economic prowess of the country. Based on this questionable methodology, the World Resources Institute then went on to

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119 Id.
calculate 'net emissions' which are essentially a country's total emissions minus its national share of sinks, of each country and assigned definite responsibility based on the net emissions.\textsuperscript{120} Besides this politically manipulative methodology, the World Resources Institute by taking into account only the annual emissions completely excludes the responsibility for the cumulative emissions by the developed countries since the industrial revolution.\textsuperscript{121}

While the need to control global warming is undeniable, any attempts to use unjust and inequitable methods in assigning responsibility are bound to be rejected by the developing countries. The way the developing world looks at it, the west having reached the pinnacle of development at the expense of the ecosystem has little or no credibility while selling ecological awareness to a group of nations on their way there. Unless the OECD countries were prepared to make specific commitments to reduce their own emissions, the result would be a drastic curb on the economic progress of the developing countries as well the creation of ecological disaster victims and environmental refugees particularly in countries like Bangladesh and Indonesia which are low-lying areas vulnerable to global warming effects. This would be ironical indeed, in a situation which is not of their making in the first place.

At the present time, the major portion of the Carbon Dioxide emissions and half of the other greenhouse gas

\textsuperscript{120} Id.
\textsuperscript{121} Id.
emissions are contributed by the industrialized countries despite having only a fifth of the world's population. Therefore, decisions on actions to prevent climate change have centered on imposing limitations on developed country emissions through the system of targets and time tables. While no concrete measures are mooted in this direction, the convention does state in very broad terms that the developed states should take the lead in combating climate change and impose more stringent requirements on them to periodically review the adequacy of the commitments as well as to report and update.\textsuperscript{122}

B. Targets And Timetables:

With regard to specific commitments, the industrialized countries most notably, the European Community and the United States took different views. The European Community as a whole indicated its willingness to start positive action in order to stabilize the carbon dioxide emissions at the 1990

\textsuperscript{122} Johnson, supra note 7, at 62.

Article 3

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

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

2. The specific needs and special circumstances of the developing country parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those parties, especially developing country parties that would have to bear a disproportionate or abnormal burden under the convention should be given full consideration."
levels. They were as a whole prepared to make clear commitments. The United States on the other hand did not wish to live up to such specific targets and time tables. Instead, the United States advocated an all sources, all sinks approach under which countries might already receive credit for actions already taken to reduce the emissions of greenhouse gases other than carbon dioxide, for example CFCs or to increase carbon sinks or reservoirs through reforestation or afforestation.\textsuperscript{123}

In the end, it appeared that the convention did not adopt clear targets and timetable to reduce emissions.

Most western countries in fact advocated the adoption of targets and timetables to limit greenhouse gas emissions. The United States however was completely opposed to the idea of imposing the same targets and timetables on all states without having regard to the national circumstances and costs of implementation. In order to accommodate the interests of the United States, a weak and vague approach was adopted suggesting that the return by developed countries to earlier levels of Carbon dioxide and other greenhouse gases by the year 2000 would be useful and requiring that developed states report on the projected effect of their national policies and measures with the 'aim' of returning to their 1990 emission levels.\textsuperscript{124}

Inspite of the fact that the proposed 1990 emissions stabilization goal is itself quite modest, it became the

\textsuperscript{123} Id. at 58-59.
\textsuperscript{124} Id.
center of controversy with developing countries making clear their intentions of not accepting any quantitative restrictions on their greenhouse gas emissions, and the United States refusing to cooperate.

The commitments, targets and timetables by developed countries are provided for in article 4.2 of the Framework Convention on Climate Change which states

"(a) each of these parties shall adopt national policies and take corresponding measures on the mitigation of climate change by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs. These policies and measures will demonstrate that developed countries are taking the lead in modifying longer term trends in greenhouse gases not controlled by the Montreal Protocol would contribute to such modification and taking into account the differences in these parties starting points and approaches, economic structures and resource bases, the need to maintain strong and substantial economic growth, available technologies and other individual circumstances as well as the need for equitable and appropriate contributions by each of these parties to the global effort regarding that objective. These parties may implement such policies and measures jointly with other parties and may assist other parties in contributing to the achievement of the objective of the convention and in particular, that of this sub-paragraph;

(b) In order to promote progress to this end, each of the entry into force of the convention for it and periodically thereafter and in accordance with article 12 detailed information on its policies and measures referred to sub para (a) above, as well as its resulting projected anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol. This information will be reviewed by the conference of the parties at its first session and periodically thereafter in accordance with article 7*.". 125

The language of this provision sets the obligation of the developed countries in very broad and non-specific terms.

125 Id. at 64.
and is definitely a diluted version of the commitments, Europe was originally prepared to make. This was in order to accommodate US interests for to go ahead with the convention without the United States, which is the world's largest emitter of greenhouse gases, would have been a futile exercise, reminding once again that a powerful nation could seal the fate of the entire world, one way or the other.

C. The Global Environmental Facility (GEF):

Article 21(3) of the convention provides for the operation of the convention's financial mechanisms thus, "the GEF of the UNDP, the UNEP and the IBRD shall be the international entity entrusted with the operation of the financial mechanism referred to in article 11 on an interim basis. In this connection, the Global Environmental Facility should be appropriately restructured and its membership made universal to enable it to fulfill the requirements of article 11".126

While the developed countries considered this a very satisfactory mechanism through which financial and technological resources could flow from the North to the South, the developing countries demanded a mechanism that completely financed their implementation of the convention as it is the developed countries who have both the historic responsibility in creating the problem as well as the

126 Id. at 74.
capacity for solving it, a mechanism that was new and one in which they would have a greater say, than they do in the case of the International Monetary Fund and the World Bank. They were not amenable to the idea of an interim mechanism such as the Global Environmental Facility unless it was appropriately restructured and its membership made universal. The developed countries on the other hand were reluctant to accept the idea of financing through a new mechanism under the sway of the developing countries.\textsuperscript{127}

Instead, they advocated stronger institutional and procedural mechanisms such as more stringent reporting requirement, broader roles for the scientific and implementation committees and the establishment of a multilateral consultative process to resolve questions regarding the implementation of the convention. This shift in focus and accent on reporting etc., the developing countries feared would impinge on their sovereignty.\textsuperscript{128}

Unless the developed countries made adequate funding commitment, built into the convention itself, there was little chance of the developing countries accepting the Global Environmental Facility, as in their view, there is no reason why they should pay the price for the damage caused by the earlier industrialization of the nations. The developed countries on the other hand were not prepared to make open ended commitments which they felt were not guaranteed to

\textsuperscript{127} Row over GEF Mechanism, TIMES OF INDIA, NEW DELHI, May 18 (1992).

\textsuperscript{128} Id.
result in specific actions to combat global warming. The need to find a compromise solution between the two had to be dealt with.

D. Sovereignty and Equity:

The special demands of the developing world, and the sometimes reluctant yielding of the developed world to those demands are better understood in the light of analysis of the principle of sovereign equality of states. This originally value free notion has undergone a metamorphosis under the international law of development which is itself controversial, and emerged as a principle of 'positive discrimination' in favor of developing countries. It has also been referred to as the "double standard approach" and has been incorporated in a number of international treaties.\textsuperscript{129}

The Stockholm Declaration for instance states in article 12, "Resources should be made available to preserve and improve the environment, taking into account the circumstances and particular requirements of developing countries and any costs which may emanate from their incorporating environmental safe guards into their development planning and the need to make available to them

upon their request, additional technical and financial assistance for this purpose.\textsuperscript{130}

But, it was in the Law of the Sea Conference that the developing countries for the first time, asserted their rights effectively. Therefore, the convention imposed upon the states the duty to prevent pollution depending on their capabilities and specially considering the economic capacity of developing countries and their need to develop.\textsuperscript{131}

In the Montreal Protocol too, this approach was clearly demonstrated by article 5 dealing with the special situation of the developing countries which provides for, "a ten year moratorium on compliance with emission control measures if the consumption of the controlled substances by developing countries does not exceed a prescribed threshold" as well as by specific aid provisions.\textsuperscript{132}

The principle of permanent sovereignty over natural resources although applicable mainly to international economic activities under the Declaration on the New International Economic Order and the Charter of Economic Rights and Duties of States may also be relevant in the context of climate change in order to understand the attitude of the developing countries towards the idea of emissions reductions and their demands for special concessions.

Sovereignty has been reinterpreted in the context of the New International Economic Order. The principle of permanent

\textsuperscript{130} Id.
\textsuperscript{131} Id.
\textsuperscript{132} Id. at 80.
sovereignty over natural resources is no longer, "the manifestation of an absolutist concept of State Sovereignty which is incompatible with the concept of supremacy of international law" but "is a principle which represents the progressive development of international law in response to the need for a legal principle by reference to which traditional concessions and similar arrangements for exploitation of natural resources could be replaced by more equitable arrangements".\(^{133}\) Oscar Schacter made the observation that, "on the international level, the principle of permanent sovereignty has become the focal normative conception used by states to justify their right to exercise control over production and distribution arrangements without being hampered by the international law of state responsibility as it has been traditionally interpreted by the capital exporting countries ... It would be a mistake to consider the idea of permanent sovereignty over resources as anachronistic nationalistic rhetoric. It should be viewed as a fresh manifestation of present aspirations for self rule and greater equality".\(^{134}\)

The notion that developing countries have an entitlement to development assistance and equitable treatment is emerging. Whether such a notion is accepted as an international legal rule is debatable but it has succeeded in "de legitimizing traditional norms which would otherwise be

\(^{133}\) Kamal Hossain, Introduction to PERMANENT SOVEREIGNTY OVER NATURAL RESOURCES XI (Kamal Hossain & Subrata Roy Chaudhury Eds., 1984).

\(^{134}\) Id.
regarded as authoritative" as well as in creating "expectations about future patterns of international distribution". 135

Oscar Schacter hits the nail on the head in his comment, "what is striking is not so much its espousal by the large majority of poor and handicapped countries, but that the governments on the other side, to whom the demands for resources are addressed have also by and large agreed that need is a legitimate and sufficient ground for preferential distribution. This agreement is evidenced not only by their concurrence in many international resolutions and by their own policy statements, but also, more convincingly, by a continuing series of actions to these countries in need". 136

Need here is treated not as a matter of charity but as a matter of justice.

It is a collective obligation on the part of the International Community, to give development assistance. In the context of climate change it would mean making available additional technical and financial assistance to enable them to incorporate environmentally safe and energy efficient methods in development. It also means a duty to make reparation for the exploitation and depletion of and damage to the natural resources - in other words, the developing countries have "a right to indemnity against countries with primary historic responsibility, for example for emissions of greenhouse gases. On this basis, "innocent victim" countries

136 Id.
might claim as of indemnity against the costs of protective measures against sea level rise* or any other effect of global warming and climate change for that matter.137

While the entire approach pursued under the 'Right to development' may of course be dismissed of as 'soft law', it is the so-called soft law contained in a number of declarations which "may point in the direction which the law should move and provide the basis for the crystallization of a new consensus''.138

137 Slinn, supra note 129, at 82.
138 Id. at 88.
V. CONCLUSIONS

"Why do they not tax their own rich and reform their countries before they come to us with the begging bowl" is a typical and valid question posed in developed countries against the developing countries which themselves perpetuate an internal inequality similar to that present in the international community.¹³⁹ No doubt there exists in the third world countries a dual society. A small minority of the population who lives in the cities are wealthy and politically influential using the nation's resources to suit their interests and there is also the rest of the population living in rural areas or urban slums, poor, illiterate and oppressed by the small, politically influential, minority.

But, one needs to make a distinction between the needs of states as collective entities and the needs of individual human beings. In the international environmental context, one is dealing with the needs of collective entities and only indirectly with individual interests.¹⁴⁰

A comparative study of population versus consumption patterns in the developed and developing countries reveals that China's population is about four times as large and

¹³⁹ Schachter, supra note 135, at 11.
¹⁴⁰ Id.
India's is three times as large as that of the US. The total energy used in USA, however, is approximately eight times that in China and about ten times that in India. The contrast is even more startling when we look at the per capita figures. The energy used per person in the United States is more than twelve times that used in China, and twenty times that used in India. The focal points of the western outlook on environment seems to be energy efficiency without giving up their living standards or sacrificing economic growth. But, if the total emissions of Carbon dioxide is fixed, and the western way of life is not to be disturbed, what share would the developing countries have?

As a long term goal, all countries should be required to implement energy efficiency. In fact, it requires a radical change in perspective. While western attitudes need to turn more introspective and less self-righteous, the developing countries must recognize that unhindered economic growth and increased emissions would result in greater harm to their societies than poverty or population has ever done. They need to lay greater emphasis on the transfer of aid and technology to help them make the transition from fossil fuels

141 See generally Report on Proceedings of International Conference on Global Warming and Climate Change: Perspectives from the developing countries, New Delhi.

142 In response to Garrett Harden's derogatory expression "freedom to breed" with reference to the teeming populations of the third world, see Menaka Gandhi, The Politics of Aid, THE ILLUSTRATED WEEKLY OF INDIA March 30 (1991) 

"the environment is not degraded by the number of people living, but because of what people do while living. It is not degraded when people live simply giving due respect to nature with their minimum wants. It is degraded when you consume an excess of materials produced through harmful technologies and create waste".
to energy efficient methods rather than seek concessions with regard to the reduction of emission levels. They need to break the mold and find ecologically safe paths to development "for the greatest harm done to them is through the spread of the ideology on growth which has taken firm roots among the third world elite. The axioms of this ideology are simple. More growth is good. Less growth is worrying. Negative growth is disastrous. The relationship between growth and welfare is ignored. Are the goods produced valuable? Are they beneficial? Have they been distributed to all? Do the benefits of these goods outweigh their harmful effects?"143 This conviction in growth at the expense of all else is reflected in the enthusiasm with which the third world has embraced the free market system.

While the third world needs to preserve its permanent sovereignty over natural resources and continue to demand the correction of historical injustices under colonial regimes, for its own good it needs to redefine its concept of development in environmentally sustainable terms.

143 Id.