

**CLIMATE CHANGE
and
INTERNATIONAL INSTITUTIONS:

AGENTS OF GLOBAL
ENVIRONMENTAL COOPERATION**

A Dissertation
Submitted to the Department of International Relations
of Bilkent University
in Partial Fulfilment of the Requirements for the Degree
of Doctor of Philosophy

by

Banu Bayramoğlu

December 1997

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to my mother and father

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Approved by the Institute of Economics and Social Sciences

Prof. Dr. Metin Heper
Director

A handwritten signature in black ink, appearing to read 'M. Heper', followed by a long horizontal line.

I certify that I have read this dissertation and in my opinion it is fully adequate in scope and quality as a dissertation for the degree of Doctor of Philosophy in International Relations.

Prof. Dr. Ruşen Keleş



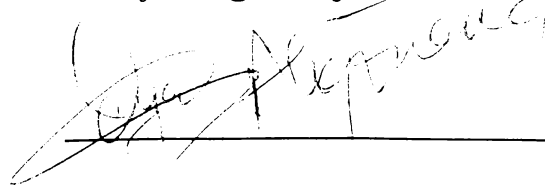
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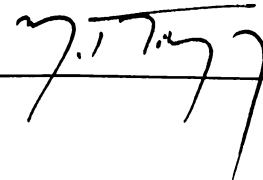
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I certify that I have read this dissertation and in my opinion it is fully adequate in scope and quality as a dissertation for the degree of Doctor of Philosophy in International Relations.

Assist. Prof. Dr. Mustafa Kibaroglu



To my parents Beyza & Uğursal Bayramoğlu

Abstract

The major focus of this dissertation is the global climate change issue which threatens the international ecosystem as the most complex and unique environmental problem today. The study attempts to contribute to the understanding of the climate change cooperation, which has been evolving within a global scope, by displaying the major political and legal processes in the international arena. It aims to answer the question of which elements and factors have played significant roles with respect to climate cooperation. For this end, the research concentrates on the impacts of international institutions and non-state actors and a neoliberal institutionalist theoretical framework is employed while analyzing the regime formation process over the issue. The study has found out that being the actors of the international system, international institutions, along with epistemic communities and nongovernmental organizations, have emanated as the adherents and promoters of climate cooperation, and they have had significant impacts on the emergence of a regime over the climate issue. Thus, the ultimate purpose of this work is to analyze climate cooperation - which requires a more effective and substantial contribution of world states - in connection with the important roles played by international institutions, and to emphasize the implications of this cooperation for the International Relations theory and discipline.

Özet

Bu araştırmanın konusu günümüzde uluslararası ekosistemi son derece karmaşık ve benzersiz bir çevre problemi olarak tehdit etmekte olan iklim değişikliği sorunudur. Bu çalışma küresel boyutlarda gelişmekte olan iklim değişikliği işbirliğini vurgulamayı ve bu işbirliğinin daha iyi anlaşılmasına katkıda bulunmayı amaçlamaktadır; bu sebeple konuyla ilgili belli başlı politik ve hukuki süreçleri ortaya koymaktadır. Araştırma, iklim değişikliğiyle ilgili uluslararası rejimin kurulmasında hangi ögelerin ve faktörlerin önemli roller oynadığı sorusunu aydınlatmayı hedeflemiştir. Yine bu araştırma iklim değişikliği konusuyla ilgili olarak özellikle uluslararası organizasyonların, ve bunun yanı sıra uluslararası alandaki sivil çevre örgütleri ve diğer aktörlerin işlevleri üzerinde yoğunlaşmaktadır. Bu nedenle de bu alandaki işbirliği incelenirken neoliberal-kurumsal (neoliberal institutionalist) bir teorik çerçeve kullanılmaktadır. Araştırma, uluslararası organizasyonların iklim değişikliği işbirliğinde ve bu konuda oluşan uluslararası rejimde, bu rejimin en büyük destekçileri olarak, önemli bir rol oynadıkları ve katkıda bulundukları sonucuna varmaktadır. Sonuç olarak, bu çalışmanın nihai amacı dünya devletlerinin daha etkili ve yoğun katkılarını gerektiren küresel iklim değişikliği işbirliğini analiz etmek, ve bunun Uluslararası İlişkiler teorisi ve bilim dalı için önemini ve içerdiklerini ortaya koymaktır.

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Chapter I. Introduction

Humankind's efficacy in modifying the natural environment in such a rapid and implausible rate during the 20th century has eclipsed the imaginations of previous generations and even gone beyond the expectations of many contemporaries. Today, it is a well-known fact that given the momentum and complications of global environmental change caused by anthropogenic interferences, man has been fully faced with an entanglement which was ironically contrived by himself.

The international ecosystem has been increasingly confronted with various global environmental problems as a result of devastating industrial and technological developments, a high rate of population growth and perpetual environmental abuse which entirely transcend the carrying capacity of our planet. Ecological imbalance and rapidly emerging environmental afflictions endanger continuation of life on the earth. Therefore, as the world approaches the 21st century, environmental degradation emanates as a major peril and security challenge encountering humankind and the whole international system more seriously than anything else.

The anthropocentric development patterns and interest-oriented approaches have been predominant within this state-centric world system for a long time. These traditional perceptions and attitudes have not produced beneficial outcomes for the ecological well being of our fragile

planet. On the contrary, as a result of the anthropocentric world-views that envisage the supremacy of humans over nature, the harmony and balance between the various subsystems of the whole ecosystem have been damaged unwisely which has inevitably modified the natural environment and challenged human life itself.

The basic handicap of these attitudes has been the neglect to comprehend and consider the interdependency of all forms of life on the earth. In other words, the international ecosystem encompasses some basic rules which denote undivided respect and concern towards various forms of life that are closely interconnected. Unfortunately, humankind has underestimated this fact for a long time; humans have injudiciously considered themselves as the only species with a right to govern the overall biosphere which has brought forth counterproductive and self-destructive consequences.

Nevertheless, within the recent decade due to developments in the environmental sciences and material prosperity observed in many developed countries, there has been some growing recognition among people and consequently among world states that environmental destruction is a fundamental jeopardy which should be addressed through reforming the inapt and malfunctioning economic development patterns and through auspicious environmental policy formulations within an international scope. In this respect, Lynton Caldwell states that the observations regarding the emergence of international environmental

movement indicate that an alteration has occurred concerning peoples' beliefs and attitudes towards the biosphere and its components. Caldwell says that:

The movement belongs to a larger transformation in human social thought, which may be likened to a second Copernican revolution. The first revolution removed the earth from the center of the universe; the second removes man from the center of the biosphere. Man is indeed the dominant resident-shaper of environmental change, but only people bound to prescientific theologies believe that the earth and its biosphere were created for man's exclusive benefit.¹

Even though a remarkable trend has been evolving - particularly in the developed countries - towards embracing environmental concerns more enthusiastically than before, a more effective, fundamental and enduring change in terms of ethical judgements, value preferences and priorities among people appears to be essential in confronting global environmental problems and eradicating environmental destruction more rapidly. If only man's egocentric endeavours can be replaced in human societies with biocentric considerations that consolidate the supremacy and sacredness of continuation of life, then many of the regional and global environmental problems can be averted and addressed more effectively within a restructured and well-organized system.

Today, the scopes of many of the environmental problems have already surpassed the boundaries of a single nation and reached gruesome

¹Lynton Keith Caldwell, *International Environmental Policy: Emergence and Dimensions* (Durham, Duke University Press, 1984), 4.

global dimensions. Some of the most important international environmental problems of the late 20th century are ozone depletion, climate change, desertification, marine pollution, acid rain (trans-boundary air pollution), loss of biodiversity, protection of Antarctica, destruction of tropical forests, nuclear testing in the atmosphere and many others. These global issues affect every human-being living in this international ecosystem - together with the other species - to varying degrees.

Therefore, deteriorating ecological conditions and the complexity of the environmental problematic inevitably constitute a common interest and an incentive for collective action among states within the contemporary political system. In other words, although due to these problems states encounter intricacies and conflicts, they are at the same time faced with opportunities for international cooperative activities since common threats obviously motivate and compel them towards global collaboration. Under these circumstances, collective endeavours and cooperative efforts have been recognized by many states as ultimate and inescapable solutions in mitigating and averting global environmental threats. Apparently, there is a growing need for rational environmental policies and effective political machinery within the international system. In this context, it appears that the concept of “environmental cooperation” has an extremely significant connotation for today’s international order.

Hence, all these considerations have been changing the contents and shape of the international political agenda. Due to the emergence of

environmental issues as crucial security challenges against the international community, the International Relations discipline has been increasingly incorporating global environmental issues into its sphere within the past two decades. Environmental security challenges have even disputed the traditional security approaches - which emphasize the military concerns and state-centric aspects of international politics - indicating that there are even more significant challenges than the military threats against human societies. The major aim of the students of global environmental politics is therefore to emphasize the implications of the global environmental concerns and cooperation with respect to the field of International Relations.

Within the past decade there have been observations corroborating the views about flourishing ecological cooperative processes and political mechanisms among the world states against the deterioration of global commons. For instance, international collaboration and regime formation over ozone depletion and transboundary air pollution are very good examples of successful environmental cooperation and collective strategy formation for the protection of the atmosphere as a global commons.² In these cases, world states accomplished a remarkable convergence of

²For a detailed description and analysis of the international environmental problems related with the atmosphere as a global commons see Marvin S. Soroos, *The Endangered Atmosphere: Preserving a Global Commons* (Columbia: University of South Carolina Press, 1997). This work is unique with its specific focus on the atmospheric problems, the responses of the international community towards these issues and the various existing regimes over these issues.

opinions and reconciliation of interests which insinuate the likelihood that governments will resort to rational collective endeavours and legal arrangements in order to avert other common threats encountering the international community.

Nevertheless, with respect to climate change, which is another international environmental threat related with the global atmosphere, there has been comparatively a less effective and satisfactory cooperative effort among the world states. This is closely affiliated with the fact that climate change is a broader and more complex ecological threat compared to ozone depletion or acid precipitation. The dynamics of the complex climate system aggravate the endeavours of the climatologists, environmental scientists and people from related disciplines who are striving to illuminate the basic features and impact of this global problem. Since coordinated political activities in an international scope require lucid apprehension of the threat and clear scientific information about the problem, cooperation on climate change has been understandably evolving with a slower pace than the ozone depletion and acid rain issues. However, there is enough hope to expect that the international community will refrain from continuing self-destructive patterns of action and strengthen the regime that has already been existing over climate change.

The climate change issue with its complicated aspects and unique challenges requires further assessments and multidisciplinary efforts. Even though an extensive literature has already been existing regarding

climate change, since it is relatively a new problem and an effective legal structuring has not been fully accomplished over the issue, it appears to be essential to contribute to the understanding of climate change from various disciplines.

Hence, the main focus of this study is the climate change issue as a complex and global ecological problem and the evolution of international environmental cooperation over the climate change threat. The study attempts to display the major political and legal processes in the international arena with a secondary emphasis on the scientific assessments and developments on climate change. The study will observe the progression of international cooperative processes and regime formation efforts over the climate issue and it attempts to reveal the basic political forces and factors of multinational cooperation in this field. The major aim of the study is to answer what factors and which actors have made impact on the evolution of the climate regime and to assess to what extent they have contributed to the cooperation process. During this evaluation the basic focus will be especially on the functions of the international institutions and intergovernmental bodies, and their efficacy in and contribution to the regime formation process. Consequently, the empirical evidence about the evolution of climate politics will be evaluated and analyzed within a neoliberal institutionalist theoretical framework which appears to provide a more satisfactory and thorough interpretation of the facts of the international system compared to that of the realist

tradition, and its implications and connotations for the International Relations discipline and theory will be emphasized.

This study comprises seven chapters. The second chapter of the study will present information pertaining to political aspects of global environmental problems. In this chapter, the connection between the natural environment and politics will be elucidated. In addition to this, the significant developments and landmark events in international environmental politics will be overviewed in order to provide some basic information about the responses and commitments of the international community in connection with environmental protection.

The third chapter of the study will include a review of the persistent debate between the two major theoretical traditions within the field of International Relations. For this end, the major assumptions and arguments of the liberal and realist schools of thought will be displayed. In this chapter, the evolution of the realist-liberal debate will be traced and the recent shape the debate has taken will be evaluated. This theoretical survey is considered to be useful and significant in order to construct the necessary theoretical framework which will be employed while analyzing the climate cooperation.

Chapter Four will present substantial information pertaining to the scientific aspects of the climate change issue in order to elucidate the significance of the climate threat as a global phenomenon. At the same time, the existing knowledge and scientific uncertainties in connection

with the climate issue will be described and emphasized in the fourth chapter.

The fifth chapter will display the evolution of the political and legal developments with respect to the climate change problem. Major political processes that took place on the way towards a regime over the climate change issue will be examined; the main events, international and regional conferences, multinational negotiations and the process of the accomplishment of the United Nations Framework Convention on Climate Change will be explained within this fifth chapter. This chapter will provide the empirical evidence which will be employed in the final analysis of the evolution of climate politics.

Chapter Six comprises an analysis of climate change politics with special emphasis on the roles and functions of the international institutions and intergovernmental bodies. The chapter will answer the basic research question of which actors and what factors have been influential in the way leading to cooperation over climate change. The interpretation of the evolution of the climate cooperation will be made within a neoliberal institutionalist theoretical framework which appears to provide a more sophisticated explanatory capacity than its realist counterpart.

Finally, the conclusion part of the study will include an overview of the ideas employed within the previous chapters and it will also involve prospects for future cooperation over climate change.

Due to the fact that climate change is the most complex atmospheric problem threatening the global ecosystem and relatively a new phenomenon that brings forth unique challenges to the international community, it is in need of additional inquiry and multidisciplinary research. The ultimate objective of this study is therefore to contribute to the understanding of global climate change as an international environmental issue which requires a more efficient and substantial cooperation of world states, and to explore its inferences for the International Relations theory and discipline.

Chapter II. The Politics of Global Environmental Issues

There has been a growing recognition that environmental issues maintain a crucial place in international relations since such topics are not considered peripheral to the national interests of world states any more. In effect, these issues have been transferred to the center stage of world politics.

Therefore, the major purpose of this chapter is to elucidate the interlocking relationship of the natural environment and politics. The chapter serves the purpose of contemplating the fundamental man-environment relationship in the face of increasing global ecological problems and developing scientific knowledge, which verify the fragility of the interrelated planetary system and signify the ecological interdependence inferring multinational concerted activities and explicit policies to ameliorate various global environmental afflictions. A structural overview of the present international system together with information pertaining to the changing scopes of global environmental cooperation as a result of the flourishing non-state actors will be presented within the chapter. Finally, within the second section a general outlook to the major events of international environmental politics since 1972 will be provided in order to shed light on the international political responses and commitments of the international community with respect to global ecological deterioration.

The relationship between humans and their physical environment embodies an unprecedented connotation in today's world since the consequences of excessive stress and demands placed on earth by rapid population growth, industrialization, economic activities and technological developments have confronted people with various regional and global environmental threats. Human beings depend on the natural environment for their survival, yet, the ecological exploitation and abuse of natural resources have brought forth serious threats to the integrity of the "international ecosystem."³ In essence, environmental destruction is taking place in various forms every passing moment. The survival of the human species is a serious concern while the world approaches the year 2000.

The abuse and overexploitation of the natural environment began to accelerate during the time of rapid industrialization - particularly in the early twentieth century. From that period till the late 1960s, the importance of ecological balance had been underestimated, the delicacy of the earth's life-support systems had been neglected and environmental resources had been relentlessly sacrificed for the sake of economic and technological developments. The western-style industrialization model,

³Dennis Pirages summarizes the term ecosystem as "the total array of plant and animal species in an environment as well as the matter which cycles through the system" and defines the term international ecosystem as "the entire interrelated set of smaller systems nourishing life on this planet and is referred to as the biosphere, ecosphere, or global ecosystem." Dennis Pirages, "The Ecological Perspective on International Politics," in *The Global Agenda: Issues and Perspectives*, eds.

which assumed an infinite amount of natural resources and envisaged free use of the natural environment, was the dominant approach in accomplishing economic development and managing the relationship between humans and the environment.

When the rapid and uncontrolled industrialization process depleting natural supplies intermingled with an enormous population growth⁴, it launched the emergence of resource scarcities and various regional and global environmental problems. Today, numerous global issues pleading sound solutions have been compelling the international community to contemplate on the critical man-environment relationship and the implications of this relation for international politics.

1. The Relationship Between International Politics and Environment:

The appearance of the above mentioned environmental problems indicated the fact that inhabitants of the earth live in a fragile ecosystem where various components of the system should work in harmony for the

Charles W. Kegley and Eugene R. Wittkopf (New York: Random House Inc., 1984), 340. Biosphere which is a component of the ecosystem is produced from the word "bios" which means life.

⁴It is estimated that the global population will reach approximately 10 billion around 2070. This is almost twice the present total world population. However, if more pessimistic calculations are considered, one can estimate the population reaching 14 billion by 2050. Gareth Porter and Janet Welsh Brown, *Global Environmental Politics* (Boulder: Westview Press, 1991), 3. In Africa alone the population increased from 288 million in 1970 to 384 million in 1980 and to 505 million in 1990. Crispin Tickell, "The Word After the Summit Meeting at Rio," *The Washington Quarterly* 2 (Spring 1993): 76.

preservation and continuation of life - which has always been taken for granted. All these issues posed serious challenges to humankind and made it inevitable to re-evaluate and reshape deep-seated values, perceptions, beliefs and accrued national and international policies.

Therefore, the connection between the environment and politics directly touches the essence of the matter: survival of human beings and continuation of life on the planet. Reforming the malfunctioning man-environment relationship demands exertion of political will by states in the form of auspicious environmental policies to preserve and restore the ecological balance. States' responsibilities lie in devising sound policies which should be functional as well as instrumental in healing environmental afflictions and rejuvenating and guarding this planet's carrying capacity.

Observations with respect to the rapidly decreasing tolerance of the environment began to create an impact on people during the 1960s and this summoned an environmentalist awakening to avert ecological degradation and ameliorate the earth's fragile life-support systems through the stimulation and initiation of governmental actions. The growth of the environmental problems into global dimensions compelled genuine multinational commitment to the regulation of harmful economic activities and preservation of the international ecosystem.

The emergence of environmental concerns among people during the late 1960s is closely affiliated with a post-materialist world view inclusive

of ethical judgements that flourished among some of the public in the Western countries⁵, détente period which brought forth the mitigation of tension between power blocs and a more lucid apprehension of the ecological problems through the development of a new environmental science. Regarding the new perceptions growing among people and the appearance of a "moral consciousness" towards the environment Andrew Hurrell says that:

More abstractly, the emergence of global environmental problems and the greatly strengthened awareness of a global common interest among all peoples in protecting the environment and safeguarding the future of humanity have provided a powerful stimulus to the growth of a cosmopolitan moral consciousness.... For many people, then, global environmental interdependence has given greater plausibility to visions of a cosmopolitan global community, to what Locke once called 'the great and natural community of the species'.⁶

⁵For instance, see Lynton Caldwell who says that "the critical mass of people concerned about environmental protection is weighted with the more educated, sensitive, and influential members of society....Such persons are most numerous and influential in those nations more highly advanced in science and technology." Lynton Keith Caldwell, *International Environmental Policy: Emergence and Dimensions* (Durham: Duke University Press, 1984), 20. Also, see William E. Paterson who analyzes the evolution of environmental politics in the Federal Republic of Germany. Paterson points to the fact that a rather post-materialist generation emerged during the late 1960s as a result of sustained prosperity. These people embraced such issues like preservation of nature and they expected policies in accordance with such post-materialist values. William E. Paterson, "Environmental Politics," in *Developments in West German Politics*, eds. Gordon Smith, William E. Paterson and Peter H. Merkl (Durham: Duke University Press, 1989), 268.

⁶Andrew Hurrell, "International Political Theory and the Global Environment," in *International Relations Theory Today*, eds. Ken Booth and Steve Smith (Cambridge: Polity Press, 1995), 147-148.

1.a. An Interrelated Planetary System:

The developments in ecological concerns went parallel with the developments in environmental sciences which gained popularity during the 1970s and endowed people and nation-states with relatively well-grounded knowledge in the face of different ecological problems. Improvements in scientific research and assessments illuminated the fact that the international ecosystem is inclusive of smaller systems that are essentially interconnected and humankind "is a species governed by basic ecological principles applicable to other occupants of the ecosphere."⁷ The interdependence and reciprocal functional relationship between these systems nourish the life on earth⁸ and a fracture in this fragile systemic process disturbs the ecological balance drastically. John Vogler points to this interrelatedness of various components of the ecosphere when he says that "they are all part of a holistic planetary system and thus interconnected in a range of important and intriguing ways, some of which are only beginning to be perceived."⁹

Therefore, today it is well-recognized that many of the environmental problems are intermingled; they mutually influence each

⁷Pirages, 340.

⁸Ibid.

⁹John Vogler, *The Global Commons: A Regime Analysis* (New York: John Wiley & Sons, 1995), 10.

other and the linkages between these problems cannot be underestimated. Although it is not possible to address all environmental problems at once, it would be an auspicious approach if the international community perceives them as closely affiliated and interdependent.

1.b. The Concept of Global Commons:

What is more significant is the fact that today it is impossible to avert global environmental afflictions by unilateral and bilateral actions since while regional environmental problems can be dealt with relatively limited and less costly activities, wide scopes of global environmental issues transcend and negate the efficacy of any kind of limited cooperative processes. The characteristics of a global environmental issue can be demarcated as follows:

...the scope of the issue area is defined by two dimensions of any international environmental problem: the scope of environmental consequences of the economic activity in question and the geographical scope of the states and nonstate actors involved in the issue. If the consequences are global, or if the actors in the issue transcend a single region, we consider it a global environmental issue.¹⁰

For instance, the atmospheric problems like ozone depletion and climate change are prototypes of the “international commons” and “global commons” issues since their impacts surpass regional dimensions and

¹⁰Porter and Brown, *Global Environmental Politics*, 15.

these problems concern every single nation due to the fact that harmful radiation and earth's climate change have serious consequences for every human being. Lynton Caldwell depicts international commons as the atmosphere, outerspace, the oceans and Antarctica since these are the areas "over which national jurisdiction is ambiguous and ineffective."¹¹ According to Porter and Brown's definition, the global commons comprises "natural systems and resources, such as atmosphere and oceans, that belong to all living beings rather than individual nations."¹² In a parallel approach with Porter and Brown, John Vogler defines the global commons as:

areas or resources that do not or cannot by their very nature fall under sovereign jurisdiction, occupy a central position in this vision....they include the oceans and deep seabed, Antarctica, space and the atmosphere.¹³

In this respect, continuation of life on the earth is contingent upon the preservation of the global commons and this is unequivocally within the responsibilities and interests of every state. The global commons issues are at the gist of the environment-world politics relationship and they summon collective mechanisms and international policymaking due

¹¹Caldwell, 223.

¹²Porter and Brown, 92.

¹³Vogler, 2.

to the fact that unilateral or bilateral activities remain rather fruitless and ineffective while confronting planetary problems.

Hence, environmental tragedies “can be averted if rules are established and enforced that prohibit or limit certain uses of the commons”¹⁴ as for instance it has been attempted by the international regimes addressing ozone depletion, acid rain and climate change. Nevertheless, permeation of global environmental considerations into the realm of national sovereignty has never been very easy and without its limitations.

1.c. Ecological Interdependence and The Nation-State System:

In the face of present knowledge it is obvious that global environmental issues require collective efforts of world states and multinational concerted activities. In other words, ecological interdependence challenges states and the international system as a vital and indispensable concept: it denotes reconciliation of diverse national objectives and recalculation of national-interests. When considering its implications, Ronnie Lipschutz and Ken Conca say that:

Global ecological interdependence is more than just a physical or social phenomenon; it is an intellectual one as well. It has changed -

¹⁴Marvin Soroos, *The Endangered Atmosphere*, 19.

and continues to change - how we look at the world, and it is also changing how we interact with each other.¹⁵

Ecological interdependence implies that world states are dependent on each other in order to be able to continue the life on the earth. The term insinuates that it is essential to re-perceive political priorities and reshape national interests in the light of global concerns in order to be able to achieve multilateral cooperation on ecological issues and to accomplish genuine multinational commitment to the implementation of the adopted measures so that the global environmental problems can be eradicated.

At this point national sovereignty arises as a major impediment complicating the way towards collective policy formulation and international collaboration. Sovereignty implies supreme and ultimate authority of nation-states within the boundaries of their own territories. Apparently, sovereignty configures the basis of the functioning of the international system. Within the international system, states are considered as autonomous and legally equal actors. Notwithstanding the different amounts of power they possess, they can claim absolute jurisdiction over their territories.

¹⁵Ronnie D. Lipschutz and Ken Conca, "The Implications of Global Ecological Interdependence," in *The State and Social Power In Global Environmental Politics*, eds. Ronnie D. Lipschutz and Ken Conca (New York: Columbia University Press, 1993), 327.

Thus, the concepts of ecological interdependence and national sovereignty produce a dichotomy. While sovereignty demarcates the legal boundaries of state activities and explicitly precludes exterior intrusions and interventions, ecological interdependence requires permeation of global concerns into the realm of national interests.

The United Nations Conference on the Human Environment, which was held in Stockholm in 1972, was an initial challenge against the accredited rights of states to claim their sovereignty with respect to controlling and exploiting the natural resources in their territories. Although Principle 21 of the Stockholm Declaration on the Human Environment is not technically binding, "it does represent an effort to express the basic rule of state responsibility for environmental protection."¹⁶

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.¹⁷

Regarding the Stockholm Declaration, Caldwell says that, "sovereignty is problematic to the organizational issue. Although the Stockholm

¹⁶Allen L. Springer, "United States Environmental Policy and International Law: Stockholm Principle 21 Revisited," in *International Environmental Diplomacy*, ed. John E. Carroll (New York: Cambridge University Press, 1988), 50.

¹⁷*Ibid.*

Declaration of Principles speaks of sovereign rights of states to exploit their own resources, the total effect of the document is to modify the exercise of sovereignty." ¹⁸

In addition to the problem of sovereignty, the international market and the capitalist nature of the system emanate as factors complicating the achievement of policy coordination and multinational cooperation in connection with international environmental issues. Competitiveness of the system and states' struggle towards economic growth arise as determinants antithetical to ecological interdependence due to the fact that economic development brings forth the depletion of renewable resources and pollution of the natural environment. Moreover, the huge gap between the Northern and the Southern states of the world with respect to technological and economic capabilities creates another complexity for the accomplishment of international cooperation in ecological problems. Many of the developing countries of the South argue that environmental degradation that has emanated as a global threat against humanity is a consequence of the North's previously applied development strategies and imprudent efforts for rapid industrialization. Therefore, most of the developing countries refrain from accepting much responsibility for

¹⁸Caldwell, 60. Also see Peter M. Haas; while mentioning the Principle 21 of the United Nations he argues that "governments are now mutually dependent in a way that was inconceivable to those drafting the legal norms of the present system." Peter M. Haas, *Saving the Mediterranean: The Politics of International Environmental Cooperation* (New York: Columbia University Press, 1990), 27.

healing the environmental afflictions and expect that the North takes the initial and necessary steps to respond to various global problems.

As an attempt to restructure the dynamics of the environment-economics relationship, the concept of “sustainable development” was introduced to the agenda of world politics during the early 1980s. Concerns about the limited carrying capacity of the planet earth increased in the face of unsuitable and incessant economic developments which had been depleting the natural resources. An “alternative paradigm”¹⁹ was targeted at and the efforts culminated in the publication of *Our Common Future* in 1987. It was the Report of the World Commission on Environment and Development which is well-known as the Brundtland Report.²⁰ Sustainable development envisages a new pattern of economic growth which is compatible with ecological well-being and environmental protection. This type of economic growth should safeguard present and future planetary needs at the same time and it should be achieved in harmony with the natural environment. Nevertheless, the complexity of the environmental problematic is a basic factor illuminating “why Brundtland's concept of ‘sustainable development’, ensuring that current

¹⁹See Porter and Brown, 30-32.

²⁰World Commission on Environment and Development, *Our Common Future* (Oxford: Oxford University Press, 1987).

activities do not disadvantage future generations, is at once so politically attractive yet difficult to pin down."²¹

1. d. International Institutions:

In the light of the above description, it appears to be difficult to resolve various environmental issues within an international system where states lack a world government and binding laws that are enforced through international mechanisms. At this point, since a common enforcement mechanism is lacking in this world order, international institutions emerge as actors that are functional in facilitating international collaborative processes. Caldwell argues that:

Something more than national governments is needed to attain the objectives of international environmental cooperation. The need has been answered in various ways through institutional structures capable of operating with limited autonomy apart from the governments that created them.²²

The rise of international institutions began to accelerate during the 1970s as a result of the alterations in the dynamics of international politics. In an ever shrinking world, the existence of common interests - economic, political, social, ecological - provided the basis for the

²¹Vogler, 16.

²²Lynton K. Caldwell, "Beyond Environmental Diplomacy: The Changing Institutional Structure of International Cooperation," in *International Environmental Diplomacy*, ed. John E. Carroll (New York: Cambridge University Press, 1984), 16.

engendering of international organizations. The changing dimensions of world politics displayed the "cobweb image" of the international system and the term "interdependence" came to elucidate the situation of world affairs better than any other concept. Various non-state actors flourished within the world system. In addition to states' relations, the influence of international institutions, non-state actors such as multinational corporations, non-governmental organizations and the flow of other transactions with respect to trade, tourism, cultural exchange and mass media indicated the complex and perpetual interactions within the international system of the late twentieth century. Today, all these actors and the interactions between them play an important role in shaping global environmental politics and an accurate analysis of environmental cooperation is impossible without the deliberation of these components of the whole system.

Since the early 1970s, the world has become socially, politically, economically and ecologically intermingled in a rapid fashion and the state-centric interpretations of international politics remain imprecise in the face of increasing institutionalization within the system. Where states share mutual interests and common approaches, international organizations serve states' objectives through limited collective action.²³

²³Robert O. Keohane, "Institutional Theory and The Realist Challenge After The Cold War," in *Neorealism and Neoliberalism: The Contemporary Debate*, ed. David A. Baldwin (New York: Columbia University Press, 1993), 274.

Regarding the proliferation of international institutions Robert Keohane says that:

As long as technological change prompts increased economic interdependence, and as long as threats to the global environment grow in severity, we will observe a continuing increase in the number and complexity of international institutions, and in the scope of their regulation.²⁴

Therefore, due to the expansion of global ecological threats the role and importance of non-state actors have been aggrandized whereby institutionalized environmental collaboration spreads within an international range. In this respect, international institutions vary in their geographical scopes and purposes. Some of them have been established for multiple purposes including environmental issues, such as the Economic Commission for Europe (ECE) or the Organization for Economic Cooperation and Development (OECD); however, some of them have been constructed for specialized purposes, particularly for focusing on and addressing ecological issues, environment-related objectives and environmental cooperative processes, such as the United Nations Environment Programme (UNEP).²⁵ Notwithstanding the initial basic objectives behind their establishments, many of the present international

²⁴Ibid., 285.

²⁵See Caldwell, *International Environmental Policy: Emergence and Dimensions*, 83, and also see Porter and Brown, 46.

institutions increasingly incorporate environment-related concerns and mechanisms to their bodies.

The activities and functions of international institutions regarding the environmental issues are miscellaneous; they range from agenda setting, providing information about environmental problems, coordinating environmental negotiations to financing economic growth and environmental protection programs.²⁶ These organizations contribute to the environmental cooperative processes through institutional arrangements and through integrating multilateral transactions. With respect to various international environmental problems, they are functional in integrating the environmental political mechanisms and scientific processes within an interdependent world order. In order to emphasize the important role played by international institutions, Oran Young states that:

International organizations (together with nongovernmental organizations in many instances) frequently play a catalytic role with respect to environmental negotiations, influencing the way in which

²⁶Some of the most important bodies among the manifold international organizations and agencies that are concerned with the environment are: United Nations Environment Programme (UNEP), International Court of Justice (ICJ), United Nations Development Programme (UNDP), Food and Agriculture Organization (FAO), International Labor Organization (ILO), International Maritime Organization (IMO), United Nations Educational, Scientific, and Cultural Organization (UNESCO), World Meteorological Organization (WMO), World Health Organization (WHO), World Wild Life Fund (WWF), World Resources Institute (WRI), International Atomic Energy Agency (IAEA), International Bank for Reconstruction and Development (the World Bank) (IBRD), International Monetary Fund (IMF), Asian Development Bank (ASDB), Association of South-East Asian Nations (ASEAN), Organization for Economic Cooperation and Development (OECD), the European Union (EU).

the issues are conceptualized or framed and acting to propel them toward the top of the international agenda.²⁷

Among the multifarious international institutions which link the members of the international society in the present world order the role and place of the United Nations system is unique. Thus, the United Nations system "offers the best, and only real, opportunity for providing an institutional base with widespread participation."²⁸ Numerous institutions, agencies and programmes of the United Nations system undertake different work and perform important activities in connection with environmental concern and preservation.²⁹

Within the United Nations system, the United Nations Environment Programme is the most important and functional environment-related mechanism which has been exclusively dealing with environmental issues. The UNEP was established as a result of the recommendations of the United Nations Conference on the Human Environment, in Stockholm, and it was aimed that the UNEP would represent and embody the

²⁷Oran R. Young, "International Organizations and International Institutions: Lessons Learned from Environmental Regimes," in *Environmental Politics in the International Arena: Movements, Parties, Organizations and Policy*, ed. Sheldon Kamieniecki (Albany: State University of New York, 1993), 150.

²⁸David A. Kay and Eugene B. Skolnikoff, "International Institutions and the Environmental Crisis: A Look Ahead," in *International Organization: Political Process*, eds. Leland M. Goodrich and David A. Kay (Wisconsin: The University of Wisconsin Press, 1973), 380.

²⁹For instance, see Peter S. Thacher, "The Role of The United Nations," in *The International Politics of The Environment*, eds. Andrew Hurrell and Benedict Kingsbury (Oxford: Clarendon Press, 1992) 183-211, and Patricia W. Birnie and Alan E. Boyle, *International Law and The Environment* (Oxford: Clarendon Press, 1992).

environmental conscience of the United Nations system and the member states.³⁰ The developments leading to the Stockholm Conference had indicated that a form of institutionalization and international machinery were essential to address the problems of the natural environment. Therefore, the United Nations General Assembly Resolution 2997 (XXVII) established a Governing Council for the UNEP and it stated the basic institutional framework and functions of the organization.³¹ Consequently, the UNEP is,

inter alia the coordinating and catalytic instrument for drawing attention to the environmental aspects of the operational activities of the UN Secretariat and the Specialized Agencies within the UN system as well as of the activities of the member governments of the UN.^{32,33}

³⁰Thomas A. Mensah, "Environmental Protection: International Approaches," *Marine Policy* 8 (April 1984): 97.

³¹United Nations, General Assembly Resolution 2997 (XXVII), December 1972.

³²Lars Bjökbom, "Resolution of Environmental Problems: The Use of Diplomacy," in *International Environmental Diplomacy*, ed. John E. Carroll (New York: Cambridge University Press, 1988), 125.

³³The Governing Council for Environmental Programmes was constituted with the following purposes: (1) To promote international cooperation in the environment field and to recommend policies to this end, (2) to provide general policy guidance for the direction and coordination of environmental programmes within the UN system, (3) to receive and review the periodic reports of the executive director on the implementation of environmental programmes within the UN system, (4) to keep under review the world environmental situation in order to ensure that emerging environmental problems of wide international significance receive appropriate and adequate consideration by governments, (5) to promote the contribution of the relevant international scientific and other professional communities to the acquisition, assessment, and exchange of knowledge and information about the environment and, as appropriate, to the technical aspects of the formulation and implementation of environmental programmes within the UN system, (6) to maintain under continuing review the impact of national and international environmental policies and measures on developing countries, as well as the problem of additional costs that may be incurred by developing countries in the implementation of environmental programmes and projects, and to ensure that such programmes and projects shall be compatible with the development plans and priorities of those countries, (7) to review and approve annually the programme of utilization of resources of the Environment Fund. See, Thomas Mensah, 99.

In addition to the significant roles played by the international institutions in global environmental issues, non-governmental organizations (NGOs)³⁴ which have been proliferating steadily have also become increasingly influential in promoting environmental concerns and environment-related activities within the realm of domestic politics and within the international arena.³⁵ In many global ecological issues, initiatives for environmental collaboration frequently derive from non-governmental organizations which form transnational coalitions contributing to the accomplishment of global collective actions.

At many times, nation-states are disinclined to take measures against ecological problems and environmental abuse or reluctant to take part in environmental cooperation since they sometimes perceive such cooperative processes as irrelevant to or in contrast with their national interests. Under these circumstances, nongovernmental organizations attempt to raise public awareness and exert pressure on governments through public mobilization, citizen activities, campaigns, boycotts and through the manipulation of the mass media. These organizations try to

³⁴John McCormick uses the term "interest group" and "nongovernmental organization" interchangeably, and defines them as "private (i.e., nongovernmental) bodies organized for the purpose of directly or indirectly influencing public policy either on behalf of their members or on behalf of what they perceive to be the broader public interest." John McCormick, "International Nongovernmental Organizations: Prospects for a Global Environmental Movement," in *Environmental Politics in the International Arena: Movements, Parties, Organizations, and Policy*, ed. Sheldon Kamieniecki (Albany: New York Press, 1993), 132.

³⁵For a detailed analysis of the environmental NGOs and their roles in global politics see Thomas Princen and Matthias Finger, *Environmental NGOs in World Politics* (London: Routledge, 1994).

mobilize the citizens and lobby governments towards adopting substantial environmental policies for the protection of natural endowments. They are able to attain their objectives when public pressure functions as a compelling factor, thus the government is obliged to consider the domestic sentiment in one way or another.

Apparently, environmental nongovernmental organizations can generate public interest in ecological issues more effectively in developed countries where economic, scientific and technological developments facilitate and promote planetary concerns. For instance, with respect to the issue of ozone depletion over which a successful environmental regime has been established³⁶, NGOs made considerable impact on the orientation of the ozone policies in the US and the European Community.³⁷ Environmental nongovernmental organizations such as Friends of the Earth and the Sierra Club started campaigns initially in the US; through these campaigns and by generating media interest in ozone depletion they publicized general information and moulded domestic and inevitably international environmental policies to a great extent. Also, the influence and efforts of environmental nongovernmental organizations increased

³⁶See Richard E. Benedick, *Ozone Diplomacy: New Directions in Safeguarding The Planet* (Cambridge: Harvard Universe Press, 1991), and Banu Bayramoglu, "Ecological Threats and International Cooperation For a Common Future: The Case of Ozone Depletion" (Master's Thesis, Bilkent University, January 1993).

³⁷For instance, see Elizabeth Cook, "Global Environmental Advocacy: Citizen Activism in Protecting the Ozone Layer," *Ambio* 19 (1990): 34-338. Also see Markus Jachtenfuchs, "The

and intensified once the Montreal Protocol on Substances that Deplete the Ozone Layer was signed in 1987.³⁸

In addition to creating domestic pressures on their governments, environmental nongovernmental organizations can also influence regime formation in various global ecological problems by lobbying at international conferences.³⁹ During international negotiations at conferences, numerous nongovernmental organizations attend the meetings and they offer their opinions to policy-makers in formal and informal settings. They accomplish strategic interactions and play transformative roles in terms of reshaping perceptions regarding national-interests in many global environmental issues. Particularly during the 1980s, lobbying at international conferences in order to contribute to evolution of cooperation regarding the protection of the natural environment became a high priority for many nongovernmental organizations.⁴⁰

European Community and the Protection of the Ozone Layer," *Journal of Common Market Studies* 28 (1990) : 275.

³⁸Elizabeth Cook, 336-337.

³⁹Porter and Brown, 60-62.

⁴⁰*Ibid.*, 61.

2. An Overview of the Landmark Events in Global Environmental Politics:

This section of the chapter serves the purpose of drawing a profile of the major developments which can be characterized as the corner-stones in the evolution of global environmental institutionalization and collaboration with respect to international politics.

Albeit the existence of a number of previously constructed multilateral agreements and declarations, the premise of the developments in global environmental policy making corresponds to the United Nations General Assembly Resolution 2398 (XXII) of December 3, 1968, to convene a UN Conference on the Human Environment in 1972.⁴¹ The Stockholm Conference was held with the aim of considering and addressing global environmental afflictions through a coordinated organizational framework and tackling the problems of the natural environment as a whole. The decision to convene the Stockholm Conference highlighted the emerging international recognition of the need for the protection of the natural environment and displayed that environment-related activities could not be

⁴¹Before the Stockholm Conference, some agreements and declarations were accomplished on specific issues such as migratory wildlife, nuclear testing, and oil pollution at sea. Notwithstanding their significance, they were not prearranged as part of a broader context. Examples of some of the earliest international environmental agreements are: the 1902 European Convention Concerning the Conservation of Birds Useful to Agriculture; the 1911 Fur Seal Convention; the 1916 Canadian-American Treaty for the protection of Migratory Birds; and the 1993 African Convention Relative to the Preservation of Flora and Fauna in Their Natural State. These agreements laid the basis for more comprehensive treaties on a global scale. See, Lynton K. Caldwell, "International Responses to Environmental Issues," *International Studies Notes* 16, no. 1 (Winter 1991): 3-7.

feasibly managed and implemented except on a well organized global scale.⁴²

Therefore, the Stockholm Conference can be considered as the first significant international step and legal approach setting the agenda for ecological concerns and environmental problems. It was an initial attempt - launched by the public awareness and pressure in the Western countries - to provide an extensive contexture in connection with the preservation of the global ecosystem. One hundred and fourteen governments participated in the Conference and for the first time the world states attempted to transcend the impediments of national sovereignty and jurisdiction to address collectively various environmental issues.⁴³ Consequently, a list of Principles and an Action Plan and the Stockholm Declaration emerged from the Conference.

However, a group of communist states led by the USSR did not participate in the preparatory process and the Stockholm Conference itself since these states considered environmental degradation a result of the capitalist development patterns.⁴⁴ Conceivably, this factor along with the disinclination of the developing countries to focus on ecological concerns instead of economic development decreased to some extent the impact of

⁴²Thomas Mensah, "Environmental Protection: International Approaches", 95.

⁴³Caldwell, *International Environmental Policy: Emergence and Dimensions*, 49.

⁴⁴Tony Brenton, *The Greening of Machiavelli: The Evolution of International Environmental Politics* (London: Earthscan Publication, 1994), 36-37.

the Conference as a whole. Nevertheless, the Stockholm Conference has always been considered as the first land-mark event related with the environment which opened the way towards future international activities.

As it was indicated in the previous section of this chapter, the United Nations Environment Programme which functions as the predominant body concerning with the issues of a global character was a significant product of the UN Conference on the Human Environment. The UNEP was established on 15 December 1972, and since its creation it has undertaken the responsibility for motivating and coordinating international activities concerning the protection of the natural environment. Since its establishment, regarding many regional and global environmental problems, the crucial functions of agenda-setting and international coordination have been implemented by the UNEP.⁴⁵ The UNEP has been working for the accomplishment of international cooperation in a wide range of ecological problems. A majority of the environmental conventions which were consummated during the past two decades were the products of conferences and negotiations sponsored by the United Nations Environment Programme.⁴⁶

⁴⁵The UNEP, however, has been suffering from an insufficient budget and a peripheral geographical location (Nairobi) which restrain to some extent its efforts and activities to advance environmental consciousness. Compared to the other international bodies in the United Nations System - such as UNDP, FAO, etc. - the UNEP has a smaller annual budget. See, Tony Brenton, 50.

⁴⁶Porter and Brown, 49.

After the Stockholm Conference, numerous environmental treaties have been signed on a bilateral, regional and global basis. Table I presents the international agreements accomplished for the global commons issues.

Another significant development which had an impact in the evolution of global environmental politics was the Brundtland Report which was submitted to the United Nations General Assembly in 1987 (see Section 1.c for the details). The concept of sustainable development has become an indispensable ingredient of environmental policy-making after the publication of *Our Common Future*. The Brundtland Report criticized the present structure of the international system and stated that the system remained inadequate when tackling with the majority of the environment-related problems:

The integrated and interdependent nature of the new challenges and issues contrasts sharply with the nature of institutions that exist today....The real world interlocked economic and ecological systems will not change; the policies and institutions concerned must.⁴⁷

In effect, the Brundtland Report has been considered a significant precursor to the United Nations Conference on Environment and Development - also known as the Rio Earth Summit - that took place five years later.

⁴⁷World Commission on Environment and Development, *Our Common Future*, 310.

Table I. International Agreements on Global Environmental Issues:**Agreements Concerning the General Environment:**

1972	Declaration of the United Nations Conference on the Human Environment (UNCHE), Stockholm.
1992	The Rio Declaration on Environment and Development. Agenda 21 (UNCED), Rio De Janeiro.

Agreements Concerning Oceans:

1946	International Convention for the Regulation of Whaling (ICRW), Washington.
1972	Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London.
1973	International Convention for the Prevention of Pollution from Ships (MARPOL), London.
1982	United Nations Convention on the Law of the Sea (Third LoS Convention), Montego Bay.

Agreements Concerning Antarctica:

1959	The Antarctic Treaty, Washington.
1972	Convention for the Protection of Antarctic Seals, London.
1982	Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), Canberra.
1988	Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA), Wellington.
1991	Protocol on Environmental Protection to the Antarctic Treaty (PREP), Madrid.

Agreements Concerning the Outer Space:

1967	Treaty on Principles Governing Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies (Outer Space Treaty), Washington, London and Moscow.
1979	Agreements Governing the Activities of States on the Moon and Other Celestial Bodies, New York.
1988	Appendix 30B to The Final Acts Adopted by the Second Session of the WARC on the use of GSO and the Planning of Space Services Utilizing It.
1989	Constitution and Convention of the International Telecommunication Union, Nice.
1992	Constitution and Convention of the International Telecommunication Union, Geneva.

Agreements Concerning the Atmosphere:

1985	Convention for the Protection of the Ozone Layer, Vienna.
1987	Protocol (to the 1985 Vienna Convention) on Substance that Deplete the Ozone Layer, Montreal.
1990	Revisions to the Montreal Protocol, London.
1992	United Nations Framework Convention on Climate Change (FCCC), Rio de Janeiro.

Source: John Vogler, *The Global Commons: A Regime Analysis* (New York: John Wiley & Sons, 1995).

The Earth Summit was held in June 1992, in Rio de Janeiro and over 178 countries participated. In addition to states, numerous representatives from nongovernmental organizations, delegates from various intergovernmental organizations and the UN agencies, and thousands of journalists and people from media were present in the Conference. It was the largest international conference ever held in history with a remarkable gathering of leaders from world states.

The Rio Conference (UNCED) took a long preparatory phase - almost more than two years. As a result of this Conference three major documents were adopted: 1) the Rio Declaration on Environment and Development, 2) Agenda-21 and 3) The Statement of Principles on Forests.⁴⁸ In addition to these documents, two legally binding conventions were created by the world states: the first one is the Framework Convention on Climate Change (FCCC) and the second one is the Convention on Biodiversity.

Agenda 21 is a significant product of the Rio Conference; it is a framework action plan for the 1990s and the 21st Century to elevate and advance sustainable development by governments, non-governmental organizations, the UN agencies and independent sector-groups in a global scope. It is a comprehensive document inclusive of strategies for

⁴⁸See, United Nations, *Earth Summit: Agenda 21, The United Nations Programme of Action from Rio* (New York: United Nations, 1994).

international cooperation to accelerate sustainable development, strategies for integrating environment and development in decision-making, conservation and management strategies for the natural resources, schemes for strengthening the roles of major groups such as women, children, workers, etc., and means of implementation.⁴⁹

Also, capacity building for sustainable development was regarded important for Agenda 21, albeit the existence of wide gaps in the capacity to implement sustainable human development.⁵⁰ Due to these gaps, the universality and transparency of the funding mechanism and the complementarity among agencies and programmes in bilateral, regional and global basis together with the internationalization of the concept of sustainable development were considered as crucial factors.⁵¹ During the Conference, the OECD countries decided to make some increases in the financial resources of the Global Environment Facility (GEF) - which is a fund established for international environmental issues and directed by the World Bank, United Nations Development Programme and United Nations Environment Programme.

Therefore, the Rio Earth Summit is the latest landmark event in the evolution of global environmental politics and it gives the signs of greater

⁴⁹Ibid.

⁵⁰See, United Nations Development Programme, *In Our Hands United Nations Earth Summit '92: Capacity Building For Sustainable Development*, Research Paper No. 42, February 1992.

⁵¹Ibid.

collaboration among the world states for future. The Rio Conference drew attention to another kind of security, namely environmental security, and concentrated on the vitality of closing the gaps between the rich and the poor countries.⁵²

Despite the remarkable achievements made at the Rio Earth Summit, a more genuine commitment to the preservation of natural endowments could have been accomplished among the world states. The two conventions which were signed during the Earth Summit could have established more stringent measures in the face of impending global threats. Although the Earth Summit laid the foundations for more effective and genuine international environmental collaboration and set the agenda for the future, nation-states obviously could have structured more substantial regulations and constructed readjustments against global ecological deterioration.

It appears that even though environmental concerns have been perturbing the international community more severely than the past, it is very seldom that quick developments and effective legal arrangements can be accomplished with respect to environmental protection. The observations display that environmental regulations and law-making in the international arena usually follow paths which include prolonged and time-consuming processes. Therefore, intensifying global threats and

⁵²James Gustave Speth, "A Post-Rio Compact," *Foreign Policy* 88 (1992): 145.

increasing concern among people towards environmental afflictions should motivate the international community to respond more rapidly and effectively towards the problems of the natural environment.

Chapter III. Neorealist versus Neoliberal Institutional Theories in International Relations:

The term theory implies a conceptual construction and intellectual device which is functional in comprehending and explaining the chosen phenomena in an orderly and logical manner. With respect to the field of international relations, there is an abundance of attempts to explain the international reality and to make sense of its dynamics. However, today the field is particularly dominated by the contemporary debate between the neorealist perspective and neoliberal institutionalist approach towards world politics. Neoliberal institutionalism can be regarded more as a synthesis of basic realist and liberal assumptions and it appears to embody an ample explanatory power compared to that of neorealism. In spite of the elaboration and progression of some previous realist arguments in accordance with the new developments in international political relations and emergence of non-state actors in the world politics, the adherents of neorealism still seem to be excessively indulged in power politics and anarchy which basically constricts an appropriate interpretation of contemporary world affairs and frequently observed cooperative processes.

This chapter mainly consists of a review of the prominent debate between the competing realist and liberal approaches within the international relations discipline and it introduces the recent shape the controversy has taken. Therefore, the chapter presents a survey of these two different theoretical traditions - with a particular emphasis on the

idealist/liberal institutionalist school of thought - and assess their implications with respect to the interpretation of international political issues and international cooperation. Examination of the major approaches within this chapter thus serves the purpose of providing an essential perspective which will enable the construction of an appropriate theoretical framework to analyze climate change politics in the final chapter of the dissertation.

1. Evolution of the Neorealist-Neoliberal Debate: Earlier Developments

1.a. The Realist-Idealist Controversy:

Efforts to theorize about the nature of interstate relations go back to old times. When the debate between neorealism and neoliberal institutionalism is traced back to its source one finds that many classical realist and liberal writers can be identified as the historical antecedents and intellectual precursors of the two approaches.⁵³

⁵³Thucydides (471-400 B.C.), with his *History of the Peloponnesian War*, is considered as the founding father of the international relations discipline and he is the first writer in the realist tradition. Niccolo Machiavelli with his *Prince* is another classical writer who indulged in the analysis of power and state system during the 16th Century. Another realist writer was Thomas Hobbes (17th Century) and in his eminent work *Leviathan* he dealt with the anarchic nature of state (state of nature) and international system when there is no dominant political authority. Hugo Grotius, with his most important work *Law of War and Peace*, is another writer who lived in the 17th Century, and he was concerned with the anarchy of international relations and the necessity of binding rules and laws. As regards the idealist/neoliberal views, since Grotius is considered the father of international law, he also had a great impact on the idealist tradition of international relations. Dante was another intellectual precursor of idealism. In his masterpiece *De Monarchia* he was concerned with international institutions which would be instrumental in establishing peace and order. John Locke with his *Second Treatise on Government* (1698) was a thinker who put emphasis

Yet, prior to World War I, a systematic development which is comparable to that in internal political theories of the state did not come into existence with respect to international relations.⁵⁴ When the catastrophic consequences of World War I demonstrated the inadequacy of conventional European diplomacy in maintaining peace, a need for the development of international relations as a distinct discipline emerged. The appearance of the U.S. as a power with global responsibilities in the 1920s accelerated the development, thus the discipline flourished within an Anglo-American setting.⁵⁵

The first approach, which was embraced by the international relations theorists and became predominant within the discipline, was an essentially idealistic approach. Idealists were very optimistic about the eradication of conflicts and wars through collective and multilateral efforts. The international society could be reorganized and an auspicious environment - where international laws and institutions maintain world-wide peace - could be established. They perceived human nature as 'good'

on individual rights and limited state. Adam Smith, David Ricardo, David Hume, Jeremy Bentham can be considered as other names constituting the historical precursors of idealism/neoliberalism.

⁵⁴J. E. Dougherty and Pfaltzgraff, *Contending Theories of International Relations* (New York: Harper & Row, 1990), 2.

⁵⁵T. A. Coulombis and J. H. Wolfe, *Introduction to International Relations* (New Jersey: Prentice Hall, 1986), 20-21.

and 'altruistic' thus looked upon war as an illness rather than a phenomenon intrinsic to international relations.

However, the developments within the international arena rebutted the assumptions of the idealists, and their indulgence in issues such as disarmament, the establishment of international law and organizations and dissemination of world-wide democratic governments began to be viewed with great scepticism. The drastic consequences of World War II caused the emergence of a new generation of pragmatic scholars; in that way realism became the prevalent school of thought in the international relations discipline.⁵⁶

In contrast to the idealist assumptions, the anarchic structure of the international system and the image of the unified and rational states as the principal actors within this anarchic environment constituted the starting point of the realist scholars. Military and security issues had supremacy in the realist's analysis with respect to interstate relations, and international politics denoted a struggle for power for them. In fact, the purpose of the statecraft were national survival and acquisition of power; therefore, no

⁵⁶Initially, idealism gave way to realism with E. H. Carr's eminent work: *The Twenty Years Crisis, 1919-1939* (London: Macmillan, 1939; Harper and Row [Torchbooks], 1964). This book is best known as the critique of idealism, however, in his work Carr criticizes the extreme versions of realism as well. Reinhold Niebuhr was another name who had a major and unique impact on realist theory. In his *Moral Man and Immoral Society* he concentrated on issues like sinfulness of man and he suggested that humans have a "will-to-live" that leads to a "will-to-power". Some of the other prominent names of the realist school of thought and the works accomplished during the 1950s & 1960s within the realist fashion can be given as follows: Raymond Aron, *Peace and War* (New York: Doubleday, 1966), Henry Kissinger, *A World Restored* (Boston: Houghton Mifflin, 1957), George F. Kennan, *American Diplomacy, 1900-1950* (Chicago: University of Chicago Press, 1951), Arnold

principle was more important than self-help. For instance, one of the most prominent figures of the realist school of thought was Hans Morgenthau with his famous work *Politics Among Nations* (1948). Morgenthau's analysis of international politics culminated in the exaltation of the concept of power - the capability of one foreign policy elite to dominate the thoughts and actions of another - to center-stage. "International politics, like all politics is a struggle for power," said Morgenthau, and he also argued that the balance of power and its preservation were crucial.⁵⁷ In a hostile environment, encompassing a society of sovereign states, balance of power between the actors was an essential stabilizing factor.

1.b. The Emergence of Neorealism:

Notwithstanding the long-lasting predominance of the realist approach within the field, the developments in world affairs during the late 1960s and 1970s summoned the evolution of some of its basic aspects. Kenneth Waltz was the prominent figure who attempted to refine classical realism and he tried to define the concepts and assumptions more clearly. Although *Man, the State and War* was the first work with which Kenneth Waltz established his reputation in International Relations, later in his

Wolfers, *Discord and Collaboration* (Baltimore: Johns Hopkins Press, 1965), Kenneth Waltz, *Man, the State and War* (NY: Columbia University Press, 1959).

⁵⁷Hans Morgenthau, *Politics Among Nations*, 4th ed., (New York: Knopf, 1966), 25.

two important works, "Theory of International Relations" (1975), and *Theory of International Politics* (1979)⁵⁸, he laid down the principles and basic assumptions of neorealism, which were to a certain extent different from, yet rooted in, the classical realist theory.⁵⁹

Kenneth Waltz formulates a systemic explanation of international relations. Waltz explains state behaviour under conditions of anarchy and accentuates the structure of the international system. Robert Keohane explains this systemic approach by stating that,

the key distinguishing characteristic of a systemic theory is that *the internal attributes of actors are given by assumption rather than treated as variables*. Changes in actor behaviour, and system outcomes, are explained not on the basis of variations in these actor characteristics, but on the basis of changes in the attributes of the system itself.⁶⁰

In other words, what determines the behaviour of the actors within the system is the structure of the system itself. Therefore, according to Waltz the anarchic composition of the system constitutes severe restrictions in

⁵⁸Kenneth Waltz, *Theory of International Politics* (Reading : Addison-Wesley, 1979).

⁵⁹Some scholars like Joseph M. Grieco does not prefer to distinguish between realism and neorealism. Grieco argues that regarding the meaning of anarchy & its effects on state, and the problem of cooperation, modern realists like Kenneth Waltz and Robert Gilpin are closely affiliated and in accord with classical theorists like Morgenthau, Carr and Aron. See Joseph M. Grieco, "Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism," in *Neorealism and Neoliberalism: The Contemporary Debate*, ed. David A. Baldwin (New York: Columbia University Press, 1993), 116-140.

⁶⁰Robert O. Keohane, "Theory of World Politics: Structural Realism and Beyond," in *Neorealism and Its Critics*, ed. Robert O. Keohane (New York: Columbia University Press, 1986), 165-166.

individual states' actions and circumscribes fluctuations in their behaviours which lead to perpetual "patterned relationships" between the actors. He argues that the freedom of choice of any one state within the international arena is limited by the behaviours of all the others, therefore, he is distinguished from the traditional realists by ascribing very little effective choice and much less freedom to manoeuvre for foreign policy makers or leaders of states.

In a parallel approach with classical realism, Waltz articulates rational and unified states all of which are seeking their own interests and preservation - a few seeking even world-wide conquest.

Some states may aim at the conquest of the world, other states may aim at a local hegemony, other states may aim at no hegemony at all but desire simply to be left alone. Common to the desires of all states is the wish for survival. Even the state that wants to conquer the world wants also, a minimum, to continue its present existence.⁶¹

However, since the structure of the system shapes the way the components interact with each other, for Waltz international relations is not tantamount to the sum of behaviours of actors and foreign policies of states.

According to Waltz, with respect to the options of leaders while pursuing national objectives, force is a means of achieving the ends of states. Thus, Waltz observes that in such an anarchical system leaders can

⁶¹Waltz,

ensure security and accomplish states' survival only through utilization of force.

The concept of the balance of power is considered to be an explicit feature of the system by Waltz; the balance of power is intrinsic to the anarchic system itself. Thus, his theoretical formulation encapsulates a systemic tendency towards balance of power whether or not it is sought by the actors within the international arena.⁶²

In sum, according to Waltz the nature of the system itself "accounts for the striking sameness in the quality of international life."⁶³ However, he observes that structural alterations are not impossible; structures "may suddenly change."⁶⁴

Waltz's theory is credited for its success in the systematization of traditional realism, however, at the same time criticized for its static and deterministic features. It is conceived to be limited in its explanatory aptitude as a result of excessive indulgence in structuralist interpretations and negligence of the dynamic functions of systemic variables.

⁶²For the debate of voluntarism-determinism, see Paul R. Viotti and Mark V. Kauppi, *International Relations Theory: Realism, Pluralism, Globalism* (New York: Macmillan Publishers, 1987), 52.

⁶³Kenneth Waltz, "Reductionist and Systemic Theories," in *Neorealism and Its Critics*, ed. Robert O. Keohane (New York: Columbia University Press, 1986), 53.

⁶⁴*Ibid.*, 58.

1.c. Theories Within the Liberal Approach:

In spite of the dominance of the realist theory within the field of international relations, some scholars like David Mitrany, Ernst Haas, Charles Pentland, Donald Puchala and Karl Deutsch produced theories of international integration, functionalism and neofunctionalism and they rejuvenated the theoretical approach towards peace, international organizations, regional integration, functional collaboration, and political unification. Therefore, the roots of the subsequent neoliberal theories can be traced to such studies of political integration, functionalism and neofunctionalism during the 1950s and 1960s. In this way, realist overindulgence with power politics, military issues and state-centric interpretations were compensated with liberal approaches to some extent.⁶⁵

Among these approaches, functionalism⁶⁶ was an approach associated with the major assumption of a spillover effect and proliferation of cooperation through functional organizations where common interests

⁶⁵Joseph M. Grieco classified the successive phases of the current neoliberal institutionalism in his "Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism" as follows: "The major challenger to realism has been what I shall call liberal institutionalism. Prior to the current decade, it appeared in three successive presentations-functional integration theory in the 1940s and early 1950s, neofunctionalist regional integration theory in the 1950s and 1960s, and interdependence theory in the 1970s." Grieco, 116.

⁶⁶David Mitrany was the first functionalist theorist in the international relations discipline and he had a great influence on the subsequent scholars. David Mitrany's *A Working Peace System: An Argument for the Functional Development of International Organization* (London: Royal Institute of International Affairs, 1943) and Ernst Haas's *Beyond the Nation State: Functionalism and*

exist. Functionalism as a theoretical approach assumed that the states in the international arena were confronted with multifarious and largely complex tasks which became more and more challenging and difficult to undertake. Therefore, according to functionalism non-political and technical experts rather than political ones should be available to serve the purposes of governments in various issues. In this way, different functional organizations which are technical in nature would carry out their own works and the activities in other areas would become possible as a result of the spillover and augmentation of cooperation. In other words, effective processes and successful collaboration in one technical area would lead to further cooperation in other areas automatically. Proliferation of cooperation would be accomplished more successfully in this way.

Neo-functionalism⁶⁷ theory was the successor of the functionalist approach which was closely associated with the famous scholar Ernst Haas. However, neofunctionalism was divided from functionalism with its recognition of the importance of political authority compared to that of technical experts and it also re-evaluated the concept of spillover in

International Organization (Stanford: Stanford University Press, 1964) are the major works written within the functionalist fashion.

⁶⁷The major work written by Ernst B. Haas was *The Uniting of Europe: Political, Social and Economic Forces, 1950-1957* (Stanford : Stanford University Press, 1958).

connection with cooperative processes. Spillover of functional organizations and proliferation of cooperation were not viewed as processes occurring spontaneously and without efforts. Cooperation and integration were possible only if political elites considered them to be closely affiliated with their self-interests. Thus, some basic assumptions and concepts of functionalism were delineated and redefined by neo-functionalism.

Soon, the inadequacy of the realist and neorealist theories to provide an all-encompassing understanding of transformation in world politics became more apparent and these approaches gave way to the construction of new conceptual tools and theoretical frameworks by scholars like Robert Keohane, Joseph Nye and Stephen Krasner. Especially, Keohane and Nye considered transnational and transgovernmental relations crucial and they treated "interdependence"⁶⁸ as a key concept. This was a challenge against the realist assumptions and an attempt to replenish the lacuna in the interpretation of the changing dimensions of world affairs during the

⁶⁸Interdependence characterizes the reciprocal costly effects among states, international institutions and other transnational actors within the whole international system; see R. O. Keohane and J.S. Nye, *Power and Interdependence* (USA: Harper Collins Publishers, 1989). Interdependence is closely affiliated with the pluralist paradigm as regards the international relations theory. Actually, during the 1980s it became rather conventional to demarcate the basic theoretical approaches in international relations theory as pluralist, globalist and realist paradigms. For example, see Mike Bowker and Robin Brown, eds., *From Cold War to Collapse: Theory and World Politics in the 1980s* (Cambridge: Cambridge University Press, 1993) and Paul R. Viotti and Mark V. Kauppi, *International Relations Theory: Realism, Pluralism, Globalism* (New York: Macmillan Publishing Company, 1987). Among these three perspectives - although the term is considered and discussed by the proponents of realism and globalism as well - pluralists apparently take the concept of interdependence to heart because the term encapsulates or perhaps more correctly epitomizes the essence of their basic assumptions and world views.

1970s since détente and foreign economic competition along with the emergence of multidimensional economic, social and ecological issues mitigated the intensity of the military-security concerns and disputed the view that the state is the only major actor in the international system. However, in contrast to the integration theories, the interdependence theory especially concentrated in cooperation among states as opposed to integration.

Robert Keohane's and Joseph Nye's *Power and Interdependence* (1977) can be deemed as a classical work of transnationalism and interdependence in connection with the idealist/liberal approach. When challenging the state-centric and power-oriented views of realism, Keohane and Nye say that "realist assumptions about world politics can be seen as defining an extreme set of conditions or *ideal type*"⁶⁹; therefore, as a contrary argument they raise "complex interdependence" which is perceived by them to be a more instrumental and sophisticated concept than the realist formulations in comprehending contemporary world affairs. They put forward the characteristics of complex interdependence as follows: firstly, multiple channels connect societies and these channels are interstate, transgovernmental and transnational relations; secondly, the agenda of interstate relations involves multiple issues and there is no hierarchy among those issues, thus military security does not consistently

⁶⁹Robert Keohane and Joseph Nye, *Power and Interdependence*, 8.

dominate the international system, and thirdly, military force has a comparably minor role in world politics since it can be irrelevant in resolving disputes regarding economic issues - it is not utilized by governments against other governments within the region, or on the issues, when complex interdependence is existing.⁷⁰

From those main features of complex interdependence distinctive political processes - compared to the conditions of realism - emerge with respect to goals of actors, instruments of state policy, roles of international organizations, agenda setting and linkages of issues. Goals of states will change according to different issues, instruments for state policy will be the utilization of interdependence and manipulation of international organizations, the agenda will not only be set by shifts in the balance of power and by perceived threats to security. Accomplishing issue linkages will be more difficult for strong states and roles of international organizations and transgovernmental relations will be of great importance.⁷¹

At the same time, adherents of international collaboration and regional integration embarked upon the analysis of flourishing cooperative behaviour which began to be observed during that time. Prevalent regimes and existing collaborative processes challenged the perceptions about a

⁷⁰Ibid.

⁷¹Ibid.

hostile environment merely inclusive of unified and rational states involved in conflicts and power struggles, thus, the interest in regimes and regime formation began to attract a great amount of attention. John Ruggie was the first scholar who introduced the concept in 1975 and defined it as "a set of mutual expectations, rules and regulations, plans, organizational energies and financial commitments, which have been accepted by a group of states."⁷² Later, Stephen Krasner consolidated the developments and research in regime analysis with his prominent book *International Regimes* (1983).⁷³

Over the last twenty years regime analysis has continued its great influence in international politics. As it has been suggested by one author "regime analysis may have been an innovation in International Relations in the same fashion in which policy research has enlivened the development of political science in general."⁷⁴

In essence, there are various approaches towards regime analysis; different schools of thought - neoliberal institutionalists, neorealists and cognitivists (epistemic community approach) - have sought to deduce different formulations and conceptual frameworks by focusing on mainly

⁷²John G. Ruggie, "International Responses to Technology: Concepts and Trends," *International Organization* 29 (Summer 1975) : 570.

⁷³Stephen Krasner, *International Regimes* (Ithaca: Cornell University Press, 1983).

⁷⁴Volker Rittberger, editor's introduction to *Regime Theory and International Relations* (Oxford: Clarendon Press, 1993), ixx.

different factors and by observing distinctive examples of regime formation processes. For instance, Peter M. Haas divides regime theories basically into three groups as power-based, interest-based and knowledge-based explanations.⁷⁵

Haggard and Simmons divided regimes into four categories: structural, game-theoretic, functional and cognitive. They argue that these approaches are not mutually exclusive and the most satisfactory formulation can be extracted from more than one theoretical perspective. However, they believe that these different approaches often speak past one another since their focuses and preoccupation vary to a great extent while explaining particular phenomena.⁷⁶

At the same time Haggard and Simmons believe that regime analysis is an attempt to synthesize realist and liberal traditions of international politics. They say that:

Regime analysts assumed that patterns of state actions are influenced by norms, but that such norms-governed behaviour was wholly consistent with the pursuit of national interests. Hence the regime literature can be viewed as an experiment in reconciling the idealist and realist traditions.⁷⁷

⁷⁵For a detailed discussion and explanation of this grouping see Peter M. Haas, "Epistemic Communities and Dynamics of International Environmental Cooperation," in *Regime Theory and International Relations*, ed. Volker Rittberger (Oxford: Clarendon Press, 1993), 168-169, and also see Peter M. Haas, "Regime Patterns for Environmental Management," in *Complex Cooperation: Institutions and Processes in International Resource Management*, eds. Peter M. Haas and Helge Hveem (Oslo: Scandinavian University Press, 1994), 35-63.

⁷⁶Stephen Haggard and Beth A. Simmons, "Theories of International Regimes," *International Organization* 41 (Summer 1987): 492.

⁷⁷*Ibid.*, 499-498.

2. Contemporary Neorealist-Neoliberal Debate:

Today, the persistent debate between neorealism and neoliberal institutionalism has been elevated to a new level.⁷⁸ The newest version of neoliberal institutionalism is very much concerned with economic, social, cultural and ecological issues as a result of the recognition of the intense and perpetual interactions between the different components of the international system of the late twentieth century. However, the core element in this latest version is its keen attempt to reconcile realist and liberal assumptions. In other words, this latest version attempts to make a synthesis out of the realist and liberal approaches towards international relations. For instance, the famous scholar Joseph Nye points to the complementarity of realism and liberalism in his article titled "Neorealism and Neoliberalism" and he presumes the theoretical developments in the 1990s as follows:

The time has come to transcend the classical dialectic between Realist and Liberal theories of international politics. Each has something to contribute to a research program that increases our understanding of international behavior. Perhaps work in the 1990s will be able to synthesize rather than repeat the dialectic of the 1970s and 1980s.⁷⁹

⁷⁸Neorealism is associated with Kenneth Waltz, Joseph Grieco and Robert Gilpin whereas neoliberal institutionalist approach can be associated with Robert Keohane, Oran Young and Stephen Krasner.

⁷⁹Joseph Nye, "Neorealism and Neoliberalism," *World Politics* 2 (January 1988) : 251.

In effect, liberal institutionalists initiate their analysis with elements deduced from basic realist propositions. Robert Keohane emphasizes this point in his article "Institutional Theory and the Realist Challenge After the Cold War" and apparently his focus is "on an institutionalist argument that borrows elements from both liberalism and realism."⁸⁰ In a previous article he articulates the fact that:

Realism is a necessary component in a coherent analysis of world politics because its focus on power interests, and rationality is crucial to any understanding of the subject. Thus any approach to international relations has to incorporate, or at least come to grips with, key elements of Realist thinking.⁸¹

Therefore, the new liberal institutionalism is characterized by an approval and adoption of the key realist assumptions such as the anarchical nature of the international system, states being the principal and unitary-rational actors in world politics, the importance of self-interest and relative capabilities. Nevertheless, liberal institutionalists, in contrast with the realist idea which "overemphasizes conflict and underestimates the capacities of international institutions to promote cooperation"⁸², prefer to embark upon the significance of international regimes and the role and

⁸⁰Robert O. Keohane, "Institutional Theory and the Realist Challenge After the Cold War," in *Neorealism and Neoliberalism: The Contemporary Debate*, ed. David A. Baldwin (New York: Columbia University Press, 1993), 271.

⁸¹Robert O. Keohane, "Theory of World Politics: Structural Realism and Beyond", 159.

⁸²Joseph M. Grieco, "Anarchy and The Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism", 117.

importance of international institutions in mitigating and ameliorating anarchy's constraining effects in connection with international cooperation. Liberal institutionalists argue that while analyzing international political relations in connection with reshaping the discernment of self-interests, it is essential that the factor and function of international institutions and the effect of transnational processes are not underestimated. Robert Keohane attracts attention to this fact when he states that "the contemporary debate centers on the validity of the institutionalist claim that international regimes, and institutions more broadly, have become significant in world politics."⁸³

Therefore, neoliberals and neorealists provide different explanations regarding why cooperation occurs; liberal institutionalists conceive international cooperation as a more probable outcome than realists who reflect on the overindulgence of liberals in international regimes and institutions. For the neorealists cooperation is obviously possible but usually exceptional in an anarchical environment whereas for the neoliberal it is inherent to the competitive international system itself since only through collective action and collaboration states can achieve their desired goals and protect their interests.⁸⁴

⁸³Keohane, "Institutionalist Theory and The Realist Challenge After The Cold War", 273.

⁸⁴With respect to the ease and likelihood of international cooperation, the future developments in the European Community is considered to be crucial by neoliberals like Keohane and neorealists like Grieco. It is assumed that the developments will shed light on the debate

The difference between the two explanations with respect to international cooperation basically originates from a major point: the issue of relative versus absolute gains. Neoliberals attach importance to absolute gains from international cooperation while neorealists emphasize relative gains. Neorealists believe that states, as being rational and unitary actors, are consistently alert about their relative capabilities - the distribution of power - and they try to preclude any increments in other states' relative capabilities. Grieco states that:

The major goal of states in any relationship is not to attain the highest possible individual gain or payoff. Instead, *the fundamental goal of states in any relationship is to prevent others from achieving advances in their relative capabilities*⁸⁵.

Since not "individual well-being" but "survival"⁸⁶ is the main focus of states, neorealists argue that developments in the capabilities of the others are considered to be dangerous. States are very much concerned whether their peers achieve more than themselves from any cooperative activity. Therefore, for neorealists states' anxiety about the amount of gains obtained from cooperative processes and the nature of its future impact on

between neorealism and neoliberalism. See Robert Keohane, "Institutional Theory and The Realist Challenge After the Cold War."

⁸⁵Grieco, "Anarchy and The Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism", 127.

⁸⁶Ibid.

political relationships is a significant impediment against the formation of international cooperation in many issues. If a state's fellow partner is obtaining relatively greater gains, the state can easily refrain from involving in cooperation. Thus, according to neorealists, gains obtained by states as a result of cooperative processes are apt to changes in the sense that in the future they can be used by a partner to disadvantage a particular state. For instance, Robert Powell says that the pressures of the system "create opportunities for one state to turn relative gains to its advantage and to the disadvantage of other states."⁸⁷

Therefore, according to neorealists in a system where divergent and incompatible national interests subsist most frequently, international institutions cannot fully function as the initiators and stabilizers of international collaboration. These institutions' contributions and functions with respect to international cooperation are mostly restricted due to the structural features of the system. Consequently, from the neorealist point of view the ease and likelihood of international cooperation is rather low.

Neoliberals conceive states as "rational egoists"⁸⁸ that pursue their own goals and strive in order to maximize their absolute gains.⁸⁹

⁸⁷Robert Powell, "The Problem of Absolute and Relative Gains in International Relations Theory," *American Political Science Review* 85 (December 1991): 1315.

⁸⁸Keohane, "Institutional Theory and the Realist Challenge After the Cold War", 273.

⁸⁹*Ibid.*, 275.

According to the liberal institutionalists, the anarchical nature of the international system is considered to be the major factor that compels states towards cooperation since under such circumstances states have common interests in participating in cooperative arrangements to preserve their interests and achieve their goals. As long as states' interests are interdependent, they will choose to get involved in mutually beneficial cooperation. Neoliberals do not share with neorealists the opinion that states have great concern about their partners' gains; they are not preoccupied with the gains of the other states as long as these gains do not interfere with their own interests and are not utilized to disadvantage them. They believe that states are only concerned with their own gains from any cooperative behaviour and they aim at achieving the greatest possible absolute gains. Neoliberals emphasize the fact that international regimes and institutions are very influential in reshaping states' perceptions of self-interest and operational in facilitating cooperation. Thus, they believe in the ability of international institutions to promote and protect cooperation in the international system when they are appropriately designed and well structured.

Therefore, international institutions are considered by neoliberals as organizational bodies that regularize and facilitate interactions and transmissions between world states and improve the proliferation of cooperative processes. As a result of international institutions, actors sharing common interests within the system can be motivated toward

collaboration since the existence of such institutions increase the rate and scope of information exchange and they serve as promoters of compatible state interests by co-ordinating negotiations. They decrease uncertainty and reduce costs while enhancing cooperative elements such as predictability, harmony and convergence of interests, stability and transparency in the realm of international politics. In other words, international institutions, interdependent state interests, goal adjustments and policy coordinations are raised to the center stage within the institutionalist analysis of international relations.

At the same time, Robert Keohane points out the fact that the liberal institutionalist approach does not overlook the possibility that states' interests in relative gains can make it more difficult to achieve cooperation. However, Keohane adds that the institutional theory is explicitly conditional and he says that relative gains can be significant "only when gains in one period alter power relations in another, and when there is some likelihood that subsequent advantages in power may be used against oneself."⁹⁰

Robert Keohane emphasizes the fact that the neoliberal institutionalist theory never portends international cooperation when potential mutual gains do not exist. He believes that if blocking international cooperation brings states high gains, they will obviously

⁹⁰Ibid.

refrain from entering into collaborative efforts and cooperative processes. Robert Keohane points out the significance of common interests in international cooperation and he says that, "without these, there is little reason to believe that cooperation will occur. Actors must believe that they can make future gains through cooperation."⁹¹

Consequently, institutionalists believe that international institutions are "fundamental to human behaviour because people orient their actions according to expectations and norms provided by conventions, informal and formal rules, and organizations; that is, in the context of institutions."⁹² The core of the liberal institutionalist theory is displayed by Keohane as follows:

Institutionalism accepts the assumptions of realism about state motivation and lack of common enforcement power in world politics, but argues that *where common interests exist*, realism is too pessimistic about the prospects for cooperation and the role of institutions.⁹³

Another institutionalist scholar Oran Young emphasizes the international institutions as the key performers in shaping the behaviours of individual members of the international society and the collective

⁹¹Robert O. Keohane, "Against Hierarchy: An Institutional Approach to International Environmental Protection," in *Complex Cooperation: Institutions and Processes in International Resource Management*, eds. Peter M. Haas and Helge Hveem (Oslo: Scandinavian University Press, 1994), 18.

⁹²Robert O. Keohane, "Against Hierarchy: An Institutional Approach to International Environmental Protection", 25.

⁹³*Ibid.*, 277.

behaviours emanating from correlated processes.⁹⁴ In his article "The Effectiveness of International Institutions: Hard Cases and Critical Variables" Oran Young argues as follows:

If, as I and many other students of international institutions believe, institutions are driving forces in the sense that it is possible to explain or predict a sizeable proportion of the variance in individual and collective behavior in terms of the operation of institutional arrangements, the study of such arrangements will acquire a prominent and lasting place on the agenda of international relations as a field of study.⁹⁵

3. The Epistemic Communities Model Within the Liberal Approach:

At this point of this theoretical survey, the epistemic community theory (cognitive theory) which was produced by Peter M. Haas - with a special attention on the Mediterranean cooperation to protect the Mediterranean Sea - will also be examined.⁹⁶ The epistemic community approach basically focuses on the significance of knowledge and cognitive processes in the formation and maintenance of international cooperation and regimes. Thus, the epistemic community approach regards scientists and scientific knowledge as the key elements in explaining and analysing the international reality. Haas defines an epistemic community as follows:

⁹⁴Oran R. Young, "The Effectiveness of International Institutions: Hard Cases and Critical Variables," in *Governance Without Government: Order and Change in World Politics*, eds. James N. Rosenau and Ernst-Otto Czempiel (Cambridge: Cambridge University Press, 1992), 160.

⁹⁵Ibid.

⁹⁶For instance, see Peter M. Haas, "Do Regimes Matter? Epistemic Communities and Mediterranean Pollution Control," *International Organization* 43 (Summer 1989) : 377-403; Peter M.

An epistemic community is a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area. Although an epistemic community may consist of professionals from a variety of disciplines and backgrounds, they have (1) a shared set of normative and principled beliefs... (2) shared casual beliefs... (3) shared notions of validity... (4) a common policy enterprise...⁹⁷

According to Haas, epistemic communities function - at both the domestic and international level - as the promoters and persuaders of cooperation by decreasing or sometimes by completely eradicating the uncertainty factor which can be frequently observed in many global environmental issues. Haas says that,

in the case of international environmental issues, decision makers are seldom certain of the complex interplay of components of the ecosystem and are therefore unable to anticipate the long-term consequences of measures designed to address one of the many environmental issues under current consideration.⁹⁸

Therefore, Haas argues that especially with respect to the international environmental issues, epistemic communities spread knowledge and facilitate the learning processes which consequently motivate states to reconsider and re-perceive their preferences. Haas says that learning

Haas, *Saving the Mediterranean: The Politics of International Environmental Cooperation* (New York: Columbia University Press, 1990).

⁹⁷Peter M. Haas, "Introduction: Epistemic Communities and International Policy Coordination," *International Organization* 46 (Winter 1992) : 3.

⁹⁸Peter M. Haas(1992), 13.

should be considered as “a critical process by which regime patterns change over time, and epistemic communities are important actors for shaping what learning occurs, and moulding the path by which regimes evolve.”⁹⁹ Therefore, according to Haas “control over knowledge and information is an important dimension of power and that the diffusion of new ideas and information can lead to new patterns of behavior”¹⁰⁰ which can consequently culminate in international policy coordination and cooperation.

In a similar way, Oran Young points out the significance of transnational alliances in the formation of international cooperation and regimes. These transnational alliances consist of interests groups who favor the establishment of specific international regimes on environmental issues. Regarding the importance of roles played by transnational alliances, Young mentions the weight and influence of scientific communities in moulding the cooperative processes and regime formation efforts. For instance, with respect to the formation of an environmental regime to protect the Mediterranean Sea, Young points out that:

An extensive network of scientific supporters located in all the Mediterranean Basin states has played an important role in bringing pressure to bear on hesitant governments to become supporters of the pollution control regime for the Mediterranean.¹⁰¹

⁹⁹Peter M. Haas (1993), 201.

¹⁰⁰Peter M. Haas (1992), 2-3.

¹⁰¹Oran R. Young, “The Politics of International Regime Formation: Managing Natural Resources and the Environment,” *International Organization* 43 (Summer 1989) : 364.

Therefore, the adherents of the epistemic community approach argue that cognitive determinants are crucial in analysing interstate cooperation and regime dynamics. According to them, “cognitive theory does not assume irrationality but explores the *limits* of human rationality. It rests on conception of man as selectively responding to and actively shaping his environment.”¹⁰² Information and knowledge are considered as prerequisites for creating new responses in human beings towards their environment and shaping their behaviour towards collaboration in the face of international environmental problems.

Thus, according to the epistemic community theory even if a strong leadership by a powerful state does not exist with respect to addressing an international environmental issue, establishment of an effective cooperation is still possible through the functioning of epistemic communities.¹⁰³ At this point, Haas mentions epistemically informed bargaining¹⁰⁴, which takes place under conditions of diffused power.¹⁰⁵

The negotiated regime would then reflect the causal and principled beliefs of the epistemic community. National positions would vary according to the extent of penetration by epistemic communities, or the sensitivity of policies in that country to policies in a country already influenced by the epistemic community.¹⁰⁶

¹⁰²Christer Jönsson, “Cognitive Factors in Explaining Regime Dynamics,” in *Regime Theory and International Relations*, ed. Volker Rittberger (Oxford: Clarendon Press, 1993), 203.

¹⁰³Peter M. Haas (1993), 188.

¹⁰⁴*Ibid.*

¹⁰⁵*Ibid.*, 191.

¹⁰⁶*Ibid.*, 189.

Hence, the epistemic community approach provides some functional and effectual interpretations regarding the dynamics of cooperation on various environmental issues and international regime formations. It is a fruitful attempt to produce basic propositions in connection with the impacts of epistemic communities and spreading scientific knowledge on international policy coordination and cooperative processes aiming at effective solutions. The epistemic community approach argues that “between international structures and human volition lies interpretation. Before choices involving cooperation can be made, circumstances must be assessed and interests identified.”¹⁰⁷ In other words, the epistemic community approach auspiciously articulates the crucial fact that for making a clear-cut evaluation of interests, goals and performing the required behaviours to obtain them, policy-makers should be in a position to comprehend the technical aspects of different problems and should be familiar with the cause and effect relations of environmental issues. The epistemic community theory has a substantial weight in the international relations discipline with its focus on the knowledge-behavior relationship in explaining the world order and international reality since uncertainty and doubt constitute acute barriers against policy coordination and establishment of cooperation in many global environmental issues.

¹⁰⁷Emmanuel Adler and Peter M. Haas, “Conclusion: Epistemic Communities, World Order, and the Creation of a Reflective Research Program,” *International Organization* 46 (Winter 1992): 367.

Consequently, it can be claimed that the epistemic community theory, as a relatively new approach in the field of International Relations, has brought forth novel insights into the understanding and interpretation of many international environmental regimes, cooperative processes and multinational collaborations.

4. Neoliberal Institutionalism As an Efficient Theoretical Device:

Robert Keohane mentions the fact that various approaches within the International Relations discipline have complementary functions and these schools of thought actually provide each other with different understandings. He believes that the three different perspectives in the field - neorealist, neoliberal, cognitivist - contribute to each other to a certain extent. Keohane says that:

Realism, institutionalism, and the cognitive school are not so much competing paradigms as potentially complementary lines of argument, each emphasizing a different set of independent variables: interests and power for realism, information and institutional attributes for institutionalism, cognition and social learning for the cognitivists.¹⁰⁸

It is accurate to claim that all these three theoretical approaches provide useful insights to the field of International Relations. However, notwithstanding the discerning contributions of the epistemic community literature in explaining political cooperative processes and regime

¹⁰⁸Keohane (1994), 25.

dynamics, the approach alone does not seem to be powerful enough to provide an all-encompassing interpretation of the structural features of the system and a sophisticated analysis of international reality. The utilization of the epistemic community factor as the major variable appears to be lacking at least from some aspects since explaining the international phenomena and cooperation on the basis of scientific communities and social learning leaves out the more important elements and factors that make collective action possible. These factors are international institutions and intergovernmental agencies which function as the key performers and fundamental promoters of international cooperation.

Therefore, it can be more appropriate to consider the epistemic community approach as a part of and as a complement to the neoliberal institutionalist theory since the epistemic community literature has basically come through the institutionalist school of thought. Institutions are the settlements that enable transactional relations, international and transnational processes, and they appropriately reduce the risks and costs of collective action within the international community. Without their existence and help, coordination of political processes and dissemination of scientific knowledge cannot be effectively accomplished. Therefore, in international environmental issues knowledge is crucial, however, knowledge can only become available in a sufficient way to world states and policy-makers through environmental institutionalization and coordination of information. As Matthew Paterson argues, “the epistemic

networks rely on international organisations in order to operate, and that many of these organisations already existed prior to the establishment of such networks.”¹⁰⁹ Hence, it appears to be more appropriate to consider international institutions as the key actors performing the most significant roles in cooperative processes and to utilize them as the primary variables within the interpretation and analysis of global environmental issues.

When referring to the contemporary academic study of International Relations, John Vogler points out that liberal institutionalism “flourished in the aftermath of the Great War and brought an essentially optimistic and liberal approach to the project of reforming the international system through the building of cooperative institutions and the development of international law.”¹¹⁰ Neoliberal institutionalism as an intellectual construction takes the regulating functions of the international institutions within this anarchical system as the basis of its interpretation while attempting to explain the facts of the world. If these institutions are established appropriately, they can generate policy coordination among states and open the way to advanced institutional arrangements for environmental protection.

¹⁰⁹Matthew Paterson, “Neorealism, Neoinstitutionalism and the Climate Change Convention,” in *The Environment and International Relations*, eds. John Vogler and Mark F. Imber (London: Routledge, 1996), 73.

¹¹⁰John Vogler, “The Environment in International Relations: Legacies and Contentions,” in *The Environment and International Relations*, eds. John Vogler and Mark F. Imber (London: Routledge, 1996), 1.

With respect to the neorealist insights into the discipline of International Relations, compared to the neoliberal institutionalist school of thought, neorealists remain rather prudent and display a disinclination to accept international institutions' coordinating functions and contributions to the abatement of uncertainty in world politics. They are not convinced that organizations are operating successfully to mitigate uncertainty and instability which can lead to the institutionalization of international cooperation. Since realist and neorealist scholars place the priority on security issues and military concerns, they consider international cooperation as a marginal and exceptional phenomenon. As neorealists attribute great significance to states' struggle towards the maximization of power and focus on states' sensitivity to unfavourable and undesirable consequences that might result from cooperative behaviour, they may be likely to underestimate the changing dynamics of international politics which has been increasingly motivating actors to converge their interests. Therefore, neorealist assumptions do not appear to be applicable to many cooperative processes, at least within the realm of international environmental issues.

As one author argues, "theories and models are like floodlights which illuminate one part of the stage but, by the same token, leave other parts in the shade."¹¹¹ That is to say, no particular theory is capable of

¹¹¹Christer Jönsson, "Cognitive Factors in Explaining Regime Dynamics", 221.

explaining all the aspects of a selected phenomenon entirely. In the same way, none of the theories described in the above sections of this chapter are without their drawbacks and limitations. For instance both neorealism and neoliberalism function at the systemic level and make their analysis accordingly. Therefore, it is evident that they inescapably neglect and deemphasize some unit-level factors and they fail sometimes to incorporate domestic dynamics in their theoretical explanations. As Peter Haas suggests, none of them "is sufficient to explain the full range of variation an analyst would desire."¹¹² Nevertheless, among these approaches the neoliberal institutionalist approach appears to display a more auspicious and sophisticated outlook to the dynamics of complex international relations especially when global environmental politics and cooperation are concerned.

In effect, neoliberal institutionalism provides a broader and more comprehensive interpretation of behaviours of the actors in the international arena by referring to the cobweb image of the system which has emerged as a result of transactional alliances, transnational linkages, multinational corporations and international institutions. Convergence of state interests and policy coordination have become indispensable

¹¹²Peter M. Haas, "Regime Patterns for Environmental Management," in *Complex Cooperation: Institutions and Processes in International Resource Management*, eds. Peter M. Haas and Helge Hveem (Oslo: Scandinavian University Press, 1994), 35.

processes especially in the face of some of the global environmental threats which confront not only a specific state or group of states but also the whole international system. These developments make power-based explanations of the neorealist theory less convincing - at least regarding the issues related with global environmental problems. At this point, neoliberal institutionalism precisely focuses on and emphasizes the crucial role played by international institutions in regulating and facilitating interstate relations towards cooperation in international ecological issues. Where actors' interests and objectives converge, a harmony between states can be generated by the creation of transparency and by policy adjustments enabled through international institutions. Nevertheless, it should also be emphasized that neoliberal institutionalism does not display an extravagantly optimistic outlook regarding international cooperation since the theory embodies such assumptions like the interest-oriented nature of world states and the anarchical features of the international system as well.

Consequently, it can be claimed that the neoliberal institutionalist theory appears to internalize a considerable explanatory power in connection with the dynamics of international relations and global environmental politics. Therefore, the theoretical framework that will be constructed in the final chapter of this dissertation in order to explain the climate change politics will be concordant with the basic assumptions and propositions of the neoliberal institutionalist school of thought and it

will provide an institution-based interpretation of the international environmental cooperation achieved for the protection of the global climate.

Chapter IV. The Science of Climate Change

The climate of the earth has always remained the first and foremost influential factor which shapes and orientates man's activities, quality of living and evolution. Climatic fluctuations have always emanated as factors complicating human beings' life and brought forth significant modifications in man's historical evolution.¹¹³

On the other hand, humans have also had an indiscernible impact on the earth and its climate: "Natural changes have determined the history of the human race. Humans, as their numbers have increased on Earth, have changed the environment and influenced the natural history of life on the planet."¹¹⁴

The major purpose of this chapter is to present information pertaining to the scientific aspects of the climate change issue which emerges as a crucial global ecological problem entailing an extensive process of additional scientific research and multinational concerted scientific investigation. Climate modelling and interdisciplinary exploration on the dynamics of climatic changes have been continuing for a long time, however, the efforts have intensified and accelerated in the

¹¹³Contemporary man confronted the epoch of the drastic climatic alterations as a result of the last Quaternary glaciation; dramatic variations in the climatic conditions and ecological changes sharpened man's struggle for existence and to aid in the development of the species *Homo sapiens*. See M.I. Budyko, *The Earth's Climate: Past and Future* (Orlando: Academic Press, 1982), 1-5.

¹¹⁴Karl K. Turekian, *Global Environmental Change: Past, Present and Future* (New Jersey: Prentice Hall, 1996), 171.

last twenty years. Within this framework, the chapter will include an overview of the climate system; nature of climate change, global warming and the role of the greenhouse gases in this process; anthropogenic impacts on climatic changes and global warming; underlying scientific uncertainty regarding the climate change issue and some of the projected impacts of climate change on natural ecological systems and various socio-economic systems.

1. The Climate System, Climate Change and Global Warming:

What is climate? In its most general sense climate can be defined as “the organized summary over time of the observed behaviour of the planetary land, atmosphere and water system.”¹¹⁵ To be able to understand, model and predict the functioning of the climate system is the primary goal of climate research.¹¹⁶

The climate system of the earth is a very complex one. Article 1 of the United Nations Framework Convention on Climate Change defines the climate system as the totality of the atmosphere, hydrosphere, biosphere and geosphere and their interactions (see Figure I). In other words, the climate is regulated “not only by what happens in the atmosphere but in

¹¹⁵M.J. Coughlan and B.S. Nyenzi, “Climate Trends and Variability,” in *Climate Change: Science, Impacts and Policy, Proceedings of the Second World Climate Conference*, ed. J. Jager and H.L. Ferguson (Cambridge: Cambridge University Press, 1991), 71.

¹¹⁶*Ibid.*

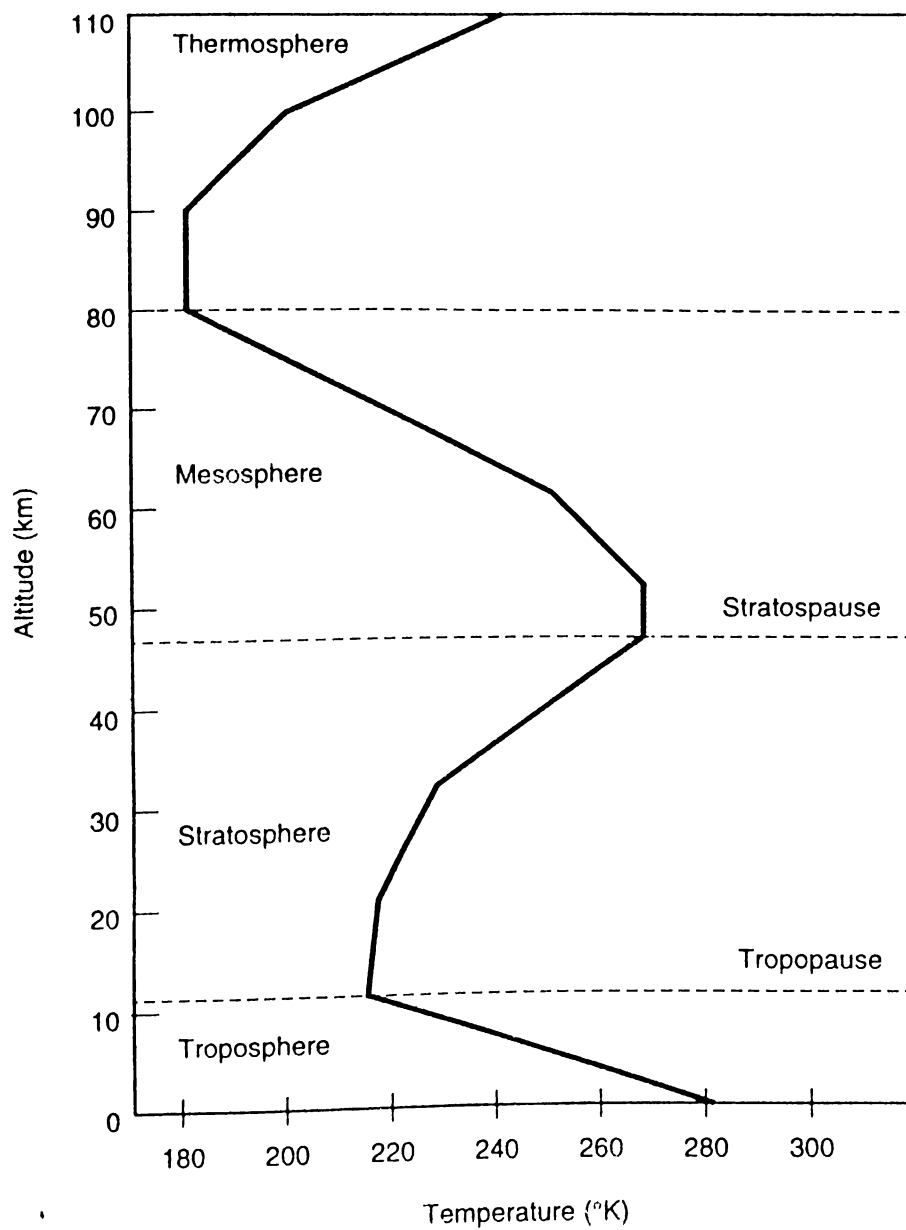


Figure I. Earth's Atmosphere and Its Temperature Structure

Source: Karl K. Turekian, *Global Environmental Change: Past, Present and Future*, 46.

the oceans, the cryosphere (glaciers, sea ice and continental ice caps), the geosphere (the earth's solid surface) and the biosphere (living organisms in the oceans and on land)."¹¹⁷ The climate is a non-linear system and the different components of the earth's climate interact on many different time-scales within complex and chaotic terms. Therefore, in order to be able to make assessments and predictions about the climatic fluctuations, it is essential to identify and comprehend the various components of the climate system.¹¹⁸

According to the Environmental Protection Agency's definition "climate change" is any change in climate as a result of natural variability or as a result of human activity. In similar terms, the FCCC defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."¹¹⁹ The study of climate change retains a crucial place in atmospheric science due to the fact that alterations in global climate affect all kinds of natural processes in the biosphere and interfere with lives and most important activities of human beings.

¹¹⁷Information Unit on Climate Change, "An Introduction to the Climate System," Fact Sheet 3, 7; available from [gopher://ecosys.drdr.virginia.edu/0/library/atm/climate/](http://ecosys.drdr.virginia.edu/0/library/atm/climate/)

¹¹⁸John F.B. Mitchell and Zeng Qiugcun, "Climate Change Prediction," in J. Jager and H.L. Ferguson, 59.

¹¹⁹*United Nations Framework Convention on Climate Change*, Article 1.

While addressing the climate change issue, it is essential to consider the fact that climate change has obviously wider and more extensive dimensions than the changes inflicted by human activities on the system. Global environmental change is a complex and inevitable process which is inherent to our interrelated planetary system. Our planet has undergone radical changes and it is changing continuously. Karl Turekian states as follows:

Mutation is the essence of the history of the planet. Larger changes in atmospheric chemistry have occurred in the past than are seen at present....The temperature of Earth has ranged widely on the million-year timescale as well as timescales of centuries or even less. Changes on Earth have been occurring throughout its existence - most of them more dramatic than any we observe today. We especially care about the recent changes, whether natural- or human-accelerated, since we perceive these changes to affect our lives....Our understanding of the past will help put these perceptions in a more environmentally sound framework.¹²⁰

Nevertheless some degree of global mutation is intrinsic to the system itself, within the recent decade it has become apparent that human beings disturb the fragile balance of the climate system to a certain extent; man-made activities accelerate global climate change and aggrandize the scope of the problem to levels that can influence the quality of life for future generations. Especially renewed scientific assessments and evidence on the climate system and climate change enable scientists to

¹²⁰Karl K. Turekian, 2.

provide more concrete models and simulations compared to the past.¹²¹

For instance, according to the IPCC's (Intergovernmental Panel on Climate Change) most recent scientific assessment report which was adopted in December, 1995, there is a discernible human influence on climate, and in the report it is stated that:

...human activities, including the burning of fossil fuels, land-use change and agriculture, are increasing the atmospheric concentrations of greenhouse gases (which tend to warm the atmosphere) and, in some regions, aerosols (microscopic airborne particles, which tend to cool the atmosphere). These changes in greenhouse gases and aerosols, taken together, are projected to change regional and global climate and climate-related parameters such as temperature, precipitation, soil moisture and sea level.¹²²

Climate change is closely related to the enhanced greenhouse effect, therefore, it is important to know how this process takes place and what its consequences are. Our planet radiates energy into the outer space at the same rate at which it absorbs energy from the sun. The energy coming from the sun is in the form of short-wavelength radiation and the earth sends this energy back out into the space in the form of long-wavelength, or infra-red radiation. The greenhouse effect is a natural process which

¹²¹In order to comprehend the atmosphere as a system and how this system works, and to be able to predict the way this system will change if one or another of the controlling parameters changes, scientists resort to computer models. These computer-generated models are called General Circulation Models or GMCs which attempt to simulate the climate system and they are based on fundamental physical principles. Scientists began simulations in the 1960s with simple models, and today more sophisticated simulations that include and model all the components of the climate system are being used.

¹²²IPCC, *IPCC Second Assessment Synthesis of Scientific-Technical Information Relevant to Interpreting Article 2 of the United Nations Framework Convention on Climate Change*, 1995, 1; available from <http://www.preen.org/ipcc95.htm>

implies depositing the infra-red radiation emitted upwards by the earth's surface and this process is vital for making earth a warm and habitable place for the living beings. As a result of the greenhouse effect, the incoming solar radiation is allowed to pass through the earth's atmosphere, however, much of the outgoing infra-red radiation is prevented from escaping into the outer space since it is strongly absorbed by the water and carbon dioxide molecules in the air. In addition to carbon dioxide and water vapour, ozone, methane and nitrous oxide are the other natural greenhouse gases that are responsible for absorbing the radiation which would escape from the earth otherwise. Trapping the infrared radiation keeps the earth's average surface temperature 33°C warmer than it would have been otherwise; therefore, it is apparent that without the process of the greenhouse effect life on the earth would be impossible (see Figure II). However, although the natural greenhouse effect is beneficial and vital for the continuation of life on our planet, a problem emerges when the balance of the chemical composition of the atmosphere¹²³ is upset by human activities. There are various factors which are influential in climatic fluctuations, however, to a great extent the composition of the atmosphere determines the earth's climate.

¹²³The total mass of the atmosphere is 5.3×10^{21} g. The atmosphere of our planet is inclusive of mainly nitrogen (78%) and oxygen (21%). Other important atmospheric constituents are carbon dioxide and ozone, and they influence the physical state of the atmosphere and biological processes. The atmosphere also consists water vapor which is generally found in concentrations of 0.1-1.0% - the mean water vapor content is about 2.4 g cm². Atmospheric density and pressure decrease with altitude. Pressure decreases to half its surface value at a height of about 5 km. M.I. Budyko, 22-23.

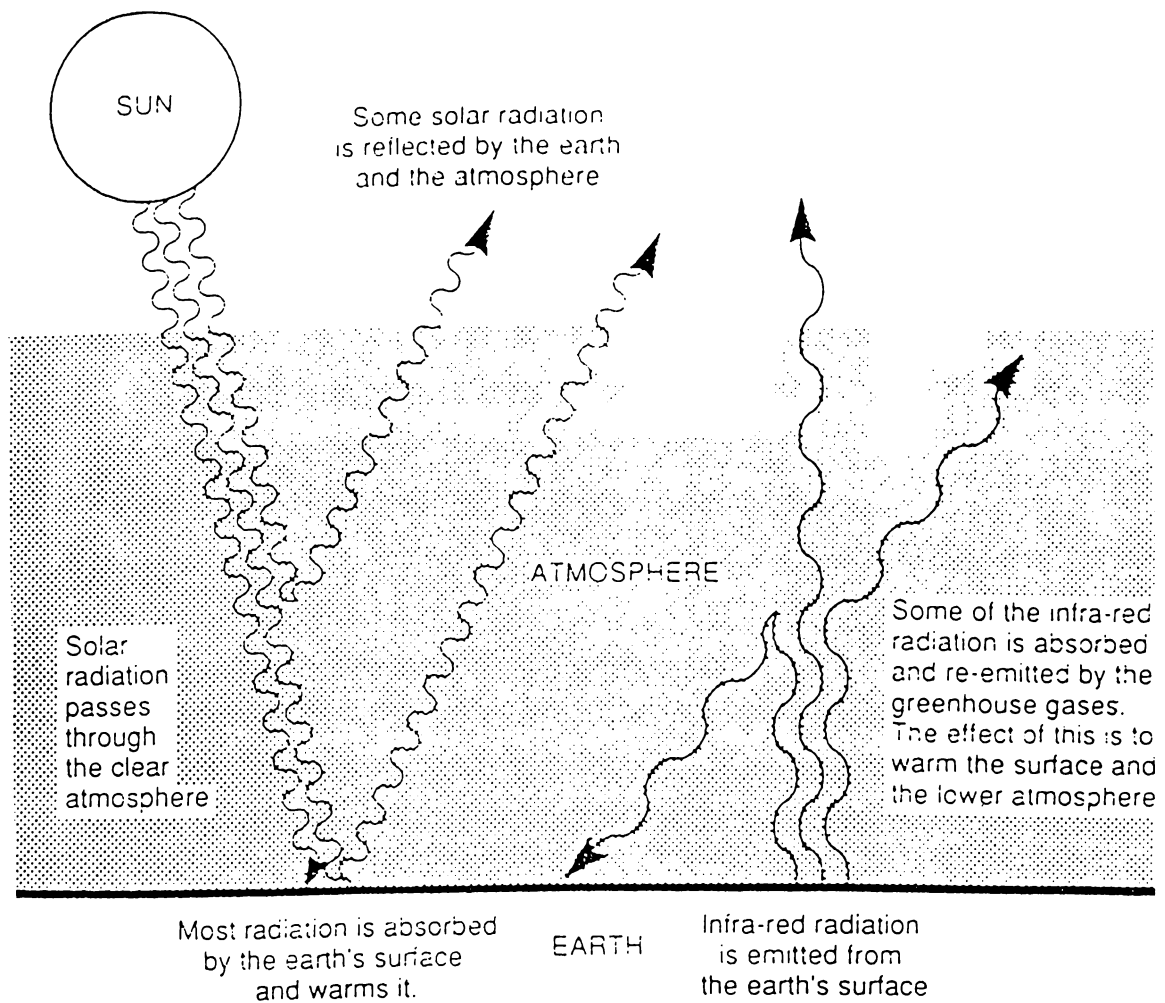


Figure II. The Illustration of The Greenhouse Effect

Source: John Houghton , " Scientific Assessment of Climate Change: Summary of the IPCC Working Group I Report," in Climate Change: Science, Impacts and Policy, Proceedings of the Second World Climate Conference, 25.

Although the global climate is a very complicated system, alterations in the composition of the atmosphere and surface of the earth can be detected. The ground-based observations and satellites are useful means for this end. The buildup of greenhouse gases such as carbondioxide¹²⁴ (see Figures III and IV), nitrous oxide, methane and chlorofluorocarbons has been recorded as dramatic within the last decade.¹²⁵

Excessive increments in the concentrations of these greenhouse gases can bring some negative and dangerous repercussions for our planet. It is stated by the scientists that when these gases excessively increase within the atmosphere they agitate the ecological balance through

¹²⁴One of the most dramatic alterations in the composition of the atmosphere has been the increase in **carbon dioxide**. It is a colorless gas and it turns to dry ice at a temperature of -78°C. Carbon dioxide is exchanged continually between the atmosphere and hydrosphere by means of molecular and turbulent diffusion. The measurements of the carbon dioxide concentrations have been systematically made since 1957. It was first commenced at Mauna Loa and then accomplished in a number of different locations ranging from Antarctica to the equator. Scientific research (measuring gases in ice cores) indicates that the increase in carbon dioxide concentrations started in about 1860. Before 1860 there was no systematic data collection enough for a global record. It is predicted that if the current trends continue, by 2100 the carbon dioxide level will be twice of what it was before the modern industrial age. See Karl K. Turekian, *Global Environmental Change: Past, Present and Future*, 123-124 and Budyko, 29-30.

¹²⁵**Carbon Dioxide** is currently responsible for approximately half to two-thirds of human contribution to global warming. Since the pre-industrial era, atmospheric concentrations of carbon dioxide have risen almost 25-30%. Society's basic energy sources continue to produce carbondioxide; combustion of fossil fuels increase the carbon dioxide concentrations. Deforestation is another reason for this increase. **Methane** is a more potent greenhouse gas than carbon dioxide, though it has a much lower atmospheric concentration. Methane concentrations have doubled since the beginning of the industrial era. Methane sources include rice paddies, cows, termites, natural gas leakage, biomass burning and wetlands. **Nitrous oxide** has risen by 15% and is increasing at a rate of 0.25 percent per year. Although it is a more potent greenhouse gas than carbon dioxide, its contribution to global warming is less due to its lower atmospheric concentration. Finally, **Chlorofluorocarbons (CFCs)** are man-made gases that were invented during the 1930s. They are destructive against the stratospheric ozone layer and have a contribution to the problem of global warming. Each chlorofluorocarbon molecule has a warming effect which is several thousand times that of a carbondioxide molecule.

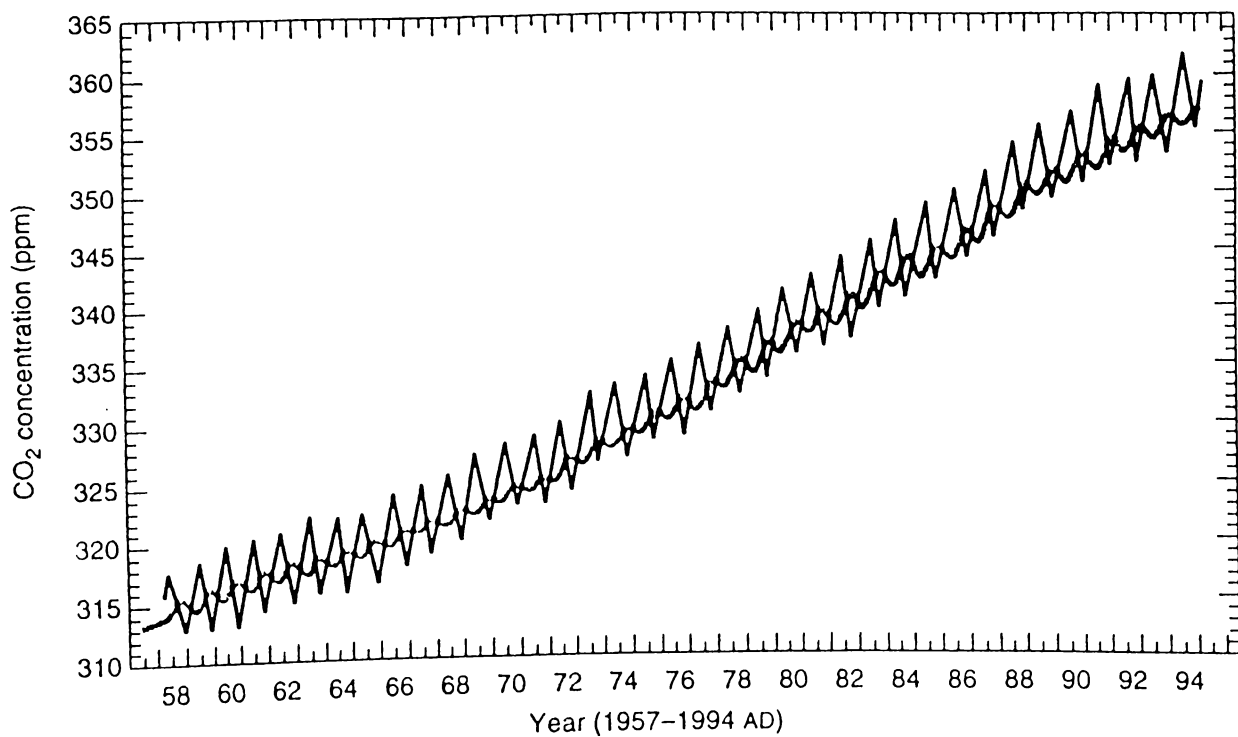


Figure III. The Variation of Carbon Dioxide at Mauna Loa, Hawaii

(Data Collected by C.D. Keeling and National Oceanic and Atmospheric Administration, Environmental Research Laboratories).

Source: Karl K. Turekian, *Global Environmental Change: Past, Present and Future*, 45.

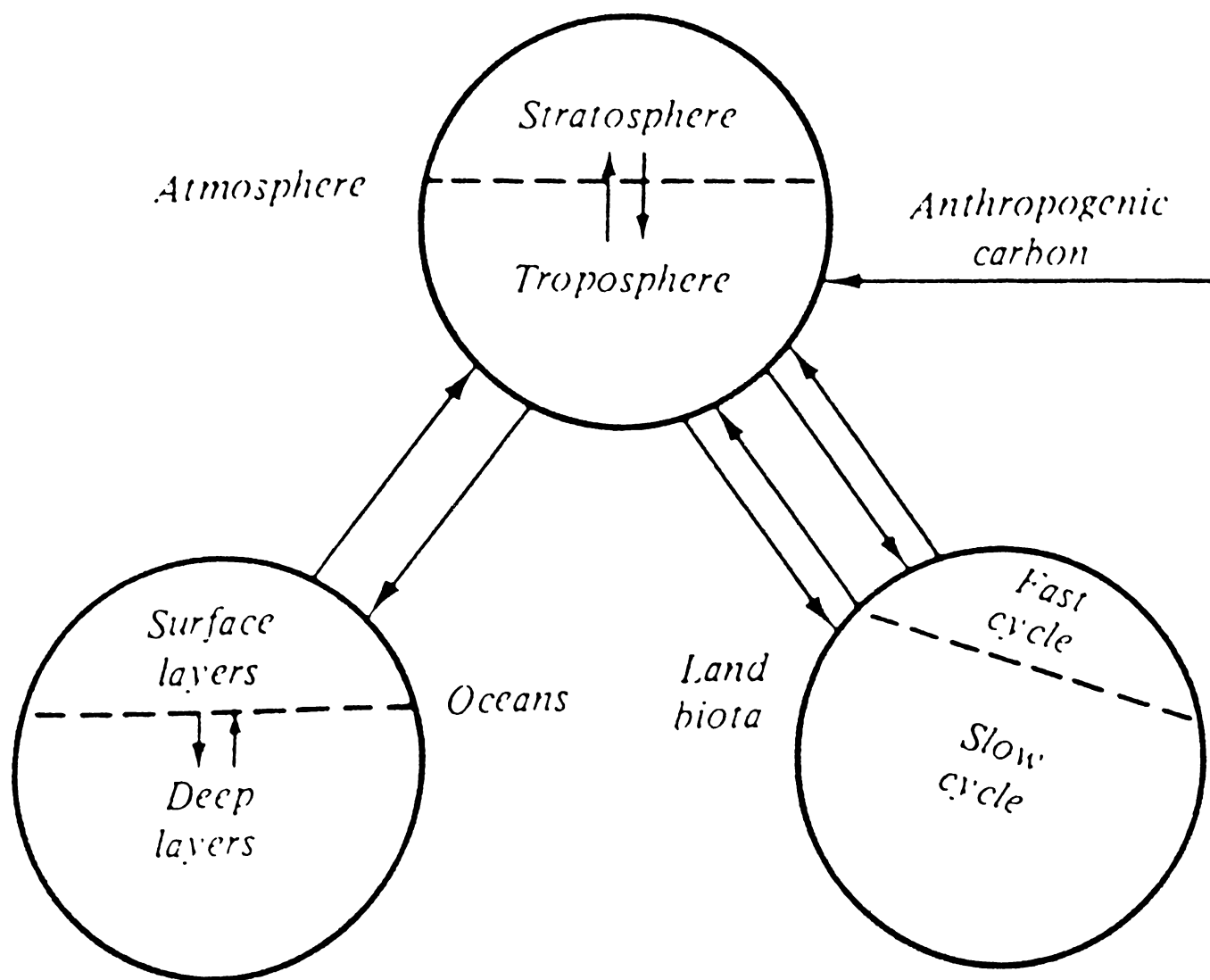


Figure IV. Diagram of CO₂ Circulation

Source: M.I. Budyko, The Earth's Climate: Past, Present and Future, 224.

a positive radiative forcing¹²⁶ or heat-trapping of energy. Thus, the increments in such greenhouse gas concentrations threaten to upset the climate system and confront humans with the problem of global warming inferring the increase in the temperature of earth's atmosphere and the temperature on the surface of earth (see Figure V).¹²⁷

Some of the anthropogenic activities that increase the greenhouse gas concentrations in the atmosphere are fossil fuel combustion; deforestation; desertification and agriculture; use of CFCs in air conditioning, solvents and insulation; and coal mining. These processes are considered to be upsetting the chemical composition of the earth's atmosphere.

It should also be emphasized that it is crucial to distinguish between climate change and global warming since the two are not clearly the same thing. Global warming is one of the symptoms of climate change; all major climate models indicate that the clearest and the most significant symptom of climate change will be global warming. But, it is not the only symptom

Nevertheless, CFCs also have a cooling effect. They make a cooling effect when they deplete and destroy the atmospheric ozone. IPCC, *Summary for Policymakers: The Science of Climate Change, IPCC Working Group I*, 1995, 1-2, and Environmental Protection Agency, "Climate Change, Discussion Series," 1; available from <http://www.epa.gov/globalwarming/sub1/greenglobal.htm>

¹²⁶Increases in long-lived greenhouse gas concentrations cause a radiative forcing equivalent to about 2.45 watts per square meter(Wm^{-2}). IPCC, *Summary for Policymakers: The Science of Climate Change, IPCC Working Group I*, 1; <http://www.preen.org/ipcc95.htm>

¹²⁷"Changes in greenhouse gas concentrations have been associated with dramatic climatic changes in the past. The last time greenhouse gas levels changed as much as they are changing now was when the earth emerged from the most recent ice-age. There is strong evidence that greenhouse gases played a significant role in that post- ice-age warming." IUCC, "An Introduction to Man-Made Climate Change," Fact Sheet 1, 4.

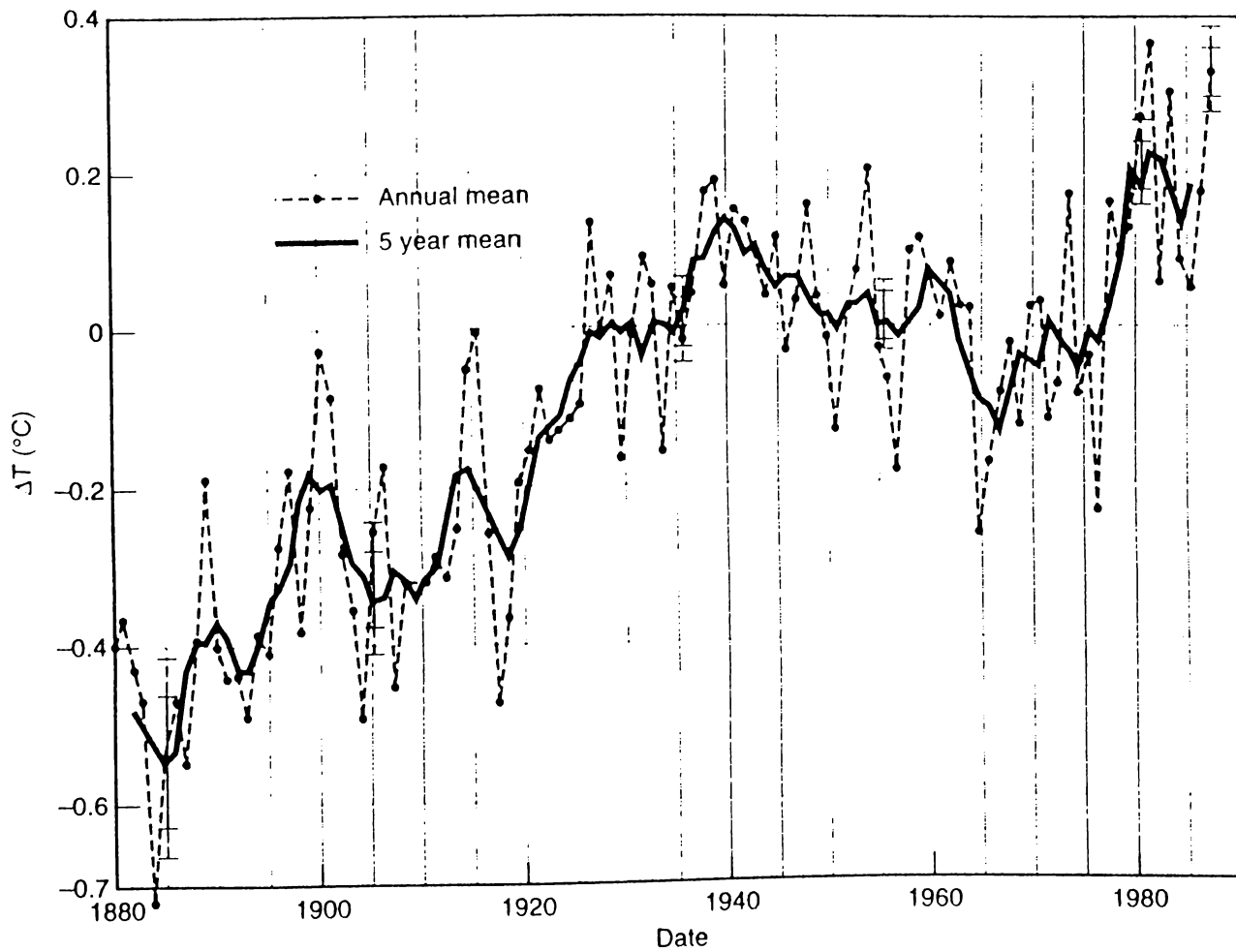


Figure V. The Change of Global Temperature

(Compiled by NOAA and NASA investigators)

since other important effects such as sea-level rise, changes in rainfall and precipitation or alterations in soil moisture are constituting the other components of the problem. Natural processes and human activities bring forth some alterations within the way the atmosphere absorbs and emits energy. The consequence of this is a disease which is called climate change, however, it is essential not to confuse the symptoms - one and the most significant of which is global warming - with the disease.¹²⁸

Another important aspect of the climate change issue is the fact that present greenhouse gas emissions will remain in the atmosphere and continue to have impacts on the climate system for many decades to come. Today's greenhouse gas emissions will influence future greenhouse gas concentrations in different ways depending on their particular life-cycles. Each greenhouse gas has a particular life-cycle of its own and life-cycles of these gases (except from CFCs) are rather complex to be characterized by a simple decay process. Carbon dioxide has an approximate life-cycle of 50-200 years, whereas nitrous oxide has 150 and methane has 10 years lifetimes.¹²⁹

¹²⁸Information Unit on Climate Change, "Why Climate Change and Global Warming Are Not The Same Thing?," Fact Sheet 9, 16.

¹²⁹Information Unit on Climate Change, "Measuring the Global Warming Potential of Greenhouse Gases," Fact Sheet 7, 13.

2. Scientific Uncertainty and Ambiguity Regarding Global Climate Change:

Climate change is a very complex issue on which an extensive process of research, wide-scope analysis and refinement of tentative findings have been going on. Scientific knowledge evolves every day and much progress is achieved in attempts to formulate more complete assessments of climate change.

However, for the time being it is a fact that a considerable scientific uncertainty exists on the issue of climate change. There are certain ambiguities that remain as obstacles against the formation of a more influential regime on climate change. In effect, there is even some amount of scepticism - within few scientific circles - concentrating on the validity and certainty of the increase in average global temperature and - even if there is a consistent increase - whether this could be attributed to anthropogenic influences or whether it is completely natural therefore beyond human control. In addition to these sceptical views, even those scientists who constitute the majority and are convinced that the global temperature has been rising consistently¹³⁰ are unable to make absolute

¹³⁰Almost all climate models indicate that the earth's average temperature should have increased approximately between 0.4-1°C since pre-industrial times. This increase is too large to ignore or be dismissed as a consequence of measurement errors. Information Unit on Climate Change, "How Predictable Is Climate?" Fact Sheet 8, 15.

available from gopher://ecosys.drdr.virginia.edu/0/librar/atm/climate/

predictions as regards the consequences of this increase and they are to a certain extent unsure of the future systemic responses.

Even though scientists advance more complicated and sophisticated computer models in order to understand and address the problem auspiciously, the complexity of the earth's climate system and the difficulty to predict the dynamic interactions between the various spheres of the system make it harder to accomplish absolute assessments and interpretations.¹³¹ In other words, observations and climatic models include a considerable amount of scientific uncertainty with respect to the rate of global warming and the impacts of enhanced greenhouse gases in the atmosphere. In sum, the lack of certainty as regards the predictions and estimations are due to the extremely complex nature of the climate system and incomplete global climatic models which remain limited to explain all interactions among the various components of the system.

However, the nature of the debate has been conveyed - by some reporters and policymakers - as if the scientists are completely confused and doubtful on the issue of climate change and as if all the attempts to

¹³¹ There are five important factors that are influential in climate change. The slower acting factors are: 1) the earth's orbital movements around the sun and 2) the expansion and retreat of the polar ice caps; the faster-acting ones are: 3) the atmospheric dust, 4) feedbacks due to water vapour, clouds, and snow and 5) the concentrations of greenhouse gases. Variations in the earth's orbital movements create very slow climate changes, therefore this factor is unsatisfactory and ineffectual to explain the significant warming trend which has been observed for the last 100 years. However, dust, water vapor and enhanced greenhouse concentrations bring about rapid impacts and cause short-term (century time-scale) temperature changes. Information Unit on Climate Change, "How Records From Past Climates Support the Case for Global Warming," Fact Sheet 6, 11-12.

elucidate the climate change problem are totally ineffectual and infructuous, although this is not the case.

Recent accounts of the scientific debate on climate frequently misrepresent what is being argued about. They suggest that scientists are still discussing whether or not the climate is changing in response to greenhouse gas emissions, as if there were a simple yes/no answer. So if a scientist questions the adequacy of present climate models, or fails to find conclusive evidence for global warming in a particular data-set, he or she is often reported as claiming that there isn't really a problem. However, in most scientific circles the issue is no longer whether or not climate change is a potentially serious problem. Rather, it is how the problem will develop, what its effects will be, and how these can best be detected.¹³²

Multinational and organized efforts have been made to elucidate the irresolute and undemonstrable aspects of the climate change issue. In order to develop a coordinated scientific assessment of climate change, the Intergovernmental Panel on Climate Change (IPCC) was jointly established by the World Meteorological Organization and the United Nations Environment Programme, in 1988. The first IPCC report was completed and issued in 1990. The report stated that the atmospheric concentrations of greenhouse gases from preindustrial levels would lead to an increase in average global surface temperatures of 1.5 to 4.5 °C in the event that no action is taken to reduce greenhouse gas emissions. It concluded that such an increase in global temperature would potentially have severe impacts on both human beings and natural systems.

¹³²Information Unit on Climate Change, "Why Climate Change and Global Warming Are Not The Same Thing?", 16.

The most recent IPCC report was finished in December, 1995. The new report states that since the 1990 IPCC Report, considerable progress has been accomplished in attempts to distinguish between natural and anthropogenic impacts on the climate system.¹³³ More complete simulations and models indicate that global surface temperature has risen between 0.3°C and 0.6° C since the late 19th century¹³⁴ and an increase in global temperature of about 1 - 3.5° C is projected by the year 2100.¹³⁵ Global sea level has risen between 10 and 25 centimeters over the past 100 years and is expected to rise between 15 and 95 centimeters from the present to 2100.¹³⁶

In other words, although a certain amount of underlying ambiguity remains with respect to the climate change issue, since 1990, through coordinated scientific research and endeavour - which is accomplished in a global scope - progress has been accomplished in the understanding of the climate change problem and in distinguishing the natural climatic changes from the changes induced by man's activities. Modelling of climate variability and climate forcing by greenhouse gases and aerosols are crucial steps in reaching accurate conclusions in the science of climate

¹³³IPCC, *Summary for Policymakers: The Science of Climate Change*, IPCC Working Group I, 1995; available from <http://www.preen.org/ipcc95.htm>

¹³⁴Ibid.

¹³⁵IPCC, *Summary for Policymakers: Scientific-Technical Analyses of Impacts, Adaptations and Mitigation of Climate Change - IPCC Working Group II*, 1995, 2.

¹³⁶Ibid., 5.

change. Research advances and improved techniques in this area have enabled more valid assessments.¹³⁷ IPCC's 1995 report displays the developments and attempts in devising more complete computer models which are functional in demonstrating the anthropogenic influences on climate change:

This progress has been achieved by including effects of sulphate aerosols in addition to greenhouse gases, thus leading to more realistic estimates of human-induced radiative forcing. These have then been used in climate models to provide more complete simulations of the human-induced climate-change 'signal'. In addition, new simulations with coupled atmosphere-ocean models have provided important information about decade to century time-scale natural internal climate variability.¹³⁸

IPCC's statements concerning the renewed scientific evidence on the anthropogenic greenhouse effect is a considerably important step in the global climate change problem since it might generate the elaboration of the measures taken for the establishment of a regime over the issue and it can motivate collaboration between nations for a secure climate in future. As regards the temperature rise, IPCC reports that most of the studies "have detected a significant change and show that the observed warming trend is unlikely to be entirely natural in origin".¹³⁹ The report states that:

¹³⁷See World Climate Research Programme, *CLIVAR: A Study of Climate Variability and Predictability*, August 1995, and World Climate Research Programme, *CLIVAR: A Research Programme on Climate Variability and Prediction for the 21st Century*, August 1997.

¹³⁸IPCC, *Summary for Policymakers: The Science of Climate Change*, IPCC Working Group I, 3.

¹³⁹*Ibid.*, 4.

The atmospheric concentrations of greenhouse gases, inter alia carbon dioxide(CO₂), methane (CO₄) and nitrous oxide (NO₂) have grown significantly: by about 30%, 145% and 15%, respectively (values for 1992). These trends can be attributed largely to human activities, mostly fossil fuel use, land-use change and agriculture.¹⁴⁰

In addition to these developments, in April 1993, as a result of the Intergovernmental Meeting on the World Climate Programme, "The Climate Agenda - International Climate Related Programmes: A Proposal for an Integrated Framework" was created. The Climate Agenda supplied an integrated structure for the climate-related programmes that were supported by numerous agencies and institutions. Its aim was the integration of various scopes of climate science and research. An integration and coherence of multifarious programmes on climate was essential in the sense that it would increase the soundness and quality of scientific processes on climate change which basically required an interconnected and an interdisciplinary approach. The Climate Agenda was soon endorsed by the WMO, UNEP, IOC, UNESCO, FAO and ICSU, and today it is guided by the Inter-Agency Committee on the Climate Agenda(IACCA). The four major thrusts of the Climate Agenda can be summarized as follows: 1) new frontiers in climate science and prediction, 2) climate services for sustainable development, 3) studies of climate

¹⁴⁰Ibid., 1.

impact assessments and response strategies to reduce vulnerability, 4) dedicated observations of the climate system.

The “value added” by the *Climate Agenda* includes a synergistic ability to identify and eliminate duplicated efforts, identify and implement activities to fill gaps, provide guidance on climate priorities for agency programs, and to enhance the quality of all activities by strategically targeting goals and actions to meet them, all at the global level. Cooperation and commitment by all participants in the Climate Agenda will not only strengthen support to all climate science activities, but will also provide the policy community with a firm foundation of understanding on which to base their decision.¹⁴¹

With respect to the developments regarding the IPCC and its assessments, it can be opposed that despite the new evidence presented within the 1995 IPCC Report, the underlying uncertainty has not been eradicated and many unknown aspects still remain within the issue of climate change, therefore, it is essential to wait for further developments in order to make genuine international commitment. However, it would be appropriate to reconsider such sceptical approaches towards the issue since confronting uncertainties with inaction and quiescence could bring very high prices to humanity which may become totally impossible to pay in future.

¹⁴¹G.A Mc Bean, “The Climate Agenda: The Role of the WCRP As The Research Thrust,” in *Conference on the World Climate Research Programme: Achievements, Benefits and Challenges, Synopses of Conference Presentations*, 26- 28 August 1997, 3.

3. The Projected Impacts of Global Climate Change:

Climate change is expected to bring forth excessive stress, and consequent wide-ranging and unprecedented impacts on the ecological and socio-economic systems on this planet. Since climate change is expected to induce warmer temperatures, higher sea-levels, more intense and frequent droughts, storms and floods, various systems such as natural ecological systems, socio-economic systems and human health are predicted to become sensitive towards such unprecedented and serious consequences (see Figures VI and VII); such systems will be in need of adjustments in the face of anticipated climatic changes.¹⁴²

However, a certain amount of uncertainty and ambiguity in climatic models and projections make it difficult to quantify the impacts of climate change on any particular system at any particular location. This is due to the fact that regional-scale climate projections are uncertain and limited.¹⁴³

Some of the projected climatic impacts - presented as a result of the Intergovernmental Panel on Climate Change's scientific assessments and research on climate change - are categorized and summarized in the following sections of the chapter.

¹⁴²IPCC, *Summary For Policymakers: Scientific-Technical Analyses of Impacts, Adaptations and Mitigation of Climate Change - IPCC Working Group II*, 1995, 2.

¹⁴³*Ibid.*, 3-4.

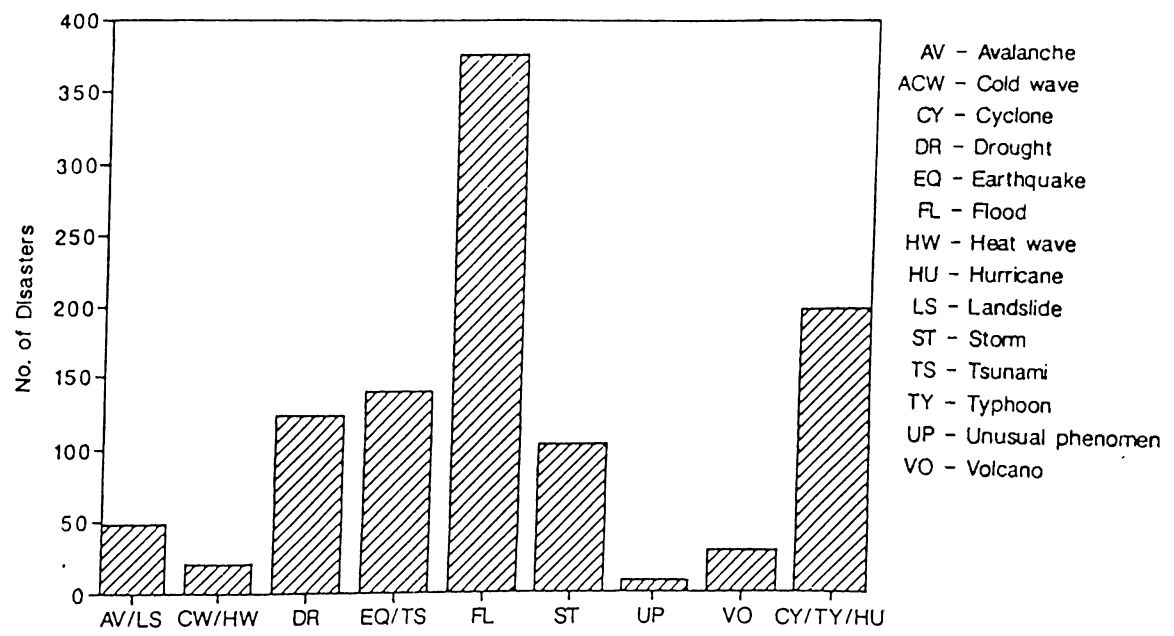


Figure VI. World-wide Natural Disasters (Since 1990)

Source: US Disaster Assistance, Agency for International Development, Department of State, Washington. (J. Jager and H.L. Ferguson, *Climate Change: Science, Impacts and Policy*, 401.)

SIGNIFICANT CLIMATE ANOMALIES AND EPISODIC EVENTS DURING 1994

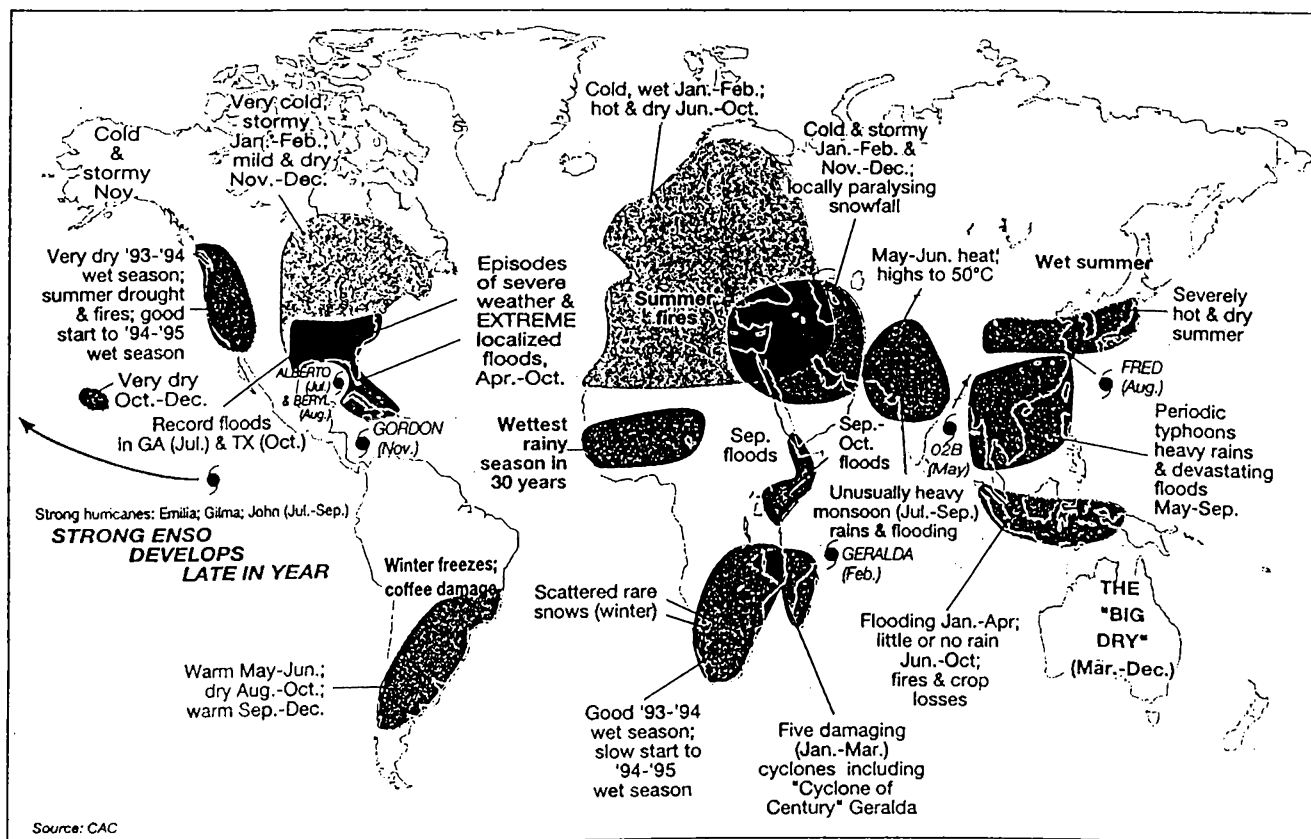


Figure VII. Significant Climate Anomalies and Episodic Events During 1994

Source: World Meteorological Organization, WMO Annual Report 1994, 10.

3.a. Human Health:

Widely ranging adverse impacts are projected. Rising temperatures, frequent floods, storms and droughts are predicted to increase mortality rates and the risk of illnesses.¹⁴⁴ High temperatures and extreme weather conditions are expected to bring forth higher death rates (predominantly cardiorespiratory), injury, psychological disorders and exposure to contaminated water supplies. Since high temperatures exert excessive stress on the human circulatory system, allergic and respiratory diseases are expected to increase in future. As a result of global warming malaria (see Fig VIII), dengue, yellow fever and other infectious, vector-borne diseases can spread and become major threats especially in the tropical countries. Moreover, as a result of food and water shortages, growing malnutrition will weaken immunity towards various diseases. Increases in droughts and floods will most probably cause difficulties regarding the deliverance of health and sanitation services.¹⁴⁵

3.b. Terrestrial and aquatic ecosystems:

Natural ecosystems will be exposed to additional stress and these systems will be degraded as a result of responses to changes in climate.

¹⁴⁴Ibid., 10.

¹⁴⁵See Wolf H. Weihe and Raf Mertens, "Human Well-being, Disease and Climate," in J. Jager and H.L. Ferguson, 345-358.

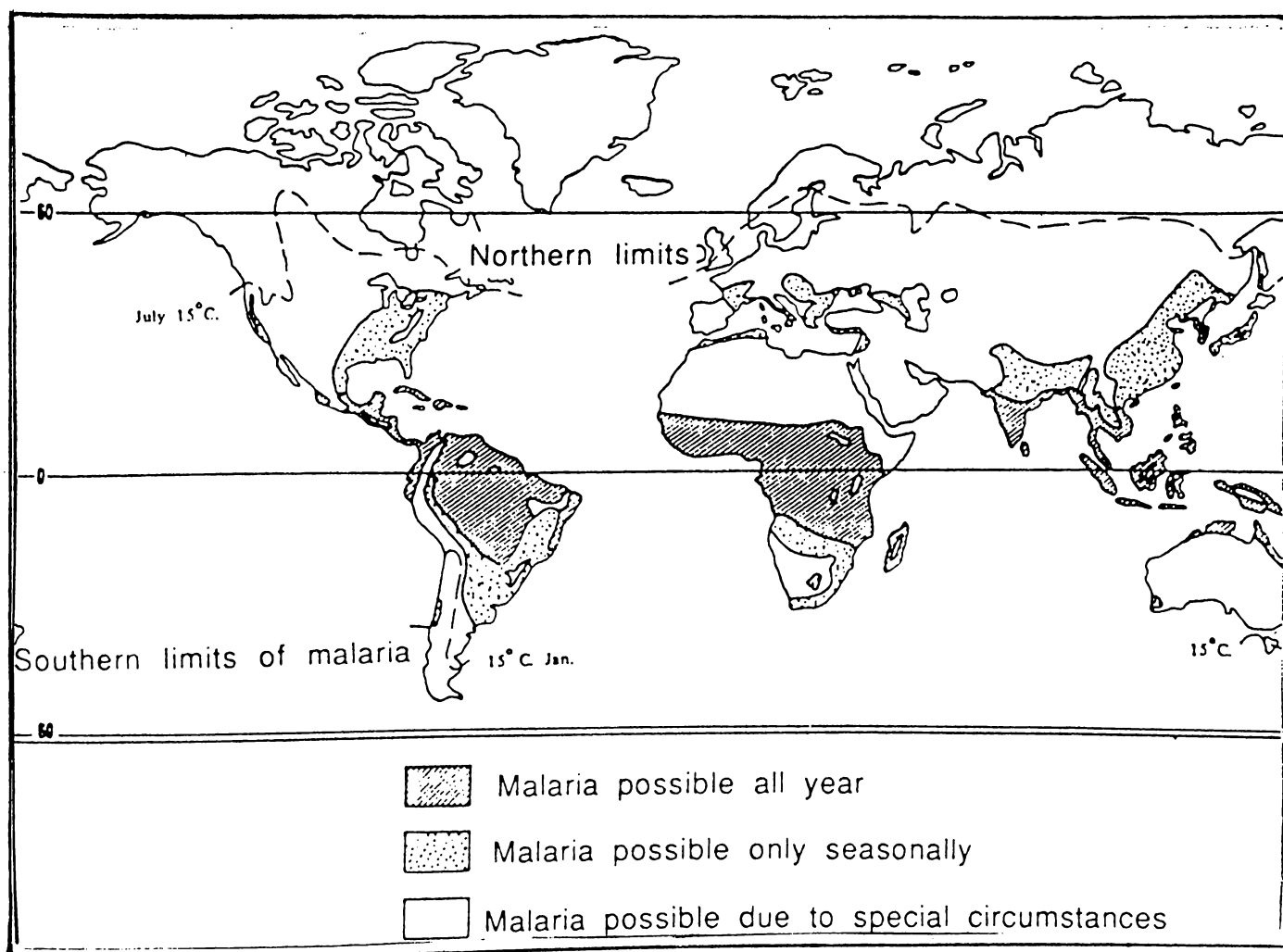


Figure VIII. Possibility of Malarial Occurrence
 (based on temperature, rainfall and elevation)

Source: J. Jager and H.L. Ferguson, Climate Change: Science, Impacts and Policy, 354.

The composition and geographic distribution of such ecosystems will be altered and some reductions will be observed in biological diversity and in the goods and services these systems provide.¹⁴⁶

First of all, as regards the oceans climate change is expected to bring forth sea-level rise in between 15-95 cm. within the following hundred years.¹⁴⁷ Temperature rise could lead to increase in sea-level in two ways: through thermal expansion of ocean water and through the shrinking of ice caps and mountain glaciers.¹⁴⁸ Within the next hundred years, one third to one half of the present mountain glaciers may melt and disappear. In addition to some amount of increase in sea-level, climate change can lead to changes in ocean circulation, vertical mixing, wave climate and reductions in sea-ice cover. The structure and functions of marine ecosystems will be influenced and this in turn will bring significant feedbacks to the climate system.¹⁴⁹

As a result of climate change and rising sea-level, coastal systems will be under great risk. Some of these projected risks are: the erosion of shores, increased salinity of estuaries and freshwater aquifers, altered tidal ranges in rivers and bays, increased coastal flooding, etc. The damage

¹⁴⁶IPCC, *Summary Report For Policymakers*, 5.

¹⁴⁷*Ibid.*, 2.

¹⁴⁸Information Unit on Climate Change, "Climate Change and Sea-level," Fact Sheet 102, 23-24.

¹⁴⁹IPCC, *Summary Report For Policymakers*, 6-7.

inflicted by storms, floods and tropical cyclones may become more severe. It is predicted that the areas with high erosion rates and with very low elevations will be in great danger.¹⁵⁰ For instance, some parts of the Maldives, Egypt and Bangladesh will be completely inundated and uninhabitable. These changes will also have negative impacts on tourism, fisheries, biodiversity and freshwater supplies.

Climate change will also have adverse effects on forests since it will influence their growth and regeneration capacity. Forest resources that are under great risk are the ones in regions that are exposed to increased moisture stress like in the dry continental interiors. Considerable shifts in the main forest zones can be observed and such changes in forest systems can bring serious consequences on human beings and animals. It is projected that entire forest types may disappear and new assemblages of species - new ecosystems - could emerge.

Climate change will also bring additional stress on mountain regions since a warmer climate will influence hydrologic systems, soil stability, distribution of vegetation and related socio-economic systems. For instance, Europe's mountain regions are especially prone to negative impacts as result of climate change. Extinction of some species living on mountain tops and disruption of mountain resources such as food and fuel are probable consequences of climate change. Severe rock falls - as a result

¹⁵⁰Ibid., 7.

of the melting of permafrost - and avalanches will multiply with warmer temperatures. Recreational industries may be disrupted and mountain economies may be undermined.

Desertification may become an important and irreversible problem if climate becomes hotter, drier and the soil becomes degraded as a result of erosion. "Deserts are likely to become more extreme - in that, with few exceptions, they are projected to become hotter but not significantly wetter."¹⁵¹ Moreover, inland aquatic ecosystems, lakes, streams and wetlands, will be exposed to the effects of climatic changes through altered water temperatures, flow regimes and water levels.¹⁵²

3.c. Hydrology and Water Resources:

It is predicted that relatively small alterations in the climate system can create important and serious water resource problems.¹⁵³ Changes in climate will obviously have impacts on water resources, water quality, the hydrological cycle of water bodies and water supply systems and requirements.¹⁵⁴ Climate change will produce intensification in global hydrological cycle and changes "in the volume and distribution of water

¹⁵¹Ibid., 6.

¹⁵²Ibid.

¹⁵³H.F. Lins, I.A. Shiklomanov and E.Z. Stakhiv, "Impacts on Hydrology and Water Resources," in J. Jager and H. L. Ferguson, 87.

¹⁵⁴Ibid.

will affect both ground and surface water supply for domestic and industrial uses, irrigation, hydropower generation, navigation, instream ecosystems and water-based recreation.”¹⁵⁵ The areas which remain under greater risks are especially arid and semi-arid regions, and the regions where pollution and overpopulation has already produced water scarcity. However, for the present moment the capacity to assess specific regional effects and to make regional forecasts is very limited since “regional details of greenhouse gas-induced hydrometeorological change are virtually unknown.”¹⁵⁶

Acceleration of the evapotranspiration cycle and changes in rain patterns can be observed. This could cause an increase in rain, however, as a result of rapid evaporation soil may become drier in regions which have already confronted with water scarcity, reductions in clean and fresh water and droughts. In high-latitude regions increased runoff as a result of increased precipitation can be observed, while runoff may decrease at lower latitudes due to rapid evapotranspiration and decreased precipitation. All these will bring alterations in the quantity and quality of water supplies and resources.

¹⁵⁵IPCC, *Summary Report For Policymakers*, 7.

¹⁵⁶H.F. Lins, “Impacts on Hydrology and Water Resources”, 95.

3.d. Agriculture:

As regards the impacts of climate change on agriculture, it is predicted that crop yields and productivity will range from one region to another. In some areas an increase in productivity can be observed while in other areas reductions can be experienced. Regions with variable moisture supply will become drier, however, moist regions are expected to become more moisture saturated - due to frequent and intense tropical storms.¹⁵⁷

Due to summer dryness and droughts mid-latitude crop yields will decrease by 10-30% and climate change is expected bring a rise in the average cost of world agricultural production approximately by 10%.¹⁵⁸

Moderate to severe drying of soil can be experienced and frequent droughts may emerge as problems threatening world's developing and less developed regions. Especially, in tropical and sub-tropical regions - where world's poorest population lives - considerable climate changes will take place and such areas will be more vulnerable to the impacts of climate change through spreading food scarcities and famines.¹⁵⁹ Hunger can become a more severe problem in such regions of the world.

¹⁵⁷Yu A. Izrael, "Climate Change Impact Studies: The IPCC Working Group II Report," in J. Jager and H.L. Ferguson, 83.

¹⁵⁸Ibid.

¹⁵⁹Ibid.

3.e. Human Settlements and Infrastructure:

Various climate change impacts are expected on human settlements, the energy, tourism, transport and industry sectors. As a result of sea-level rise some coastal populations will be confronted with the threat of flooding and some regions will be more vulnerable towards erosional land-loss. Small island nations will obviously be under greater risk. "Recurring problems such as floods (e.g. Bangladesh), drought (e.g. Africa), severe storms (e.g. Caribbean Sea), land subsidence and exhaustion of fuel wood supply demonstrate the present vulnerability of human society to weather variability and resource depletion."¹⁶⁰

In addition to flooding, some other human settlements can be exposed to droughts which infer ultimate danger to human life.

When the sensitivity of the energy, industry and transportation sectors are considered, it is low compared to that of agriculture or natural ecosystems. Adaptation and replacement processes are easier if the changes are not very sudden and rapid.¹⁶¹

¹⁶⁰M. Hashimoto and S.Nishioka, "Potential Impacts of Climate Change on Human Settlements; the Energy, Transport and Industrial Sectors; Human Health and Air Quality," in J.Jager and H.L. Ferguson, 109.

¹⁶¹IPCC, *Summary for Policymakers: Scientific-Technical Analyses of Impacts, Adaptations and Mitigation of Climate Change - IPCC Working Group II*, 9.

Chapter V. The International Politics of Climate Change

The political evolution of the global climate change issue has followed a prolonged and complex path up to the present (see Chart I). In effect, the climate change problem did not bring forth political considerations and did not emanate as a serious political issue until the last decade.

Today, an international regime exists over the climate change issue. In order to address the climate change threat, the United Nations Framework Convention on Climate Change was accomplished in 1992, in Rio de Janeiro. The Convention established a goal for the developed countries to decrease their greenhouse gas emissions to the level of 1990 by the year 2000. However, this was not a satisfactory measure to address the climate threat; hence, recently the world states have attempted once again to restructure the existing framework convention and to establish a protocol for global climate change. Consequently, the Kyoto Protocol to the United Nations Convention on Climate Change was adopted by the Conference of the Parties on December 11, 1997. The Protocol stipulates that the Annex I Parties to the FCCC will reduce their greenhouse gas emissions by at least 5% below 1990 levels between the years 2008-2012. Nevertheless, even the recent commitments and legal measures established by the Kyoto Protocol appear to remain insufficient when the gruesome repercussions of global climate change are considered. Due to this fact,

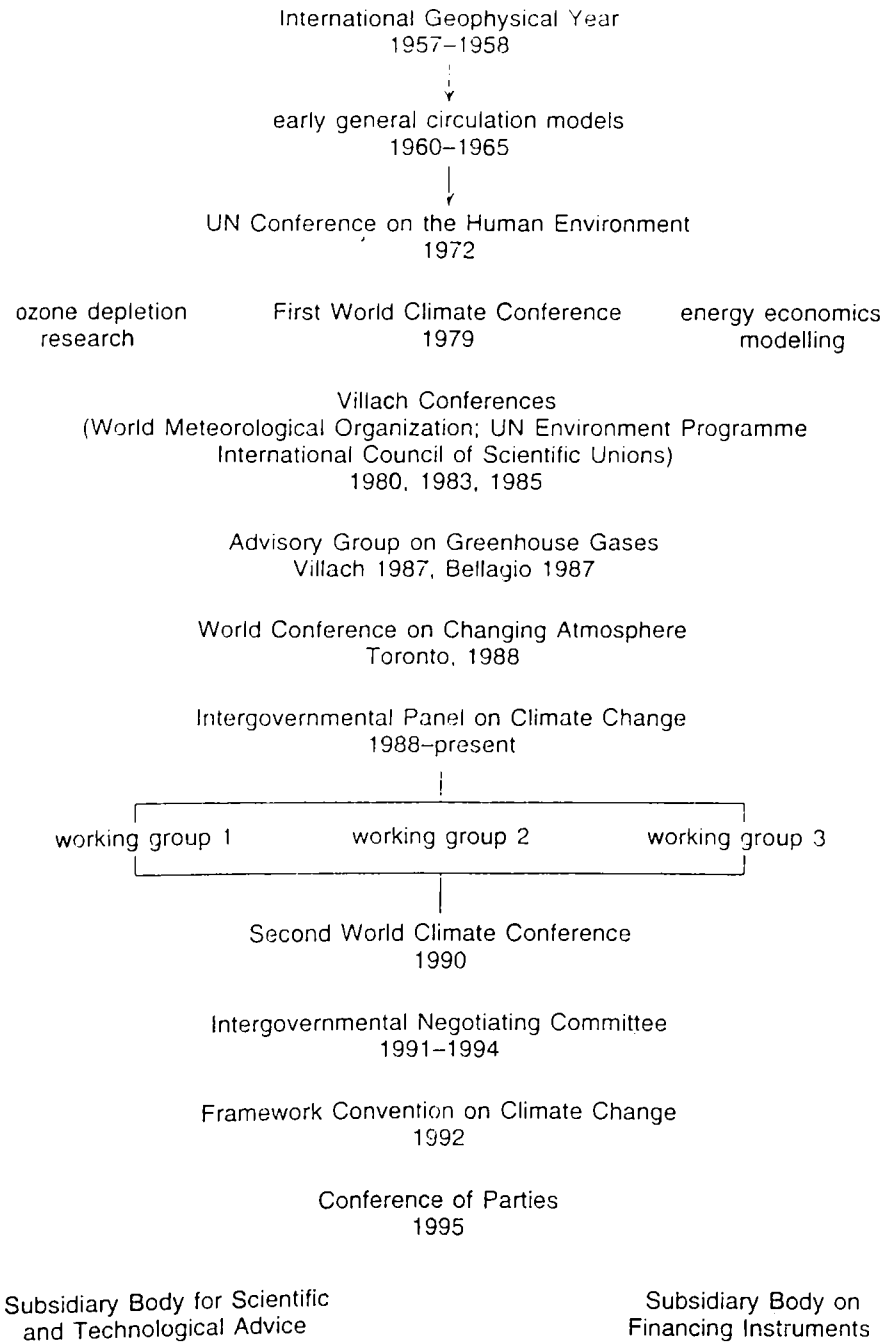


Chart I. Historical Evolution of the Global Climate Change Issue (1957-1995)

Source: Tim O’Riordan and Jill Jager, “The History of Climate Change Science and Politics,” in *Politics of Climate Change: A European Perspective*, 13.

even though the Protocol has been regarded as a corner-stone in the historical developments of climate change politics, many environmentalists and environmental organizations have also exposed it to a lot of criticisms.

Therefore, the process for creating an utterly effective and satisfactory regime on climate change will be continuing in future. Struggles to lessen the costs of cooperation for the world states have been continuing, and the road towards a final consensus on stringent and quantified measures with respect to greenhouse gas emissions seems to be troublesome. However, it appears that with the contributions of the international organizations, scientific communities and non-governmental organizations to the climate change threat, the existing conflicts and dissension among the world states can be more easily transcended and a genuine cooperation might be accomplished to protect the global atmosphere in future.

This chapter presents a historical overview of the legal and political developments concerning the climate change problem. The chapter starts with a general outlook to the earlier progress of scientific concern and assessments regarding global warming and climate change. Then, it continues with the information pertaining to international political behaviours and activities in terms of defining and combating the climate change threat. In other words, the chapter will try to explore in what ways and to what extent the international community responded to this global problem. The political processes and international policy formulations,

within the time period of 1979-1997, will be introduced in this chapter in order to reveal and elaborate upon the dynamics of climate change politics.

1. How Scientific Inquiry Developed and Evoked International Political Concern Regarding Climate Change:

Global environmental change is an integral part of life on the earth: "Change through time is a basic attribute of the planet. The earth has been undergoing constant change since it formed from a cloud of cosmic debris some 4.6 billion years ago."¹⁶² Scientists have always been concerned about understanding the basic features of this change; the contributions of human activities to global environmental change and its possible future consequences.

Over the past hundred years, "scientific concern over the possibility that human activities could change the global climate has been expressed at various intervals."¹⁶³ The French scientist Baron Jean Baptiste Joseph Fourier was the first one who described the phenomenon and introduced the concept which is now referred to as the greenhouse effect.¹⁶⁴ In 1827, Fourier hypothesized that the sun's heat was absorbed in the earth's

¹⁶²John J. Hidore, *Global Environmental Change: Its Nature and Impact* (New Jersey, Prentice Hall, 1996), 1.

¹⁶³Jill Jager and Tim O'Riordan, "The History of Climate Change Science and Politics," in *Politics of Climate Change: A European Perspective*, eds. Tim O'Riordan and Jill Jager (London: Routledge, 1996), 12.

¹⁶⁴Henning Rodhe, Robert Charlson and Elisabeth Crawford, "Svante Arrhenius and the Greenhouse Effect," in *Ambio* XXVI (February 1997): 2-5.

atmosphere and this depositing of the heat resulted in a greenhouse effect,¹⁶⁵ Joseph Fourier used the analogy of a glass bowl to explain the phenomenon in terms of letting through the sunlight however withholding the infrared radiation from the ground. Pouillet, Tyndall and Langley were the scientists who further studied, explored and elaborated on Fourier's work on the earth's temperature.¹⁶⁵

However, it was Svante Arrhenius¹⁶⁶ who achieved a remarkable success in explaining the basic features of the processes related with the greenhouse effect. In 1896, Svante Arrhenius published his prominent paper titled "On the Influence of Carbonic Acid in the Air Upon the Temperature of the Ground."¹⁶⁷ Arrhenius attempted to quantify the effect of carbon dioxide concentrations on the temperature of the earth's surface, and he proposed that increase in carbon dioxide concentrations due to increments in the use of coal would bring about a gradual rise in global temperatures. Today, Arrhenius's contributions to the understanding of physical processes related with the earth's temperature are considered invaluable among the scientific communities. "In the light of the current

¹⁶⁵Ibid. , 2.

¹⁶⁶Svante Arrhenius (1859-1927) was a pioneer scientist in physical chemistry. Arrhenius was Swedish and he was awarded the Nobel Prize in 1903.

¹⁶⁷Elisabeth Crawford, "Arrhenius' 1896 Model of the Greenhouse Effect in Context," in *Ambio* XXVI (February 1997): 6.

concern about human-induced climate change, Arrhenius' paper must be considered as a true landmark in the history of the geosciences.”¹⁶⁸

In 1938, Callender, a British scientist, claimed that the increments in carbon dioxide concentrations as a result of man's economic and industrial activities would consequently culminate in global warming. Although Callender's study had some drawbacks and limitations, he obtained important results and made considerable contributions since he was ahead of the science of his time.¹⁶⁹ The scientific concerns and discussions on climate change therefore did not subside and continued their existence and reappearance in the late 1950s and mid-1960s. The International Geophysical Year of 1957-1958 was very influential in initiating research and motivating further scientific assessments in connection with meteorology and the global climate. It was the first international scientific programme; it promoted the progress of further scientific investigation and initiated the development of global circulation models.¹⁷⁰ In addition to this, in 1958 observations regarding the CO₂ concentrations within the atmosphere were initiated by the American scientist Keeling in Mauna Loa (for details see Chapter IV) and a twenty-year observation made it clear that

¹⁶⁸Henning Rodhe and Robert Charlson, "Editor's Note," in *Ambio* XXVI (February 1997): 1.

¹⁶⁹M.I. Budyko, *The Earth's Climate: Past and Future*, 13.

¹⁷⁰See Tony Brenton, *The Greening of Machiavelli: The Evolution of International Environmental Politics*, 163-164; and Jill Jager and Tim O'Riordan, "The History of Climate Change Science and Politics", 12-14.

CO₂ concentrations had been continuously increasing. By the end of the 1970s improvements in general circulation models enabled scientists to make estimates from the doubling of the CO₂ concentrations since the pre-industrial era.¹⁷¹

Consequently, the debate on climate change and its impacts on the global ecosystem gathered momentum in connection with the increasing international scientific and political concerns during the late 1970s and early 1980s. However, the issue was incorporated into the global political agenda during the mid-1980s - after a sequence of international meetings and conferences.

2. Reactions of the International Community to Climate Change and Related Political Processes:

2. a. Incipient Responses and International Conferences:

The first important step to consider and explore the global climate change issue within an international scope was taken in 1979. This initial response was organized and coordinated by the two major international institutions of the United Nations system. The First World Climate Conference was held between 12-23 February 1979 in Geneva, and it was convened by the joint forces of United Nations Environment Programme and World Meteorological Organization, and some other international

¹⁷¹Jill Jager and Tim O'Riordan, 12.

bodies.¹⁷² The conference included scientists from all over the world and from widely different disciplines. The conference constituted an international arena to discuss and analyze the climate change problem for the first time.

The participants of the First World Climate Conference mainly dwelled on the impacts of global climate change on human activities. The scientists from various disciplines embarked upon the issues regarding the climate variability, climate data and effects of climate change on man's life and actions.¹⁷³ The conference was an attempt to call for an international effort to make research on climate change and to take some necessary precautions. In 1979, the assessments and information about global climate change were relatively less concrete and various uncertainties emerged as impediments against a more lucid apprehension of the problem. Consequently, many of the participants of the Climate Conference were dubious about the dimensions of the problem.

As a result of this international event, the Declaration of the First World Climate Conference was accomplished.¹⁷⁴ The Declaration symbolized

¹⁷²See "Declaration of the World Climate Conference," repr. in *Environmental Policy and Law* 6 (June 1980): 103-104; WMO, *World Climate Conference: Extended Summaries of Papers Presented at the Conference*, Geneva, February 1979; and WMO, *Proceedings of the World Climate Conference* (Geneva, 1979).

¹⁷³See Information Unit on Climate Change, "The First World Climate Conference," Fact Sheet 213, 64-65; available from [gopher://ecosys.drdr.virginia.edu/o/library/atm/climate/](http://ecosys.drdr.virginia.edu/o/library/atm/climate/)

¹⁷⁴"Declaration of the World Climate Conference," repr. in *Environmental Policy and Law* 6, 103-104.

a first step towards an international perception of the global climate change problem as a significant issue. More or less, it laid down the ground from which it would be easier to explore and research on the implications of climate change in connection with human life, economic activities and various ecosystems.

WMO, which was also a sponsor of the First World Climate Conference, is an organization within the United Nations system which is responsible for the world-wide coordination of meteorological activities and cooperation essential to monitor and forecast climatic changes.¹⁷⁵ Its headquarters are in Geneva and the WMO functions through six technical commissions in exclusively scientific research. In addition to this, it has six regional meteorological associations. Since its establishment WMO has performed a key role in the climate change issue. It facilitates cooperation, and promotes research on climate change and its possible impacts¹⁷⁶ (see Chart II).

Another important consequence of the conference was the establishment of the World Climate Programme under the combined forces and responsibilities of the World Meteorological Organization, the United Nations Environment Programme and the International Council of

¹⁷⁵See, Information Unit on Climate Change, "How UNEP and WMO Are Responding to Climate Change?," Fact Sheet 206, 53; Patricia W. Birnie and Alan E. Boyle, *International Law and the Environment* (Oxford: Clarendon Press, 1992), 61; and Marvin S. Soroos, *The Endangered Atmosphere: Preserving A Global Commons*, 188.

¹⁷⁶IUCC, "How UNEP and WMO Are Responding to Climate Change?," 53; available from gopher://ecosys.drdr.virginia.edu/0/library/atm/climate/

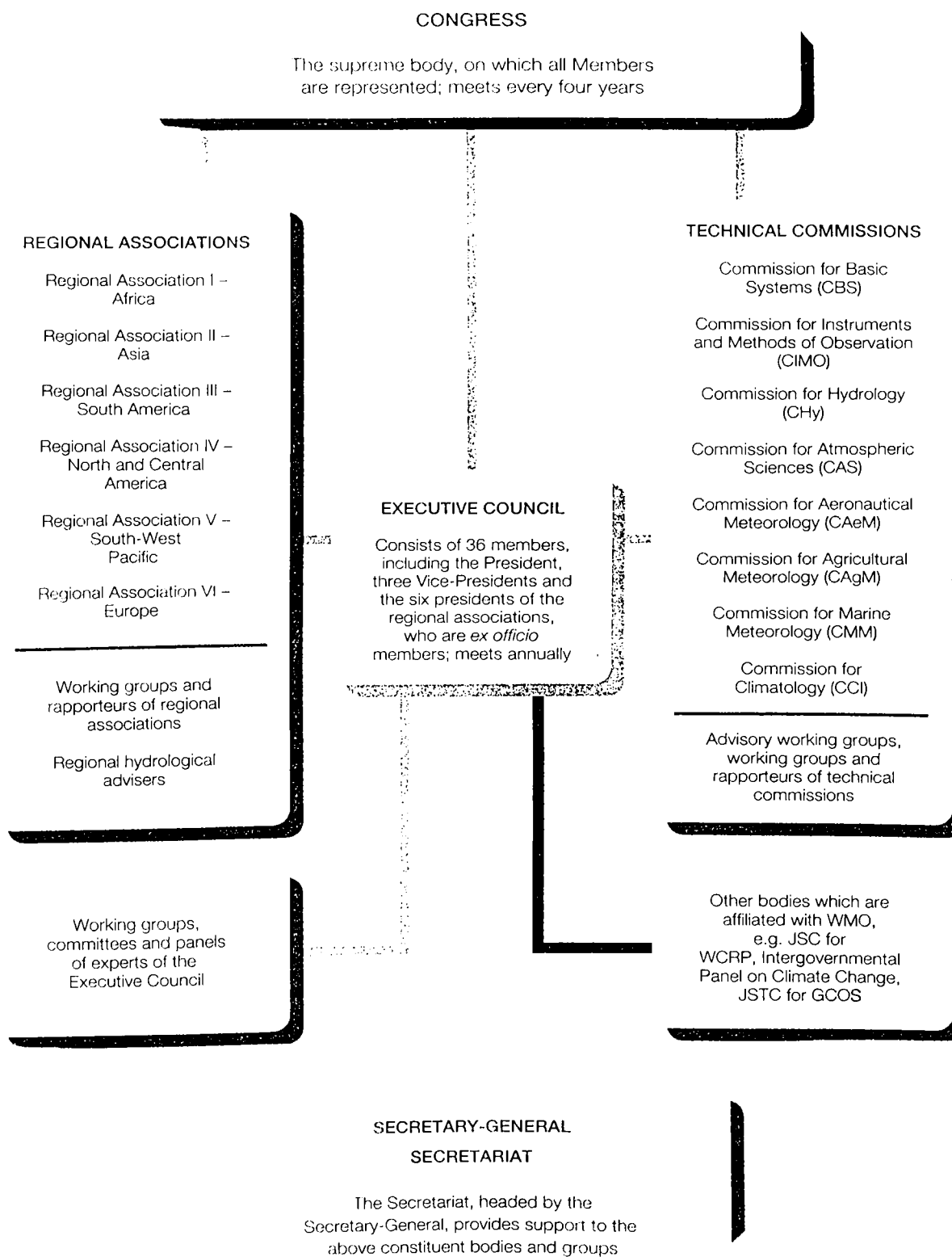


Chart II. Structure of the World Meteorological Organization

Source: World Meteorological Organization, Annual Report 1994, 52.

Scientific Unions. Since 1979, the WCP has been functioning as a significant research programme with the aim of providing a better understanding of climate change and its impacts. Especially, the World Climate Research Programme is a key component of the WCP, which has provided the basic research framework for global research coordination regarding both natural and human-induced climate change.¹⁷⁷

Following the First World Climate Conference, a joint meeting was held in 1980, in Villach, Austria. The meeting included the major international institutions concerned with the climate change issue, namely the United Nations Environment Programme, International Council of Scientific Unions (ICSU) and World Meteorological Organization.

However, the issue of climate change began to attract more attention during the mid-1980s, and political processes accelerated for the sake of defining and encountering the problem in 1985. During 9-15 October 1985, another conference was convened by the UNEP, WMO and ICSU in Villach which brought the scientific community together. Scientists from 29 different countries participated in this international conference to evaluate and discuss the climate change problem in connection with the global increases in carbon dioxide and the other greenhouse gases.¹⁷⁸

¹⁷⁷WCRP, *Conference On The World Climate Research Programme: Achievements, Benefits and Challenges, Synopses of Conference Presentations*, 26-28 August, 1997; and WCRP, *World Climate Research Programme: Conference on The World Climate Research Programme*, 1997.

¹⁷⁸"The Proceedings of the International Conference on the Assessment of the Role of Carbon Dioxide and Other Greenhouse Gases in Climate Variations and Associated Impacts" was the report obtained from this Conference. See, WMO, *Report of the International Conference on the*

The conference emphasized the developing scientific understanding and consensus on climate change and its impacts for present and future generations. During the conference anthropogenic interference, increase of greenhouse gases in the atmosphere and their influence on the global climate were discussed and assessed. The overall scientific assessments provided the policy-makers and public with general and valuable formulations for action, nevertheless, the conference still did not bring about concrete legal proposals and could not generate public attention.¹⁷⁹ However, the Villach Conference was a significant step in the sense that it evoked sincere considerations concerning global climate change and encouraged the accomplishment of arrangements to decrease greenhouse gas emissions.¹⁸⁰

As a follow-up to the Villach Conference, two workshops were held in 1987. The first workshop took place from 28 September- 2 October , in

Assessment of the Role of Carbon Dioxide and of Other Greenhouse Gases in Climate Variations and Associated Impacts, Pub. No. 661 (Geneva, 1986). Morissette and Plantinga note that the report was important due to the fact that it directly addressed the role the government policies can play in mitigating global warming. Peter M. Morissette and Andrew J. Plantinga, "Global Warming: A Policy Review," *Policy Studies Journal* 19 (Spring 1991): 164.

¹⁷⁹Information Unit on Climate Change, "The 1985 Villach Conference and Its Follow-up Workshops," Fact Sheet 214, 65.

¹⁸⁰The group of scientists who participated in the conference included mostly the Anglo Saxon and Scandinavian researchers who held the belief that climate change was an urgent issue requiring sound formulations and international policies. They were actively involved in environmental protection and advocacy; independent and assertive in providing their opinions to policy-makers of various governments. See Sonja Boehmer-Christiansen, "Scientific Uncertainty and Power Politics: The Framework Convention on Climate Change and the Role of Scientific Advice," in *Negotiating International Regimes: Lessons Learned from the United Nations Conference on*

Villach, and the second one took place during 9-13 November in Bellagio, Italy. All these workshops again symbolized the primary efforts to understand and define the problem of climate change thoroughly while they also signified the initial attempts to formulate policies that would address the issue auspiciously.

The World Commission on Environment and Development which was established in 1983 by the United Nations General Assembly's initiative also played an important role to attract the international attention to the problem of climate change. The head of the commission was Gro Harlem Brundtland and the report which was prepared and issued by the group was *Our Common Future* - generally known as the Brundtland Report.¹⁸¹

This prominent report emphasized the ecological problems encountering the international community, and it reminded the urgent need for coordinating international responses to address these issues properly. It is a significant fact that the Brundtland Report paid special attention to the climate change issue. The report summoned global scientific research on this problem and called for an auspicious international response to global climate change.¹⁸²

Environment and Development, eds. Bertram I. Spector, Gunnar Sjöstedt and I. William Zartman (London: Grahama & Trotman, 1994), 185.

¹⁸¹World Commission on Environment and Development, *Our Common Future*, (Oxford: Oxford University Press, 1987).

¹⁸²*Ibid.*

In the summer of 1988, another conference, namely *The Changing Atmosphere: Implications for Global Security*, was held in Toronto, Canada. The conference was attended by over 300 scientists and policy-makers from 48 states and organizations. Moreover, there were numerous representatives from international agencies, nongovernmental organizations and corporations. The conference was mainly sponsored by the Canadian government and the WMO and UNEP were the co-sponsors; they assisted the organization of the conference and they gave financial support to the conference.

The Toronto Conference was a remarkable step in the way towards the adoption of coordinated policies and international procedures with respect to the treatment of the climate change problem. The conference attracted a great amount of attention from the media and public as well, particularly due to the fact that the summer season of 1988 was undeniably and extremely hot compared to the previous years. When referring to this point Stephen H. Schneider says that “nature did more for the notoriety of global warming in fifteen weeks than any of us or the sympathetic journalists and politicians were able to do in the previous fifteen years.”¹⁸³ The hot summer days of 1988 became a good reminder of the climate problem and provided a concrete indication to the occurrence of global

¹⁸³Stephen H. Schneider, *Global Warming: Are We Entering the Greenhouse Century?* (Cambridge: The Lutterworth Press, 1990), 203.

warming which essentially turned to be a point of concern especially for the public in the US.

The conference was a significant event in the sense that it conveyed messages in an international scope and called for global political initiatives for the climate change problem. As a result of this conference, the issue of climate change was entirely carried to the stage of the international political agenda.¹⁸⁴ The conference signified a more extensive venture to address climate change together with the ozone depletion problem and transboundary atmospheric pollution.

The Conference Statement¹⁸⁵ called for an Action Plan for the Protection of the Atmosphere and it proposed the establishment of a World Atmosphere Fund. During the conference, initiation of a comprehensive global framework convention for the purpose of protecting the global atmosphere by 1992 was approved by the participants. Most significantly, the conference recommended that the carbon dioxide emissions should be reduced 20% from 1988 levels by the year 2005.

In 1988, another important development, which can be considered among the landmark events of climate politics, took place: the United Nations General Assembly passed a resolution on global climate change.

¹⁸⁴"Global Warming Becomes An International Political Issue," *Nature* 336 (November 1988): 194.

¹⁸⁵See WMO, "Conference Statement," in *Conference Proceedings of the Changing Atmosphere: Implications for Global Security*, no.710, Geneva: WMO, 1988.

This resolution was significant in the sense that it recognized climate as the “common concern of mankind.” This development indicated that political significance of the climate change issue was notably growing within the international arena.

As a follow-up to the Toronto Conference, Ottawa hosted the 1989 Ottawa Meeting of Legal and Policy Experts inclusive of 80 legal experts and policy makers concerned with the climate change issue. The meeting’s major objective was related with the improvement of the strategies in connection with the establishment of an institutional framework to protect the global atmosphere and to deal with the climate change issue. For this end, a non-binding proposal of law of the atmosphere was adopted. The law of the atmosphere strategy attempted to deal not only with the climate change issue but also with every threat to the atmosphere and this approach was criticized as being extensive and rather over-ambitious.¹⁸⁶

Another significant development that should be mentioned is the Tata Conference which was convened in New Delhi. The United Nations Environment Programme and the World Resources Institute organized and cosponsored this conference which took place from 21-23 February 1989.¹⁸⁷ The significance of this event lies in the fact that it was the first

¹⁸⁶See IUCC, “The Toronto and Ottawa Conferences and the Law of the Atmosphere,” Fact Sheet 215, 67; available from [gopher://ecosys.drdr.virginia.edu/0/library/atm/climate/](http://ecosys.drdr.virginia.edu/0/library/atm/climate/)

¹⁸⁷See “The Tata Conference on Global Warming and Climate Change: Perspectives From Developing Countries,” repr. in *American University Journal of International Law and Policy* 5, no.2, (1990): 554.

international conference interrelated with the interests and considerations of the developing countries regarding the climate change problem. Most of the developing countries were concerned about the disparity between the North and the South as regards the share of global emissions of greenhouse gases (see Table II and III). The conference stressed the point that much of the responsibility of climate change was closely affiliated with the developed countries' previous activities in the forms of uncontrolled and unabated economic and industrial endeavours. The conference accentuated the different responsibilities of the developed and developing countries in the face of climate change and pointed to the importance of assisting and financing the developing countries, the significance of coordinated research and training with respect to the climate change problem.

Another important conference was held in Hague in March 1989 and it was a ministerial meeting attended by the representatives of 24 countries. It was jointly sponsored by the Netherlands, Norway and France. The Declaration of Hague called for a framework convention on climate change once more and it indicated the necessity of a new and more powerful international organization within the United Nations . for responding to the climate change and for the protection of the environment. New and stronger institutional mechanisms and a more powerful regulatory structure were emphasized during the Hague Conference. The declaration called for innovative measures to address the

**Table II. Greenhouse Index Ranking and Share of Global Emissions
(1991):**

Country	Percent
United States	19.14
Former Soviet Union	13.63
China	9.92
Japan	5.05
Brazil	4.33
Germany	3.75
India	3.68
United Kingdom	2.37
Indonesia	1.89
Italy	1.72
Iraq	1.71
France	1.63
Canada	1.62
Mexico	1.43
Poland	1.16
Australia	1.13
South Africa	1.12
Spain	1.01
Venezuela	1.01

Republic of Korea	0.98
Zaire	0.93
Thailand	0.88
Korea, Democratic People's Republic	0.84
Islamic Republic of Iran	0.82
Saudi Arabia	0.78
Czechoslovakia	0.70
Malaysia	0.61
Colombia	0.61
Netherlands	0.59
Philippines	0.59
Myanmar	0.55
Argentina	0.54
Turkey	0.53
Romania	0.52
Bulgaria	0.51
Bolivia	0.48
Pakistan	0.46
Belgium	0.40
Peru	0.39
Yugoslavia	0.36
Nigeria	0.35

Egypt	0.34
Viet Nam	0.32
Greece	0.31
Ecuador	0.30
Bangladesh	0.29
Hungary	0.26
Austria	0.25
Denmark	0.24
Algeria	0.23

Source: World Resources Institute, *World Resources 1994-1995* (New York: Oxford University Press, 1994), 201.

Table III. Greenhouse gas emissions, 1991 (000 metric tons)

	CO2 emissions from industrial processes	CO2 emissions from land use change	Solid waste	Methane fr Coal mining
World	22,339,408	4,100,000	43,000	36,000
Africa	715,773	730,000	1,700	1,700
Europe	6,866,494	11,00	17,000	6,600
North & Central America	5,715,466	190,000	11,000	6,100
South America	605,029	1,800,000	2,200	280
Asia	7,118,317	1,300,000	9,900	20,000
Oceania	297,246	38,000	690	1,400

Source: World Resources Institute, as cited in *World Resources 1996-1997*, 326-329;
available from <http://www.unep.ch/iucc/fact30.html>

climate change problem and it demanded the development of a new institutional authority.

However, some of the key actors were not invited to the conference. The states that were not invited were the US, USSR, China, Greece and Belgium. The United Kingdom refused to attend and sign the declaration. Consequently, the Hague Ministerial Declaration on Climate Change failed to represent the approach of the whole international community in the face of the climate threat.

In November 1989, another conference, *Ministerial Conference on Atmospheric Pollution and Climate Change*, was convened in Noordwijk, the Netherlands. The main purpose of the conference was to draw out concrete international commitments regarding the greenhouse gas emission reduction targets. This ministerial meeting has been considered as the first high-level intergovernmental meeting focusing specifically on global climate change.¹⁸⁸

Even though some of the participants of the conference were still reluctant to give their full commitments with respect to the emission targets, the final declaration which emanated as a result of this ministerial meeting recognized the need for the restriction and stabilization of carbon dioxide emissions and emissions of the other greenhouse gases that were not included in the Montreal Protocol. Therefore, the Noordwijk

Declaration signified a first step towards the recognition and formation of these targets.¹⁸⁹

However, the reluctant states such as the US, the UK, USSR and Japan refrained from committing themselves to concrete emission targets, even though the European Community favoured initiating specific timetables for the reduction of the greenhouse gases. The blocking states argued that there was a great scientific uncertainty with respect to global climate change. Thus, these states constituted a major obstacle towards the adoption of genuine and effective commitments in the face of the climate change threat.

As a result of the concluding declaration of the Noordwijk Conference the industrialized nations made a decision that,

stabilization of carbon dioxide emissions should be achieved by them as soon as possible, at levels to be considered by the IPCC and the Second World Climate Conference of November 1990 and that in the view of many industrialized nations such stabilization of carbon dioxide emissions should be achieved as a first step at the latest by the year 2000.¹⁹⁰

¹⁸⁸ Daniel Bodansky, "The History and Legal Structure of the Global Climate Change Regime", 3; available from http://www.pik-potsdam.de/dept/soc/e/reports/pr21_7.htm

¹⁸⁹ Information Unit on Climate Change, "The Noordwijk Ministerial Declaration on Climate Change," Fact Sheet 218, 71.

¹⁹⁰ See *The Noordwijk Declaration on Atmospheric Pollution and Climate Change*, the Netherlands, November 1989, paragraph 16, 596-597.

In December 1989, Cairo hosted the World Conference on Preparing for Climate Change. The conference was an international meeting inclusive of participants from all over the world.¹⁹¹

The Cairo Compact which was issued as a result of the conference reflected the opinions of the international community which indicated that a framework convention on climate change should be accomplished urgently. Multilateral cooperation and commitments of the world states and global response strategies to confront the problem were considered as crucial steps in addressing the climate change issue.

2.b. The Establishment of The Intergovernmental Panel on Climate Change:

As it was noted, 1988 was an important year for the international developments regarding the global climate change issue. In that year the Intergovernmental Panel on Climate Change (IPCC), which has to date played a crucial role in the climate change issue, was established by the United Nations Environment Programme and the World Meteorological Organization. IPCC is an intergovernmental and interdisciplinary advisory body inclusive of scientific-technical experts and government officials from all over the world (for more details see Chapter IV). However, IPCC is not

¹⁹¹See "Cairo Compact: Toward a Concerned World-Wide Response to the Climate Crisis," Cairo, December 1989, repr. in *American Journal of International Law and Policy* 5 (Winter 1990): 631-633; and Information Unit on Climate Change, "The Cairo Compact on Climate Change," Fact Sheet 219, 72-73.

a research institution but an intergovernmental body through which the institutions of science can present and convey their knowledge and claims to policy-makers or governments.¹⁹² A three-fold objective of the IPCC can be outlined as follows: 1)to make evaluations and to provide international assessments concerning the scientific knowledge on the climate change issue; 2)to explore the scopes of the economic, environmental and social impacts of climate change; and finally 3)to produce strategies in order to encounter the problem accordingly.

The IPCC performs its tasks with three distinctively established working groups. Working Group I deals with the assessment of the available scientific information on the issue; Working Group II assesses the environmental and socio-economic consequences of climate change; and Working Group III formulates response strategies.

Therefore, the IPCC's work was to achieve scientific investigation and to produce possible policy responses in accordance with the available scientific information. However, the IPCC does not function as a political body and does not have a political power to negotiate the climate change issue or to adopt a political decision regarding the issue.

In this context, the First Assessment Report of the IPCC was prepared between 1988-1990. The report was accomplished in August

¹⁹²Sonja Boehmer-Christiansen, "Scientific Uncertainty and Power Politics: The Framework Convention on Climate Change and the Role of the Scientific Advice", 188.

1990 and it was definitely a comprehensive and substantive resource including the assessments, evaluations, contributions and experiences of thousands of scientists and specialists working on the various aspects of the climate change problem. These scientists were basically experts in their fields - who were equipped with necessary knowledge and were selected and appointed by governments or by international organizations. This sort of a comprehensive scientific assessment was definitely impossible without such multinationally coordinated scientific research and genuine commitment. Later, the IPCC issued its Second Assessment Report in December 1995.

2.c. International Conferences and Developments in the Early-90s:

In May 1990, Norway hosted an important conference on sustainable development. The conference was co-sponsored by the United Nations Economic Commission for Europe. The Bergen Conference on Sustainable Development was attended by participants from 34 states and the EC Commissioner for the Environment. Although the Conference included numerous environmental issues to be considered in connection with sustainable development, the climate change issue received particular attention and concern.¹⁹³

¹⁹³Information Unit on Climate Change, "The Bergen Conference on Sustainable Development," Fact Sheet 220, 174.

During the conference, ministers from 34 countries discussed essential measures to encounter the climate change problem. Most of the participants supported more stringent commitments on the issue; they agreed informally that the greenhouse gas emissions should be stabilized at 1990 levels by the year 2000. However, the United States emerged as the major blocking state once more and obstructed the adoption of concrete emission targets.

As a result of the Conference, the Bergen Declaration was adopted.¹⁹⁴ The Bergen Declaration was an important event displaying the developed countries' - at least a large majority of them - willingness and support for combating and mitigating the climate change threat.

The Second World Climate Conference was one of the most significant events that took place in the evolution of climate politics.¹⁹⁵ The conference was held from 29 October-7 November 1990, in Geneva. Like the First World Climate Conference, this second one was again sponsored by the WMO, the UNEP and the other international organizations. Representatives from 137 countries participated in the climate conference.

¹⁹⁴See *Bergen Ministerial Declaration on Sustainable Development in the ECE Region*, Bergen, Norway, 16 May 1990.

¹⁹⁵See Jill Jager and H. L. Ferguson, *Climate Change: Science, Impacts and Policy, Proceedings of the Second World Climate Conference* (Cambridge: Cambridge University Press, 1991).

By the time of this conference the reports of the three working groups of the IPCC had been completed and released. Also, most of the developed countries and the European Community had set specific national greenhouse gas emission targets, and even Japan and the UK had changed their positions. By that time, they were supporting reductions in greenhouse gas emissions in order to address the climate change problem appropriately. Previously made international conferences, coordinated information exchange and scientific developments, and public pressure had been influential in changing these states' positions to climate change. Therefore, it seemed as if this was an appropriate time to initiate the necessary negotiations to build a regime on climate change.

Also, during the Second World Climate Conference the small island states organized themselves into the Alliance of Small Island States (AOSIS). AOSIS played a significant role during the INC process; it pushed the world states for greenhouse gas emission reductions.

However, the participants of the conference could not agree on any specific targets in connection with stabilizing and reducing the greenhouse gas emissions as a result of the persistent oppositions from the US, the Soviet Union and Saudi Arabia once again. The conflicting opinions between different states could not be transcended during the ministerial meetings.

The European Community had decided to reduce the carbon dioxide emissions at their 1990 levels by 2000 in October 1990. The Western

European firms were ahead of producing alternatives and renewable energy sources compared to the US. Therefore, the US was very much concerned about the economic costs of a reduction in emissions of carbon dioxide and other greenhouse gases. Consequently, the US refrained from committing itself to specifically defined reduction targets.

Hence, even though the scientific meetings of the Second World Climate Conference summoned a 20% decrease in carbon dioxide emissions by 2005 - same as the recommendations of the Toronto Conference - the ministerial meeting did not confirm a particular emission reduction target. Thus, the Ministerial Declaration became a point of frustration for environmental organizations and the international community that were expecting concrete results and genuine commitment to address the climate change issue.

Although the statements of the conference disappointed many participants and environmentalists, some positive outcomes could be achieved as well. The conference emphasized the importance of stabilizing the greenhouse gases and called for a framework convention on climate change. Also, it endorsed that developing countries should recognize their own responsibilities in addressing the issue and should specify targets and strategies to decrease the greenhouse gas emissions. A Consultation Group on Special Needs of Developing Countries dealt with such issues.

3. Negotiating a Framework Convention on Climate Change:

The establishment of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change was accomplished in December 1990 in accordance with the recommendations of the IPCC and the Second World Climate Conference. Numerous other conferences and ministerial meetings had also demanded that the climate change problem should be addressed immediately. Thus, the United Nations General Assembly passed a resolution in 1990 which called for the beginning of formal negotiations on climate change and established the Intergovernmental Negotiating Committee for this end. Its purpose was to design a framework convention with respect to climate change and to conduct its negotiation process. The convention was planned to be opened for signature at the United Nations Conference on Environment and Development, in June 1992, in Rio de Janeiro.

The Negotiating Committee provided a forum for the world states to discuss and negotiate the necessary aspects of the global climate change issue in order to reach a consensus. The INC held five sessions in order to prepare a draft for a framework convention on climate change and over 100 states and various governmental and non-governmental organizations participated in these sessions. The first meeting of the Intergovernmental Negotiating Committee was held in February 1991, in Chantilly, Virginia. During this meeting, two working groups were formed by which the

process of preparing the convention should be accomplished till the convening of the UNCED. In this first meeting, however, procedural decisions and preliminary structural considerations required a lot of time. In other words, substantive discussions and negotiations concerning the drafting of the convention were captured by procedural questions and considerations to a certain extent.

During this meeting, however, the attitudes of the major participating states towards the climate change issue became more or less visible. The Organization for Economic Cooperation and Development (OECD) which was guided by the European Community, Japan¹⁹⁶ and the small island states were in a position to strongly support essential measures against the climate change problem whereas the United States was reluctant to make more abrupt and genuine commitments regarding the issue. Also, financial and technical aid were necessary for the developing countries in order to help them to stabilize their greenhouse gas emissions and enable them to adopt more stringent measures in the face of the problem. Therefore, this issue became a matter of concern as well between the North and the South during the discussions.

After the first meeting, four more sessions were held between the parties to the INC in order to reach a consensus on the framework

¹⁹⁶Initially, Japan emerged as a major veto state in the climate change politics; however, in October 1990 Japan changed its attitude and decided to stabilize its greenhouse gas emissions at 1990 levels by 2000 - in accordance with the EC's commitment to address the climate threat.

convention. The second one was from 19-28 June, 1991, in Geneva; the third one was held between 9-20 September, 1991, in Nairobi; the fourth one was held during 9-20 December 1991, Geneva and finally the fifth one was in February, 1992, in New York. The attitudes of the participating states diversified to a large extent in connection with the substantive measures that should be taken to combat the problem of climate change.

First of all, although the parties to the INC envisioned the stabilization of the greenhouse gas emissions and the European Community attempted to perform a leading role with respect to it, the United States maintained its earlier position towards the issue and refrained from committing itself to definite emission schedules. Therefore, this emerged as a major impediment against the formation of an effective and legally binding international agreement. While the European Community committed itself to stabilize its joint carbon dioxide emissions at the 1990 levels by the year 2000, the United States argued that there was a high level of uncertainty in the climate change problem which should be illuminated through further scientific research and claimed that this constituted the basic reason for its unwillingness.

The United States' approach was supported by other states like the Soviet Union, developing China and Saudi Arabia - all of which had been opposing to specified targets since the early phase of the climate change discussions. These states only accepted a framework convention instead of specified targets and legally binding measures. The United States and the

Soviet Union were basically the world's greatest greenhouse gas emitters, Saudi Arabia was a major fossil fuel producing country and China was mainly concerned with its economic development which could be restricted by stringent measures.

Secondly, there was the issue of the North and the South as usual. The developing countries of the world were very much concerned with the financial and technical support that they required in order to be able to address themselves to the task of preventing climate change. They were mainly concerned about the adequacy and transfer of the resources that would be provided and arrangements that would be accomplished by the developed countries for this end. Developed countries also recognized the need for technical aid and financial transfers which were necessary for the achievement of specified goals in climate change. However, a disruption of opinions emanated between the North and the South with respect to the nature and structure of the funding mechanism in the climate change issue.

During the second session of the INC, a new idea was launched by the developed countries with respect to the financial aspects of the issue: the Global Environmental Facility which was created in 1990 and jointly administered by the World Bank, UNEP and UNDP could work as the essential funding mechanism in the climate change issue. However, the idea which was favoured by the majority of the developing countries was a separate and independent climate fund that would be established through

compulsory financial contributions of the industrialized states. Therefore, the developing countries remained dubious with respect to the North's offer by considering the developed states' domination over the World Bank and the GFE.

Nevertheless, even the developing states of the South were divided among themselves as a result of contradicting opinions. For instance, India claimed that it was the responsibility of the developed countries to resolve the climate change issue since they made the greatest contribution to the evolution of the problem through rapid industrialization of the past. Therefore, India and many other developing countries expected that only the industrialized states should act in addressing the problem. However, other countries such as the Alliance of Small Island States (AOSIS) - which were particularly vulnerable to the climate threat - along with some of the African countries shared the Western view that the South should also act against the threat of climate change.

During the fourth session of the INC, the states affirmed their positions in the face of the contradictions.¹⁹⁷ They were still far from adjourning the conflicts and reaching a reconciliation on many aspects of the issue. The United States still blocked the formation of specific targets and obligatory mechanisms in response to the perceived threat, and some

¹⁹⁷During the fourth session a Consolidated Working Document (CWD) was prepared by the working groups which reflected the different opinions of the negotiating states. The document covered the major points of disagreement between the parties with respect to emission targets, funding mechanisms and implementation mechanisms in the climate change problem.

of the developing countries led by India still insisted that all the responsibility regarding the climate change problem should go to the industrialized states. All these veto powers were deeply concerned with political and economic costs that would be inflicted on them if a substantial and confining international convention was achieved in this negotiation process. Therefore, state interests and scientific uncertainty emerged as major obstacles in the process of drafting a convention in climate change.

During the fifth session of the INC, states were still unable to overcome the differences of opinion between them. In addition to this, the OECD countries were also dispersed regarding the greenhouse gas emission targets.

Therefore, at the end of the fifth session the international community could not bring the negotiations to an end, and now there was a sense of urgency to complete this cooperative process before the deadline. Under these circumstances, the parties decided to make a final meeting in 30 April-8 May, 1992, so that a framework convention symbolizing an international compromise could be accomplished before the June 1992 deadline. At last, during this meeting a convergence of opinions could be accomplished and negotiations and the drafting of the framework convention were finalized; after 15 months of work it was adopted on 9 May, 1992, at UN Headquarters in New York.

The United Nations Framework Convention on Climate Change was opened to signature at the Rio "Earth Summit", and it was signed by 154

states (plus the EC).¹⁹⁸ It did not bring the effective legally binding measures and specified time-tables that were strongly advocated by the OECD countries and small island states with respect to greenhouse gas emissions, and this was definitely a major handicap in confronting the climate change threat. However, it was still significant to achieve this cooperation since scientific knowledge was inadequate to clarify the prevailing ambiguity and uncertainty over climate change. Even in the presence of this scientific uncertainty, there was an international effort to lay the ground from which it was easier and more possible to make future progress and effective cooperative processes. The objective of the Convention is defined in Article 2 which says that:

The ultimate objective of this Convention and any related legal instrument that the Conference of the Parties may adopt is to achieve...stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.¹⁹⁹

The language used in the Convention is generally equivocal and ambiguous and this can be observed in the above paragraph as well. The wording concerning the level which would prevent dangerous anthropogenic

¹⁹⁸All the OECD countries, except for Turkey, signed the UN Framework Convention on Climate Change. Turkey had a contribution of 0.53 % to greenhouse gas emissions, however, inappropriately it was claimed that Turkey should be included into the Annex I Parties. Other countries that refused to sign the FCCC were: Saudi Arabia, Iran, Iraq, Kuwait and Malaysia.

¹⁹⁹*United Nations Framework Convention on Climate Change*, Article 2.

interference is very obscure and imprecise as it was favoured by the states which were reluctant to commit themselves to binding emission targets.

The Framework Convention on Climate Change “reflects a carefully balanced compromise”²⁰⁰ on the principle issues such as: targets and timetables; financial assistance and technology transfer; and institutions and implementation mechanisms.

With respect to the controversial issue of the essential funding mechanism, the Global Environmental Facility and the International Bank for Reconstruction and Development were entrusted with the responsibility for financing matters on an interim basis.²⁰¹ The GEF’s position and purpose became more precise and substantial after the Convention was accomplished and signed by the world states.

The climate treaty ensured that the developed countries make periodic communication and transmission of information to the Conference of the Parties with respect to reducing their greenhouse gas emissions. These information reports are essential in terms of displaying these countries’ progress towards meeting their commitments and obligations formulated by the provisions of the Convention.

For the Convention to become binding and enter into force it was required that ninety days passed after the receipt of the fiftieth ratification.

²⁰⁰ Daniel Bodansky, “The History and Legal Structure of the Global Climate Change Regime”, 7; available from <http://www.pik-potsdam.de/dept/soc/e/reports/pr21-7.htm>

²⁰¹ *UNFCCC*, Article 21(3).

In this way, the FCCC entered into force on 21 March, 1994. During this period of time the INC proceeded with its work and the Parties continued to meet for another six sessions. However, after completing their eleventh and last session in February, 1995, the International Negotiating Committee was dissolved to give its place to the Conference of the Parties (COP).²⁰² As a result of the urgency to reach an agreement before the Rio Conference, “the Intergovernmental Negotiating Committee (INC) for the UN FCCC avoided a number of contentious issues and left them to be dealt with by the COP.”²⁰³ Obviously, there was a lot of work to be done by the Conference of the Parties in order to strengthen the regime. Regarding the FCCC Daniel Bodansky states that:

Many of its provisions do not attempt to resolve differences so much as paper them over, either through formulations that preserved the positions of all sides, that were deliberately ambiguous, or that deferred issues until the first meeting of the conference of the parties. From this perspective, the Convention represents not an end point, but rather a punctuation mark in an ongoing process of negotiation.²⁰⁴

The COP had the right to establish auxiliary bodies under the provisions of the framework convention. The COP was responsible with reviewing the reports submitted from these bodies and guiding them.

²⁰²As of 1997, there are 167 countries who ratified the FCCC and each party is responsible for submitting information and national communication to the Conference of the Parties, through the Conference secretariat regularly. See, *United Nations Framework Convention on Climate Change*, Article 12.

²⁰³Jill Jager and Tim O’Riordan, 21.

²⁰⁴Bodansky, 7.

Under the FCCC, two important supplementary bodies were established - the Subsidiary Body for Implementation (SBI) which was responsible for assisting the COP in assessing and reviewing the effective implementation of the FCCC and the Subsidiary Body for Scientific and Technological Advice (SBSTA) which had the task of transmitting and providing assessments of scientific knowledge and evidence to the COP.²⁰⁵

4. The Berlin Mandate and the Latest Developments in Climate Change Politics:

The first Conference of the Parties was held during 28 March-7 April 1995, in Berlin. This first COP - the Berlin Climate Summit - was attended by 118 states, 53 observer states and numerous intergovernmental and non-governmental organizations.²⁰⁶ Since then the Conference of the Parties became the supreme authority with respect to the Convention, and it works to;

keep under regular review the implementation of the Convention and any related legal instruments that the Conference of the Parties may adopt, and shall make, within its mandate, the decisions necessary to promote the effective implementation of the Convention.²⁰⁷

²⁰⁵See *United Nations Framework Convention on Climate Change*, Article 9 and Article 10.

²⁰⁶Until the Berlin Summit any member state of the United Nations was able to participate in the formal decision making process of the Climate Convention. However, with the Berlin Mandate this process was terminated and since then only the countries who became parties to the Convention are able to partake in the formal decision-making with respect to restructuring the climate change regime.

²⁰⁷*United Nations Framework Convention on Climate Change*, Article 7.(2).

In essence, with the convening of the Conference of the Parties another phase was initiated in climate change politics. After a two and a half years' period, it was officially recognized and announced that the previous measures were inadequate in the face of the global climate change problem. This was a significant development in the evolution of climate politics.

Within the FCCC the developed country parties to the Convention had agreed that they would adopt national policies and take measures on the mitigation of climate change by limiting their greenhouse gas emissions and protecting and enhancing their greenhouse gas sinks and reservoirs.²⁰⁸ The developed countries had accepted that they would return to their 1990 levels of carbon dioxide and other greenhouse gas emissions not controlled by the Montreal Protocol by the end of the present decade.²⁰⁹ However, the Convention had envisioned that the adequacy of such measures included in Article 4 of the Convention would be reviewed and reconsidered during the first session of the COP. Therefore, in accordance with this provision the COP reviewed the previously taken measures during its first session and decided that such commitments were insufficient. The Conference of the Parties adopted the Berlin Mandate which states that:

The Conference of the Parties, at its first session, having reviewed Article 4... concluded that these are not adequate, agrees to begin a

²⁰⁸ *United Nations Framework Convention on Climate Change*, Article 4.2(a).

²⁰⁹ *Ibid.*, Article 4.2.(a) and (b).

process to enable it to take appropriate action for the period beyond 2000, including the strengthening of the commitments of Annex I Parties in Article 4, paragraph 2(a) and (b), through the adoption of a protocol or another legal instrument.²¹⁰

Thus, the Berlin Mandate inaugurated renewed procedures and a process of restructuring the legal arrangements in terms of planning and creating a substantive protocol for the climate change problem. It stipulated that “quantified emissions limitations and reductions objectives” (QELROs) in connection with the greenhouse gases would be established for the time after the year 2000 such as 2005, 2010 and 2020 - only for the parties from developed countries (Annex I Parties). However, although the intention for strengthening the previously taken measures and establishment of a climate protocol was definite, the targets and the time schedules of such new measures were still imprecise.

Consequently, the Berlin Mandate ensured that the process of renewal and restructuring of the Convention would be conducted and carried out by an ad hoc group - the Ad Hoc Group on the Berlin Mandate (AGBM). Also, the Ad Hoc Group on Article 13 (AG13) was established as the fourth subsidiary body of the Convention - related with the conflict resolution options. It was apparent from the Mandate that this process of negotiating and accomplishing a protocol would take a considerable time and could not be finalized in the near future. It was planned that the third

²¹⁰United Nations, Document FCCC/CP/1995/L.14, 1995.

session of the COP would be appropriate for the approval of such a protocol.

Before the COP's first meeting, the Alliance of Small Island States (AOSIS) had proposed a draft protocol to be discussed at this first session. The small island states called for a reduction of the 1990 level of carbon dioxide emissions of the industrialized countries by at least %20 by the year 2005 - which is similar to the recommendations of the Toronto Conference. Since there was no convergence of opinions between the world states, this proposal was compiled for further considerations as well.

4.a. Meetings of the Ad Hoc Group on the Berlin Mandate (AGBM):

The AGBM which was responsible for negotiating and preparing a protocol for the climate change problem held its first meeting from 21-25 August 1995. During the meetings, several issues were debated by the participants regarding the analysis and assessment to distinguish possible policies for Annex I Parties to reduce greenhouse gas emissions.

The second meeting of the AGBM was held from 30 October-3 November 1995; negotiations for a possible climate protocol continued. Participants were concerned about: strengthening of commitments in Article 4.2(a) and (b) regarding policies and measures; establishing quantified emission limitation and reduction objectives (QELROS) in

specific time frames; progressing the implementation of Article 4.1; and advancing and structuring possible features of a climate protocol.²¹¹

However, these two sessions of the Ad Hoc Group on the Berlin Mandate were not as productive as it had been intended. The pace for negotiating a legal document for the climate change threat seemed rather unhurried.²¹²

A significant event that happened in this time period was the adoption of the Second Assessment Report by the Intergovernmental Panel on Climate Change in December 1995 (for the details of the report see Chapter IV). The report attested to the fact that there was a discernible anthropogenic contribution to the greenhouse effect which resulted in global climate change. Although the IPCC Report did mention the uncertain aspects of the climate change issue which required further scientific assessment and research, with its renewed evidence on climate change, it contributed to the achievement of some progression as well. From then on, the first genuine proposals began to be negotiated by the parties and the basis of the transactions and bargaining changed to a certain extent.

²¹¹ "Report of the Third Conference of The Parties to The United Nations Framework Convention on Climate Change: 1-11 December 1997," *Earth Negotiations Bulletin* 12 (December 1997), 2; available from <http://www.iisd.ca/linkages/vol12/enb1276e.html>

²¹² However, some parties to the Convention, like the European Union, were still in favour of sincere commitments and they supported the formation of an effective protocol in the face of the problem. In December 1995, the European Union submitted a proposal concerning the establishment of a protocol on the issue of climate change.

The next AGBM meeting was held from 5-8 March 1996, in Geneva. During these meetings, some new proposals regarding more specific commitments for Annex I Parties were introduced to the delegates. For instance, Germany proposed a two-phase CO₂ emission reduction target. There was not a final agreement on a protocol for climate change, however, the majority of the parties considered the IPCC's Second Assessment Report and the renewed scientific knowledge as constituting the essential basis for further progress towards a protocol. However, oil-producing countries like Saudi Arabia and Kuwait still emerged as blocking powers and tried to slow down the negotiation process by displaying their unwillingness to accept any need for further action.

The second session of COP was held during 8-19 July 1996, in Geneva. During this time period, the COP and its four subsidiary bodies held meetings in order to review the implementation of the Convention and to make progress in accomplishing a protocol for climate change. More than 900 delegates, including some 80 ministers, and 600 observers from nongovernmental organizations, business sector and other institutions attended the meetings. The large participation from all over the world attested that climate change greatly attracted the attention of the international community as a serious threat.

During the COP-2 again the debates intensified on: the approaches to possible policies and measures to address the climate change threat,

QELROS, and an evaluation of the likely impact of new commitments for Annex I Parties on developing countries.

The COP-2 meetings produced some fruitful consequences. IPCC's Second Report, which displayed improved and more precise scientific evidence on climate change, greatly contributed to the developments in the negotiation process. As a result of the negotiations, the "Geneva Ministerial Declaration" was adopted by the parties. The Geneva Declaration displayed that "there is overwhelming support from most governments for taking serious action against climate change."²¹³ For instance, even the US as a blocking state has begun to consider the scientific evidence on climate change as the main indicator of basic need for more effective climate policies; for the first time the US supported a legally binding agreement on the issue.

AGBM-5 met in Geneva from 9-18 December 1996. During the meetings, proposals from 14 Parties were considered; the participants agreed to compile proposals for future discussions and negotiations. Then, after a short period of time the sixth meeting of the AGBM was held from 3-7 March 1997, in Bonn. AGBM-6 mainly considered the proposal of the European Union which suggested a 15% reduction in the emission of greenhouse gases by the year 2010 compared to 1990 emissions. However,

²¹³Michael Zammit Cutajar, "Geneva Declaration Affirms Scientific Basis for Action," *United Nations Climate Change Bulletin*, issue 12, 1; <http://www.unep.ch/iucc/bulltn11.html>

a sufficient progress and a final consensus concerning the possible elements of a climate protocol could not be achieved as a result of these meetings.

The seventh and eighth meetings of the AGBM also took place in Bonn. AGBM-7 met from 28 July-7 August 1997 in order to fulfil the Berlin Mandate by continuing to negotiate the possible measures and legal arrangements required to address the climate problem. Finally, AGBM-8 was held from 22-31 October 1997 and it was suspended until 30 November, one day before the official beginning of the COP-3.

4. b. The Kyoto Protocol:

The latest development regarding climate change politics is the adoption of the Kyoto Protocol during the third Conference of the Parties in December 1997 after an arduous negotiation process - also during which this study came close to its final phase. The Kyoto Protocol is a very recent event; repercussions and consequences of this new development will be more clear in the near future. However, it is apparent that even though the achievement of a protocol on the climate issue has been considered a progress which gives hope for the future developments, the adopted measures of the Protocol and the emission reduction targets in connection with the greenhouse gases that cause climate change appear to be less than satisfactory in the face of a significant threat confronting the international ecosystem.

The third session of the Conference of the Parties was held from 1-11 December 1997, in Kyoto, Japan. COP-3 officially opened on 1 December at the Kyoto International Conference Hall and it was attended by over 10,000 participants which included people from different governments, nongovernmental organizations, international institutions and also the media.

During the period of a ten-day meeting, the delegates met in plenary and in a sessional Committee of the Whole (COW). They considered Agenda Item 5, the adoption of a protocol or another legal instrument, and also the issues concerning the methodologies to estimate emission sources and sinks.²¹⁴ Ministers from different states and the heads of delegation participated in a high-level segment held by the Conference of the Parties on 8-9 December, and 125 ministers made statements while the Committee of the Whole continued informal deliberations.²¹⁵

Finally, the Kyoto Protocol to the United Nations Framework Convention on Climate Change was adopted by the Conference of the Parties on December 11, 1997 - after a prolonged and intense negotiation process.

The Kyoto Protocol includes a preamble, 28 articles and two annexes. The Protocol introduced some new legal measures and commitments to

²¹⁴“Report Of The Third Conference Of The Parties To The United Nations Framework Convention On Climate Change: 1-11 December 1997”, 3.

²¹⁵ Ibid.

Parties in Annex I. According to the Kyoto Protocol, Annex I Parties agreed to reduce their overall greenhouse gas emissions by at least 5% below 1990 levels between 2008 and 2012. In addition to that, the Kyoto Protocol “also establishes emissions trading, joint implementation between developed countries, and a ‘clean development mechanism’ to encourage joint emissions reduction projects between developed and developing countries.”²¹⁶

Article 3 as adopted by COP-3, includes 14 paragraphs on QELROS and refers to two Annexes among which Annex A contains the list of six greenhouse gases (CO₂, CH₄, N₂O, HCFs, PCFs and SF₆) that will be subject to emission reductions and also includes GHG source categories and sectors. Annex B contains the greenhouse gas emission reduction commitments for Annex I Parties. According to Annex B the EU members will reduce GHG emissions from 1990 levels by 8%, the United States by 7% and Japan by 6%. The Russian Federation will maintain its emissions at 1990 levels.²¹⁷

One of the most interesting developments in the climate cooperation is related with the United States’ position which has significantly changed, especially after the IPCC’s Second Report which was completed in December 1995. The United States has adopted a more flexible and

²¹⁶Ibid., 1.

²¹⁷Ibid., 18.

auspicious approach concerning greenhouse gas emission reductions as compared to the past. In the past, the US refused to adopt binding emission targets by emphasizing the scientific uncertainty existing over climate change, however, its position has been dramatically altered especially as a result of renewed scientific evidence and effective public pressure.

For the time being, it is unclear whether the divergent opinions of some of the Parties will be harmonized in future and different voices will be attuned in a way which would enable the adoption of utterly satisfactory emission targets within a more effective legal arrangement over the climate change problem. Fortunately, states have been able to advance the cooperation on the climate issue; they took another step to safeguard this planet. Nevertheless, still a lot of work has to be done for the protection of the global climate.

At this point, it should also be mentioned that in addition to the coordinating and catalytic roles of international institutions and intergovernmental bodies in climate change collaboration, various nongovernmental organizations have been playing crucial roles in the evolution of climate politics. For instance, during the negotiation phase of the Kyoto Protocol environmental nongovernmental organizations played pivotal roles once again – as they had already done in the previous developments concerning the climate cooperation. The list and functions of various institutions, environmental nongovernmental organizations and

other non-state actors which are related with and have participated in the evolution of the climate change negotiations and politics are given in Table IV.

These actors were functional in promoting the international cooperative processes through financial resources, technical aid, and scientific and methodological information on climate change. Therefore, the social, economic, political and scientific aspects of the issue were integrated and the formation of a regime over global climate change was enabled through multidisciplinary efforts and transnational endeavours.

TABLE IV. International Institutions and Nongovernmental Organizations Concerned With Climate Change:

<u>Name and Location of the Organization</u>	<u>Type of Organization</u>	<u>Resources Available</u>
African Development Bank Cote d'Ivoire	International Financial Institution/ Intergovernmental	Financial
Appropriate Technology International United States		
Asian Development Bank Philippines	Inter-Agency Intergovernmental International Financial Institution	Financial
Biomass Technology Group B.V. Netherlands	Corporate	
Carbon Dioxide Information Analysis Center United States	Government (Other) Media, Press and TV	
Coastal Zone Management Center Netherlands	Government (Other) Inter-Agency	Information Methodologies Technical
Commonwealth Science Council United Kingdom	Intergovernmental	Financial Information
Earth Negotiations Bulletin United States	Media, Press and TV	
Earthwatch United States	NGO(Other)	Technical Financial
Economic and Social Commission for Asia and the Pacific Thailand	UN System Inter-Agency	Technical Information
Economic Commission for Africa Ethiopia	UN System Inter-Agency	Technical Information
Environment Agency of Japan Japan	Government(Other)	Technical Financial
Environmental Development Action in the Third World Senegal	NGO(Other)	Methodologies Information Technical
European Bank for Reconstruction and Development United Kingdom	Inter-Agency Intergovernmental International Financial Institution	Financial
Food and Agriculture Organization of the United Nations Italy	Inter-Agency UN System	Technical Information

Ministry of Planning, Development and Environment Saint Lucia	Government	
National Institute of Public Health and Environmental Protection Netherlands	NGO	Information Technical
OPEC Fund for International Development Austria	Intergovernmental International Financial Institution	Financial
Organisation for Economic Cooperation and Development France	Inter-Agency Intergovernmental	Information Technical Methodologies
Resource Analysis Netherlands	Corporate	Technical
South Pacific Regional Environment Programme Samoa	Intergovernmental	Information Methodologies Technical
Southern Centre for Energy and Environment Zimbabwe	NGO(Other)	Information Technical Methodologies
Stockholm Environment Institute Sweden	NGO(Other)	Technical Information Methodologies
Stockholm Environment Institute- Boston Center United States	NGO(Other)	Information Technical Methodologies
Swiss Commission for Research Partnership with Developing Countries Switzerland	Academic	Information
Swiss Development Cooperation Switzerland		Financial Technical
Tata Energy Research Institute India	NGO(Other)	Technical Information
US Country Studies Program		Technical Financial
UNEP Collaboration Center on Energy and Environment Denmark	UN System	Technical Information Methodologies
UNEP Information Unit for Conventions Switzerland	UN System	Information
United Nations Development Programme United Nations	UN System Inter-Agency	Information Financial Technical
United Nations Educational, Scientific and Cultural Organisation France	Inter-Agency UN System	Technical Information
United Nations Environment Programme Kenya	UN System Inter-Agency	Information Technical Methodologies Financial

United Nations Industrial Development Organisation Austria	UN System	Financial Information Technology
United Nations Institute for Training and Research Switzerland	Inter-Agency UN System	Technical Information
WMO/UNEP Intergovernmental Panel on Climate Change Switzerland	UN System	Information Methodologies
General Directorate of Energy Affairs Turkey	Government(Other)	
Global Environmental Facility United States	UN System	Financial
Global Industrial and Social Progress Research Institute Japan	NGO (Other)	Information Technical
Greenhouse Gas Technology Information Exchange Netherlands	Intergovernmental	Technology Information
GTZ (German Agency for Technical Cooperation) Germany	Government (Other)	Financial Technical
Hydrometeorological Institute Slovenia	Government (Other)	
Institute for Climate Change, Slovenian Ecological Movement Slovenia	NGO (Other)	
Institute for Environmental Studies, Free University Netherlands	NGO (Other) Academic	Methodologies Technical Information
Inter-American Development Bank United States	Intergovernmental International Financial Institution	Financial
Intergovernmental Oceanographic Commission France	Inter-Agency UN System	Information Technical
International Atomic Energy Agency Austria	UN System Inter-Agency	Technical Information
International Energy Agency France	Inter-Agency Intergovernmental	Information Technical
International Federation of Industrial Energy Consumers Switzerland	NGO (Other)	
International Fund for Agricultural Development Italy	International Financial Institution UN System	Financial Technical
International START Secretariat United States	NGO (Other)	Information
IPCC WGII Technical Support Unit United States	Intergovernmental	

Islamic Development Bank Saudi Arabia	Intergovernmental International Financial Institution	Financial
Latin-American Energy Organization Ecuador	Intergovernmental	Technical Information
Ministry of Foreign Affairs Netherlands	Government	Financial
Ministry of Foreign Affairs Japan	Government	Technical
Ministry of International Trade and Industry Japan	Government	Financial Technical Information
World Bank United States	UN System	Financial Information Technical
World Energy Council United Kingdom	NGO (Other)	
World Meteorological Organisation Switzerland	Inter-Agency UN System	Financial Information Technical

Source: Official Web Site of UNFCCC Secretariat

available from <http://www.unfccc.de/fccc/ccinfo/optoc.htm>

Chapter VI. The Climate Change Issue: An Analysis of International Cooperation

The previous chapters displayed the different aspects and scopes of the climate change issue which have grown immensely and require highly specialized knowledge and methodological expertise. These chapters revealed that global climate change has become a complex issue demanding a multidisciplinary approach, further scientific investigation and assessments, and an integration of scientific, social, economic and political processes that can be conducive to the formulation of effective international policies. These manifold facades of the issue have been deeply intermingled, therefore, today it is impossible to restructure the existing climate change regime unless international negotiations and political arrangements are forwarded by integrated approaches and machinery. The efficacy of future legal and political structuring will essentially depend on this fact.

This final chapter will include an analysis of climate change politics and cooperation in accordance with the information presented within the previous chapters. The fifth chapter included a review of political and legal processes in the international arena and the observations of the actors of the international system in the face of the global climate change problem. Albeit the existing international regime over climate change, the observations indicated that this atmospheric problem still demands

interdisciplinary scientific elaboration and a more substantial legal arrangement against greenhouse gas emissions. In the light of these observations and explorations, this chapter will display the basic elements and factors of the prevalent international policy coordination and cooperation. The analysis will include the answers of the questions such as which factors and actors were most influential in the cooperative processes, and to what extent they were effective in establishing and promoting international arrangements in the climate change issue. As a result, this analysis will illuminate the implications and relevance of the climate change issue to the International Relations discipline and theory, and it will display an application of this case study to the theoretical framework of the neoliberal institutionalist approach.

1. Non-State Actors That Inaugurated and Constituted The International Activities and Collaboration:

Being the actors of the international system, the international institutions, along with nongovernmental organizations and transnational epistemic communities, emanated as the promoters and adherents of cooperative activities and international environmental policy-making with respect to climate politics. Almost as in many other environmental political issues, these actors contributed to the formation of concerted policies and harmonization of scientific and political processes. Notwithstanding the major roles played by the international institutions all through the

formation of a climate regime, the foremost contributions of these institutions can be ascribed to introducing the issue to the world states and setting the agenda for the sake of environmental protection.

1.a. International Institutions: The United Nations Environment Programme and The World Meteorological Organization:

With respect to the evolution of the climate issue, the United Nations system enabled the arrangement and progress of cooperative activities with its two significant organizations, namely the United Nations Environment Programme and the World Meteorological Organization, which were definitely the leading forces in the process. In essence, the UNEP has played crucial roles in many other international environmental issues - such as ozone depletion and desertification - in terms of agenda setting and arranging conference diplomacy for the protection of global environment.

Oran Young uses the term “institutional bargaining” in explaining the negotiation process necessary for the formation of institutional settlements or regimes over international environmental problems. Regarding the contributions of international institutions to the climate regime, Young says that,

in the ongoing effort to form an international regime to cope with climate change, UNEP and WMO have worked together to structure and facilitate the course of institutional bargaining, which is actually

taking place under the auspices of yet another organization, the Intergovernmental Negotiating Committee on Climate Change...²¹⁸

When the initial phase of the evolution of climate politics is considered (for details see Chapter V), it can be said that scientific improvements in the Western world and enhanced knowledge about the climatic changes stimulated international considerations and inaugurated the essential activities. The implications and repercussions of scientific assessments generated responses to address the problem and invigorated coordinated international processes. The United Nations Environment Programme and the World Meteorological Organization were the two major international bodies that opened up the way to international efforts and coordinated multinational arrangements. The First World Climate Conference (1979), which was jointly convened under the auspices of the UNEP and WMO, signify the first and foremost international platform for introducing and analyzing the climate change problem as a global threat against the integrity of the international ecosystem. Hence, the UNEP and WMO played the most crucial and regulative roles in terms of agenda setting and combining the separately operating scientific bodies at an international platform in order to foster future environmental and political concern over the climate change issue.

²¹⁸Oran R. Young, "International Organizations and International Institutions: Lessons Learned from Environmental Regimes," in *Environmental Politics in the International Arena: Movements, Parties, Organizations, and Policy*, ed. Sheldon Kamieniecki (Albany: State University of New York Press, 1993), 147.

Therefore, the contributions of the international institutions and epistemic communities regarding the formation of a climate regime were very substantial even at the beginning of the developments. Scientific evidence elevated the significance of the climate issue and the issue was transferred to the stage of the international political agenda which eventually opened up the way towards multinational concerted activities. However, dispersed scientific knowledge would not have led to any progress and fruitful consequences unless organized and institutionalized collaboration was accomplished. Thus, scientific contributions to climate change and information exchanges between relevant scientific and professional communities were enabled through the functioning of these international institutions and actualized within their regulatory capacities.

Accordingly, an important outcome of the First World Climate Conference was the formation of another international body under the joint forces of the UNEP, WMO and the International Council for Scientific Unions (ICSU), namely the World Climate Programme, which has up to the present played a significant role in the progression of scientific knowledge about the atmosphere and dynamics of global climate change. The World Climate Programme has various components such as the World Climate Research Programme, World Climate Impact Programme, etc., which have been operating as crucial mechanisms to foster essential research and scientific understanding concerning climate change.

Therefore, the WMO has incorporated various programmes and functional mechanisms into its body - unifying and integrating various spheres of climate change research and scientific activities. With respect to substantial contributions and successful functions of the WMO as an international institution coordinating atmospheric research efforts and climate change assessments, Marvin Soroos mentions the fact that the institution has always been auspiciously distant from political dissension and internal strife for the sake of scientific impartiality. Soroos says that,

WMO, which has been the central actor on atmospheric research, has long had a reputation for being a haven from international political conflicts, where rationality rather than ideology prevailed even during the height of the Cold War from the 1950s to the 1980s. WMO has also cultivated an image of objectivity by limiting its role largely to monitoring and scientific research while leaving policy questions to other institutions to address.²¹⁹

In essence, policy coordination, harmonization of interests, methodology and guidance provided by these international institutions continued all through the evolution of the climate issue. After this first climate conference and between the period of 1980-1988, numerous scientific, international, nongovernmental conferences and workshops - which were described and overviewed in Chapter V in detail - were organized and sponsored by the UNEP, WMO and ICSU. Therefore, these

²¹⁹Marvin Soroos, *The Endangered Atmosphere*, 17. Also, see Marvin S. Soroos and Elena Nikitina, "The World Meteorological Organization as a Purveyor of Global Public Good," in *International Organizations and Environmental Policy*, eds. Robert Bartlett, Priya Kurian, and Madhu Malik (Westport: Greenwood Press, 1995), 69-82.

international institutions performed as the active supporters of international environmental cooperation. All these meetings were gainful and conducive to the flourishing of a more evident apprehension of the climate change problem within the international community. Many of the conference statements and declarations provided insights regarding national positions and related political responses.

As indicated in the previous chapter, the climate issue began to gain more significance and attracted more attention during the mid-1980s. The Villach Conference in 1985 and the following two workshops were particularly significant in the sense that the necessity of international policy-making was recognized and accentuated by scientists for the first time during those meetings. However, the issue was entirely carried into the realm of the international political agenda during the Toronto Conference which was held in 1988. Hence, all previous institutional arrangements and coordinated scientific information exchanges among the world states - together with the extremely hot summer of 1988 and other abnormal climatic events that alarmed people - consequently raised the issue to a level of political significance since the accomplishment of a climate treaty was determined during this Toronto Conference for the first time.

All these developments attest to the efficacy of international institutions with respect to configuring attuned scientific and political processes and regularizing international political behaviour towards global

climate change. WMO and UNEP organized and sponsored many other international conferences and activities all through the prenegotiation phase of global climate change which were instrumental in motivating states to re-perceive national interests together with global common interests. As a result of the endeavours of these institutions, states were influenced and the climate change issue entered the political agenda of the international community - which later on culminated in the formation of a regime over the climate problem.

1.b. Intergovernmental Panel on Climate Change:

In 1988, another important intergovernmental body was established by the UNEP and WMO to serve the purpose of exposing scientific assessments and knowledge to the opinions of government officials and policy makers. This intergovernmental organization included scientific, technical members as well as members from the governments of world states. Up to the present, the Intergovernmental Panel on Climate Change has functioned as a fundamental actor in the climate change issue and its function is policy-oriented, however, it does not incorporate any political power. With respect to the politicised nature of the IPCC, one author says as follows:

The fact that the IPCC was heavily politicised...illustrates how successful the international organizations and the international

climatological community had been in setting a political agenda, and it demonstrates, moreover, that global warming was a potentially severe problem which states needed to address....Thus, while the IPCC consolidated the scientific consensus on global warming and set an agenda for policy-makers, they were also framing the problem in a specific political mould.²²⁰

It should be pointed out that as an interagency, the World Climate Programme and its substantial component World Climate Research Programme, have made major contributions to the works and assessments of the IPCC. The Intergovernmental Panel's establishment and its contributions signify the necessity of coordination and institutionalization of scientific research and knowledge for the creation of international policies in environmental political problems.

Today a term, namely the Climate Agenda, epitomizes in the best way the interconnectedness of climate-related scientific programmes and endeavours (for details, see Chapter IV). The Climate Agenda came into life in 1993 and it provides an overall integrated framework for multifarious programmes which are affiliated with climate and sustained by various agencies and organizations. In other words, it is an attempt to integrate multidisciplinary climate-related activities - which have already reached complex and amazing dimensions - such as data collection and application,

²²⁰Matthew Paterson, "IR Theory: Neorealism, Neoinstitutionalism and the Climate Change Convention," in *The Environment and International Relations*, eds. John Vogler and Mark F. Imber (New York: Routledge, 1996), 65.

climate system research, and studies of socio-economic impacts of climate change and their effects on ecosystems.

As a key component of the climate process, the IPCC influenced the evolution of states' collaboration and functioned as a catalyst of political cooperation. For instance, the IPCC's First Report which was announced in 1990 had a great impact on the perceptions of states. The report verified the significance of the climate change problem and its impacts, and because of it, some of the national positions were altered to a certain extent. For instance, IPCC's report had an important effect on the British policy in the sense that the British response evolved from the no-targets position during the mid 1980s to a conditional target as a result of the scientific assessments presented by the IPCC in 1990. Most significantly, the United Nations Framework Convention on Climate Change was accomplished to a great extent as a result of the scientific indications and evidence disclosed to the world states by the scientific working group of the IPCC. By indicating the existence and significance of anthropogenic interference with global climate, the IPCC's First Report in 1990 opened up the way towards meaningful alterations in states' perceptions about climate change and consolidated the efforts for building a climate regime which finally culminated in the establishment of the UNFCCC in 1992, in Rio.

In the same way, IPCC's Second Assessment Report which was completed at the end of 1995 verified the anthropogenic effects on the climate change problem and its future perils for humans and the planet.

The report had an impact on the majority of the Parties and during the third session of the AGBM which was held in March 1996 in Geneva, they considered the IPCC's report as the essential basis for future progress towards a protocol. As a result of the renewed scientific evidence provided by the IPCC on the anthropogenic greenhouse effect, "the start of a new phase in the negotiations was marked when first concrete proposals were not only put on the table but also seriously discussed."²²¹ In this way, the results of the IPCC's Second Assessment Report strongly motivated the world states to consider new decisions envisaging the establishment of specified targets against greenhouse gas emissions for the protection of the global climate. Accordingly, the AGBM changed its emphasis to real and more fruitful negotiations beginning from the second meeting of the COP which took place in July 1996, in Geneva.²²²

As it was mentioned in Chapter V, Intergovernmental Panel's Second Report had a significant impact on the United States' attitude to the climate cooperation. Scientific verification displayed that human beings had a discernible effect on the global climate; therefore, being the world's number one GHG emitter, it was no longer useful and agreeable for the United States to refrain from committing itself to specified targets to protect the climate. Thus, renewed scientific evidence provided by the

²²¹Sebastian Oberthür, "Sign of Progress," *Environmental Policy and Law* 26 (1996): 158.

²²²Markus Ehrmann and Sebastian Oberthür, "Spring in Climate Negotiations?" *Environmental Policy and Law* 27 (1997): 92.

IPCC motivated the United States to alter its approach towards the climate change issue and pushed it for accepting specified and legally binding targets.

The concrete impact of these scientific developments showed itself with the formation of a protocol for the global climate. Most probably, the Kyoto Protocol to the United Nations Framework Convention on Climate Change could not have been accomplished in December 1997 if the IPCC had not played a pivotal role in climate politics.

All these developments display that the IPCC as an intergovernmental body has played a key role in the progress of international cooperation on climate change and it was successful in shaping the related institutional arrangements. IPCC included both scientists and members of governments from all over the world, thus a harmonization and coordination of dissipated scientific research for the purpose of substantial policy formulation became easier to accomplish this way. This progress could not have been achieved at this pace if such an intergovernmental body did not produce well-grounded scientific assessments and appropriate evidence, and conveyed them to policy-makers. Apparently, all these efforts have had an important impact on states' perceptions and consequently on the related political processes.

Therefore, the IPCC had a remarkable influence on the development of the climate regime and it appears that it will carry out this mission in future. The IPCC constitutes a good example for the extended capacities of

international institutions and intergovernmental bodies to promote cooperation and restructure the discernment of national-interests. When scientific knowledge is transmitted to governments through institutions and a common threat is perceived by states, international collaboration becomes a more desired and probable outcome. Due to the fact that bodies like the IPCC help decrease the uncertainty factor to a certain extent and indicate the interdependence of interests in the face of a global threat, they have considerable power to facilitate and regularize international cooperation in global environmental issues such as climate change.

Notwithstanding the contributions of the IPCC - together with the views of the transnational epistemic communities - it should be considered that the peculiarity of the climate change problem and its utterly complex nature due to intricate interactions between the different domains of the global climate system have always come out as impediments against producing precise scientific estimations and anticipating the exact future impacts (for a detailed explanation see Chapter IV). Scattered scientific approaches and diverse opinions as a result of the unpredictability of the dynamics of the global climate system have definitely obstructed and constrained the formation of a stronger regime over the climate change issue up to the present.

As it has been the case in some other global environmental challenges, the uncertainty factor in climate change has unfortunately impaired states' commitments to avert environmental afflictions. If there

were a stronger scientific consensus on climate change and its future impacts, the pace of political developments would have been much more rapid and the related measures could have been more stringent. For instance, with respect to the case of ozone depletion - which is a less complex and relatively well-defined global issue - there was a strong scientific consensus on the scopes of the problem and its future perils.²²³ As a result of this factor and some other related factors, the strongest and the most ambitious environmental cooperation up to the present could be established over ozone depletion. However, the climate issue has ambiguous and obscure dimensions which have been fortunately abated to a certain extent through renewed scientific evidence but which are still conspicuously subsisting in spite of advanced climate modelling and research. Most of the scientific circles accept the fact that further research and data are necessary for exact evaluations.

Thus, while accrediting the Intergovernmental Panel's role in and the related institutionalized scientific bodies' impact on facilitating and promoting international collaboration against the climate threat, it should also be considered that coordinated scientific research and institutionalization of international efforts have not yet completely eradicated the uncertainty and unpredictability factors regarding the issue. This is an important shortcoming since international policy formulation

²²³For the subject of ozone depletion as a global environmental threat, see, Richard Elliot

and establishment of substantial measures to mitigate the global problems are closely affiliated with scientific consensus on many environmental issues. Nevertheless, this does not necessarily degrade and lessen the significance of the role played by the Intergovernmental Panel on Climate Change in the climate change process as a functional international body promoting and supporting the formation of concerted activities and multinational cooperation.

1.c. Intergovernmental Negotiating Committee for a Framework Convention:

The Intergovernmental Negotiating Committee was another intergovernmental body which played a specific and decisive role in climate change. All the political processes and international bargaining took place under the auspices of the Intergovernmental Negotiating Committee from 1991 until the signing of the Framework Convention on Climate Change in 1992 (for details see Chapter V). From then on, the INC held a couple of meetings and soon it gave its place to the Conference of the Parties in 1995.

All the negotiations and bargaining that took place between the world states within the forum provided by the INC led to the drafting of a

framework convention, thus a regime emerged over the climate issue. The INC process dealing with the specific aspects of collective action and policy issues, was essential with respect to which substances would be controlled so that greenhouse gas emissions could be limited, what measures and precautions should be applied and what contributions should be made by different states. This cooperative process would not have been possible through unilateral state actions and policy formulations since the climate problem demanded a global approach. Therefore, a forum for a formal and specific negotiation process was extremely important.

It can be assumed that without the existence of the INC as an international body, the efforts for regime formation and negotiations for the production of a legal document most probably would not have produced fruitful results. The negotiations and process of establishing an international framework convention would have been either failed or postponed to a distant future.

The resulting convention could have been stronger and a more effective regime could have been established over the climate change problem as a result of the INC process, however, this cooperation should also be considered successful since under the lack of scientific consensus and economic costs states were still able to initiate some collaborative action.

Moreover, the process did not slow down and the negotiations continued among the Conference of the Parties for the sake of

accomplishing an effective and more stringent protocol over the climate issue. In 1995, the *Ad Hoc* Group on the Berlin Mandate(AGBM), was given the mandate to negotiate a protocol or another legal instrument for climate change. This intergovernmental body, comprising more than 150 Parties of the UNFCCC, worked in order to accomplish a protocol addressing the global climate threat. Thus, the UNFCCC constituted an institutional mechanism for the regularization of states' behaviours through periodic monitoring of the Parties' activities and through regular meetings for necessary future amendments. Consequently, the INC process successfully initialized the multinational efforts which culminated in a climate protocol in 1997. The Kyoto Protocol was another important step for safeguarding the planet - even though it was still a modest attempt in the face of a serious environmental problem.

The international institutions and intergovernmental bodies described and analyzed above are the actors which have performed key functions in the evolution of the climate change issue. Nevertheless, they are not the only institutions that have contributed to climate politics. Chapter V. presented a table including the list of the international institutions and intergovernmental bodies that have been related with and active in the global climate change issue. The United Nations Development Programme, the Food and Agriculture Organization, the United Nations Industrial Development Organization, Intergovernmental Oceanographic Commission, the International Energy Agency, European Bank for

Reconstruction and Development, and the Economic Commission for Africa are only a few names to be mentioned among the numerous international institutions that are concerned with the climate change issue. All these organizations have contributed to the climate regime from different aspects, and their assistance and functions range from technical or informational to financial. These international institutional contributions are closely intermingled and they greatly sustain the advancement of international collaboration for the sake of protecting the global climate.

1.d. Environmental Nongovernmental Organizations:

As it was elucidated in Chapter II, nongovernmental organizations and interest groups have already become indispensable components of the international community and international environmental issues. Accordingly, many nongovernmental organizations have also worked as the important supporters and adherents of the cooperative processes, and more significantly functioned as the actors contributing to the creation of norms and principles in the climate change collaboration (for details see Chapter V and Table IV).

For instance, the Climate Action Network (CAN) has been a very functional and effectual organization with respect to the processes regarding protection of the global climate. It is an umbrella organization including more than 160 NGOs from all over the world. There are Climate

Action Networks in the North and South America, West and East Europe, Asia and also in Africa.²²⁴

Numerous environmental NGOs participated in the conferences and meetings that were held during the prenegotiation phase of climate politics. They offered their opinions to government officials and policy-makers, and struggled to transform their perceptions concerning the climate threat. In addition to this, they strove to draw the attention of the media and to generate public concern and pressure about global climate change in order to shape governments' policies especially in the developed countries. As a result of NGOs endeavours and contributions - along with some other factors such as the abnormal climatic events and high temperatures, scientific developments, the media attention, etc. - the subject of climate change gained popularity among people and became a significant public issue during the late 1980s and early 1990s. This obviously created a considerable pressure on governments to reformulate their environmental policies towards global climate change.

In addition to their activities at domestic levels, NGOs form transnational linkages and participate in the negotiation processes of global ecological threats. Thus, in this way they can influence the outcomes of many global environmental issues.

²²⁴ "The 1995 Berlin Climate Summit", 1.
<http://www.igc.apc.org/climate/1995Summit.html>

Throughout the negotiation phase of climate politics, environmental NGOs struggled to make interactions with policy-makers and tried to affect the negotiation outcomes. Various NGOs - they ranged from large international groups like World Wildlife Foundation (WWF) or Greenpeace to rather smaller organizations - attended the negotiation sessions of the climate treaty and they also lobbied their governments at home. When they lobbied at the INC process they also made statements or drafted substantial proposals for the formation of an effective regime over the climate change issue.

Also, environmental nongovernmental organizations played significant roles during the negotiations of the Kyoto Protocol. They communicated with delegates in order to influence the cooperative outcomes and they were very effective in "identifying and advising receptive delegations on loopholes in the proposals."²²⁵ Various nongovernmental organizations "played a pivotal role that paralleled the remote negotiations going on between presidents and prime ministers."²²⁶

Thus, all these contributions made by environmental NGOs to the issue of climate change corroborate the fact that such organizations are the essential and indispensable agents of global environmental cooperation.

²²⁵ "Report of The Third Conference of The Parties To The United Nations Framework Convention On Climate Change: 1-11 December 1997", 35.

²²⁶ Ibid.

They have been functional in transforming perceptions towards the climate threat, influential in motivating governments to reconsider national interests within a global perspective and eventually operational in the process of creating norms in the evolution of collective action against global climate change.

Therefore, it is necessary to incorporate environmental nongovernmental organizations and their contributions into the analysis of global ecological issues. However, in the meantime their functions appear to remain relatively less critical and determining - at least for the case of global climate change - when they are compared with the roles played by international institutions which perform coordinating, rule-making and implementing functions in many global environmental issues within the present international order.

2. States As Decision-makers:

States' approaches and the different positions they held in the face of the climate change threat were described in detail within Chapter V. In the present world system, states are definitely the supreme decision-makers and they have ultimate political power to make international legal arrangements. Any reasonable approach related with the dynamics of the prevalent international system therefore should commence its explanation and analysis with this basic assumption.

In this context, states' superior positions as decision makers compared to that of the other actors' positions within the political arena were most apparent during the negotiation phases of the climate change cooperation. The climate negotiations involved the participation or contributions of other actors such as intergovernmental bodies, nongovernmental organizations or corporates, however, these actors held no decisive power. Despite the fact that non-state actors had opportunities to guide states' behaviours and to manipulate the decision-making processes in order to influence the issue outcome, the final word would be uttered by states.

States' roles or contributions in connection with cooperation over the climate issue have been rather divergent. Some states have greatly contributed to the formation of collective strategies and evolution of policies to address this environmental threat, whereas, a few others have acted as the major political powers impeding an effective international collaboration. For instance, even at the beginning of the climate process the majority of the members of the European Union along with the small island states (AOSIS) favored legally binding and specified time-tables which would effectively address climate change, while, the major greenhouse gas emitters and producers such as the US, USSR, China, Saudi Arabia and oil-producing states together with the majority of the developing countries refrained from binding themselves to effective legal measures.

Some states like the Netherlands and the Scandinavian countries together with the members of AOSIS even functioned as the initiators of climate related concerns within a global scope. For instance, the Netherlands and Norway, as well as Canada, hosted many important international meetings and conferences dealing with global climate change. Such countries accomplished institutionalization against the climate threat at the domestic level as they had successfully done in other environmental problems as well. The “green consciousness” and public pressure for the protection of the environment are very high in states such as the Netherlands and Norway. With respect to the positions of the small island states, the reason for their inclination towards cooperation was more related with their special sensitivity to the climate change impacts - due to the fact that the climatic alterations are expected to bring forth sea-level rise in between 15-95 cm. in the following hundred years - rather than their environmental consciousness.

Also, changes in the attitudes of the two major states, namely the UK and Japan, with respect to addressing the climate change issue were significant. These two states were initially disinclined to cooperate for the protection of the global climate and did not accept effective measures and specified timetables as a result of domestic and economic considerations. For instance, during the prenegotiation phase the UK did not accept to sign the 1989 Hague Declaration and Japan refrained from committing itself to targets during the Noordwijk Conference (for details see Chapter

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V). However, while the US maintained its position as the major blocker state against an effective cooperation on climate change during the negotiation phase, the UK and Japan changed their approaches dramatically. In time, their positions matched with the attitudes of the other states advocating stringent measures in order to combat against the climate threat.

In addition to the alterations in the UK's and Japan's approaches towards the climate issue, the United States' attitude to climate cooperation displayed a remarkable evolution as well. The IPCC's contributions and assessments, which illuminated some of the scientific aspects of the climate change, motivated the US to embrace more stringent measures against this environmental problem. Consequently, the US accepted an 8% reduction in its greenhouse gas emissions.

Hence, the observations in general show that the responses of some states have evolved from a rather modest interest towards global climate change - which was considered a peripheral issue during the early and mid-1980s - to a solid understanding of the problem and a more substantial concern for combating this global threat in 1997. Due to this fact, states embarked upon the creation of a protocol to protect the global climate. Although the final protocol has caused some frustrations, the process for a stronger climate regime will be continuing and more concrete results might be obtained as a result of this process.

The next section of this chapter therefore will provide a more detailed analysis in terms of explaining these alterations observed in states' attitudes and behaviours within an institution-based framework.

3. Climate Politics and the Neoliberal Institutional Approach: An Institution-Based Explanation

The evolution of the climate change issue and the related political developments display that in spite of the fact that states have the ultimate jurisdiction in decision-making processes and international environmental policy formulation, non-state entities, especially international institutions - along with nongovernmental organizations and transnational epistemic communities - have made substantial and unequalled contributions to the formation of multinational cooperation and environmental regime creation. The political processes in connection with the climate issue have illuminated the fact that state-centric approaches towards international relations are not suitable and adequate any more to explain the basic dynamics of the contemporary international system - at least with respect to the interpretations of global environmental political processes. Today, it is no more possible to underestimate the contributions and crucial roles of international institutions in connection with global environmental issues and cooperation.

In today's world order, states are still utterly the major actors of the system with political and legal authorities; the issue outcomes are

unconditionally defined by states' concurrence and consents. However, the cooperative processes are most of the time ignited and evolved through the efforts of especially international institutions and other non-state actors. Particularly, regarding the global environmental problems, existence of the international institutions is definitely essential and very functional in introducing the issues, fulfilling agenda-setting, coordinating scientific research and evidence, transmitting this information to the world community and regularizing multinational negotiations for policy formulation. These institutions do not necessarily overshadow states as the major actors of the system or function as supranational authorities, however, they generate networks over and within states which are conducive for producing incentives for international cooperation.²²⁷ Without the regularizing and catalytic functions of the international institutions, it appears to be impossible to implement cooperative processes in connection with the environment. These international institutions appear to be influential in attracting states' attention to environmental concerns and shaping states' preferences; they create a forum for an international exchange of opinions, motivate world states to re-perceive their national objectives and interests through transmission of substantial information and make them apprehend certain values within a global perspective.

²²⁷Peter M. Haas, R. O. Keohane and M. A. Levy, *Institutions for the Earth: Sources of Effective International Environmental Protection* (Cambridge: MIT Press, 1993), 24.

As it can be observed within the global climate change issue, economic costs and scientific uncertainty factors appear to be the major impediments against the protection of the global environment. Economic considerations and cost calculations of governments along with the scientific uncertainty existing over many global environmental problems emanate as obstructions against stronger international cooperation in many issue areas. The North-South debate emerges as the basic factor which precludes the task of forging legal arrangements against many global environmental problems since convergence of opinions between these two spheres appears to be very difficult in many instances. This was obviously the case in the climate issue and such factors have restrained the advance of international collaboration or decreased its speed to a large extent. Furthermore, another basic factor that affects actors' participation in international collective response activities is directly related with the changing scopes and varying degrees of expected climate change impacts on different states. Since the impacts of global climate change will display variations according to different regions, the states which are anticipated to be more sensitive to the effects of this change are understandably inclined to participate in cooperation. Such states have been active in initiating international activities and launching global cooperative processes - as it has been done by the small island states encountered with the rise in sea level due to climate change. However, states who are

relatively more secure against such environmental threats have been slow to incorporate climate policies into their national objectives and activities.

Nevertheless, the international institutions, through agenda-setting and presenting a forum for international negotiations, have promoted the process of regime formation and environmental collaboration in the climate change issue. Through the transmission of institutionalized knowledge uncertainty has decreased to a certain extent, the states have reconsidered their basic interests, and through coordinated negotiations they became more prone to recalculate the costs and benefits of collective action and international cooperation.

Given the fact that the observations and empirical evidence regarding the specific case of the climate change issue are instrumental in analyzing and explaining the dynamics of the present international system at a certain level of order, these observations will be placed in a valid and substantial conceptual construction to support the scientific endeavours in the field of International Relations. In this context, it appears that the climate change issue presents the validity and relevance of the neoliberal institutionalist theory with respect to explaining political processes within the realm of the International Relations discipline. Institutionalists' major assumptions in connection with analyzing the basic features of the international system and dynamics of international political relations were explained in detail in the third chapter of this study. When compared with its realist counterpart which focuses primarily on states and power

relations between them, the neoliberal institutionalist theory brings a much more satisfactory and all-encompassing explanation concerning the evolution of global climate change politics.

In accordance with the primary assumption of the neoliberal institutionalists - which has been basically derived from the realist approach - states are the major actors of climate change politics since only they possess political power and decisive authorities. In other words, it has been widely recognized that nation-states still perform as the key players in international ecological issues. However, while borrowing this assumption from the realists, the institutionalists are against considering states as the only actors which have major influence in world politics. Non-state actors - even though they have no political and superior enforcement powers compared to that of states - are as much influential as states in many issue areas, therefore they should be directly incorporated into the analysis of international relations. Accordingly, many non-state actors had great impact on the elaboration of the climate issue and participated in the negotiation processes of climate cooperation, however, the only signatories of the UNFCCC and the Kyoto Protocol were states. No other actor had the power to determine and settle the political and legal arrangements; only states could finalize negotiation processes through political decisions - even though transnational and nongovernmental organizations greatly contributed to the process through informal negotiations.

Another assumption of the neoliberal institutionalists is that the international system is anarchic in its nature. This assumption is in accordance with the opinions of the realist theorists, however, the institutionalists hold another assumption that international institutions have great influence in coordinating and promoting cooperation within this anarchic environment - which greatly contradicts the views of the realist theorists. According to neoliberal institutionalists, the condition which enables this collaboration is the existence of common interests among states. In the case of the climate change problem, the common interest is the preservation of the global climate and consequently the natural environment for the continuation of life. As the preservation of the global climate is in the interest of each state, some form of international collaboration is naturally inevitable. The observation of the evolution of the climate issue indicates that this is exactly what happened in climate change politics. In spite of the fact that uncertainty impeded the formation of a stronger and much desired cooperation with specified greenhouse gas emission targets, it should be considered that states resorted to collaborative efforts to create a regime even in the presence of imprecise data and scientific unpredictability. A possible common threat motivated states towards cooperation and regime formation through a framework convention which has recently turned into a protocol. Major actors that shaped the evolution of climate change cooperation were international institutions, such as the UNEP, WMO, IPCC, INC, etc., with their functions

of attracting the attentions of states to the threat, agenda-setting, coordination and transmission of scientific knowledge, providing a forum for information exchange and coordinating international negotiations.

In Chapter III, it was stated that neoliberal institutionalists argue that the neorealist approach overemphasized conflict in the international system while underestimating or disregarding the international institutions' capacities in facilitating and fostering cooperation. Climate change politics displays that this criticism made by the institutionalist scholars is a legitimate one. The developments in connection with the climate issue corroborate and substantiate the view that the realist theorists focusing on state interest and power struggle have failed to include in their analysis the international institutions, their impact on international collaboration, other non-state actors and their functions as essential ingredients for a thorough analysis. The realist approach provides great insight while indicating the supremacy of the state system and the anarchic nature of the international relations, however, it remains outmoded when attempting to ignore the substantial work done by international institutions in restructuring power relations in new ways. These institutions are very effective and functional in generating state preference structures which are much more cooperative in nature.

In addition to their important roles in the formation of cooperation over climate change, international institutions are significant for maintaining and sustaining environmental collaboration among world

states as well. In other words, their roles cannot be restricted merely to the process of regime formation, but they are crucial in terms of perpetuating the established norms and legal arrangements in order to accomplish an effective and thorough implementation process. Without such efforts of international organizations, states' commitments would be ineffective.

The climate change cooperation and various other kinds of global environmental collaboration cannot be considered exceptional and marginal any more. Such cooperative processes have been growing and they challenge state-centric or power-oriented explanations of international politics. However, the neorealist approach is still disinclined and reluctant to accept that environmental considerations and common ecological interests among states can have much political relevance and motivational capacity in an international system full of power-oriented and competing nation states.

The climate change issue as an important case - like various other global environmental issues - should be instrumental in motivating political theorists to accomplish broader analytical perspectives and urging them to refrain from merely concentrating on states or power relations while producing the interpretations of international political processes. An awareness about this has been growing and scholars have been debating whether "the study of global environmental change has the potential to alter (or even subvert) the essential elements of IR as an academic

pursuit.”²²⁸ In effect, there are attempts to rethink and develop the handling of global environmental change within the field of International Relations.²²⁹

Global environmental issues and related political processes explicitly demand a reconsideration and restructuring of the basic assumptions and dynamics of theoretical endeavours in the field of International Relations. While stressing the awakening of concern towards the environment in International Relations, John Vogler argues that:

The extraordinary interconnection between the issues involved and the extraordinary range of interdependencies evident from even a cursory examination of global environmental change bear upon the fundamental concerns of students of international relations and international political economy. It was, therefore, no longer possible to pigeonhole environmental issues in International Relations as a narrow technical specialism.²³⁰

Another important point to be mentioned is that institutionalists generally expect cooperative processes to take place when the number of the participants or states related with the specific issue area are small enough to make collaboration possible.²³¹ In other words, they believe that the most effective cooperation can be achieved with small numbers of

²²⁸John Vogler, “The Environment in International Relations: Legacies and Contentions,” in *The Environment and International Relations*, eds. John Vogler and Mark F. Imber (New York: Routledge, 1996), 18.

²²⁹*Ibid.*, 2.

²³⁰*Ibid.*, 7.

²³¹For instance see Robert O. Keohane, “Against Hierarchy: An Institutional Approach to International Environmental Protection”, 18.

states. This assumption might explain the question of why the climate cooperation was full of complexities, and the initial framework convention and the following protocol remained less satisfactory than advocated by the international community. Since it is a global cooperation inclusive of hundreds of states, it has been understandably difficult to accomplish an outstanding regime over the climate issue - which brings effective commitments and addresses the problem in the most auspicious way.

However, it should also be mentioned that this assumption of neoliberal institutionalists does not appear to be valid when for instance the remarkable regime constructed for protecting the ozone layer is considered. Ozone depletion was also a global commons issue related with the atmosphere, and it required participation and collective action of world states like global climate change. In the ozone issue however, the world states were able to transcend various problems and establish a regime which has remained as the most effective global cooperation up to the present. Therefore, the neoliberal institutionalists are in a position to reconsider this assumption and to bring a more satisfactory explanation regarding the significance or relevance of the number of participants in any environmental cooperative process.

Finally, it is also important to note that systemic theories like neoliberal institutionalism eventually leave out some essential domestic factors of collective policy making and collaboration in international politics. This is basically intrinsic to the characteristics of systemic

theories - which are parsimonious - since a theoretical construction has to be selective and should determine which specific factors will be the foci of analysis. In this context, it is inevitable that neoliberal institutionalism as a systemic theory brings a partial explanation of international environmental cooperation, like the other international relations theories focusing on other levels of political interaction, and it concentrates on interests and international institutions as the basic units of political analysis while to a great extent deemphasizing domestic and individual levels of analysis.

4. The Human Factor and The Contributions of Cosmopolitan World Views to Global Environmental Issues:

This section of the study aims to incorporate some explanations and comments as well which are external to the theoretical framework provided by neoliberal institutionalism in explaining cooperative processes. It will include the importance of the cosmopolitan world views in connection with the global environmental issues.

At this point, it is essential to indicate that all these institutionalized efforts and arrangements towards environmental protection obviously did not originate and flourish in a vacuum. The basis of these developments can be found in the human factor and progression of new global values among people.

Regarding the attempts to understand the dynamics of global environmental change and ecological issues, it is important that the human factor, various functions of human beings and the repercussions of these functions are deeply analyzed:

To arrive at a deeper understanding of complex interactions, it is of great importance to study the relevant interrelations within any of the key problem areas pertaining to global change. However, such more or less isolated, discipline-related research needs to be complemented by studies involving humans in all their various functions.²³²

Thus, when the human factor and functions of human beings are satisfactorily incorporated into the analysis of global environmental issues and ecological cooperation, it can be comprehended that new values have been very influential in the formation of international collaborative activities and development of political processes in connection with the environment. The basis of the progression of environmental concern lies in cultural and ethical improvements and a spreading of cosmopolitan world view among human beings.

As Hugh Dyer states the "security of the global environment stands against the state system as another, perhaps contradictory, value or set of values."²³³ However, since its beginning in the 1960s, concerns about

²³²Conference of the Swiss Scientific Academies, *Research on Sustainability and Global Change - Visions in Science Policy by Swiss Researchers* (Bern: Published by ProClim, 1997), 7.

²³³Hugh C. Dyer, "Environmental Security As A Universal Value: Implications for International Theory," in *The Environment and International Relations*, eds. John Vogler and Mark F. Imber (New York: Routledge, 1996), 22.

environmental security and protection have been spreading rapidly as universal values - especially among people living in prosperity in developed countries and giving credence to post-materialist world views. As a result of these ethical developments and value judgements, people are more prone to grasp the "global common interests", growing ecological interdependence and are more committed to combat against various forms of threats facing the planet. Some even go further by viewing states themselves as the greatest danger to the natural environment and ecological well-being.²³⁴

These alterations in values and norms consequently lead to organized activities among people and green political movements which emerge as significant political powers in many of the Western states. Also, in this way regional and international institutions, non-governmental organizations and international epistemic communities working for the protection of the natural environment emanate as important agents of institutionalization of environmental concerns. All these efforts are interdependent and significant for the evolution of an environment-oriented life style and protection of international ecosystem for the present and future generations.

²³⁴Ibid. , 25.

Therefore, the developments begin at the individual level through incorporation of new and universal values, then they are elevated to the domestic level by institutionalized behaviours and culminate at the international level by coordinated and collective law-making among world states. In other words, all these levels are closely intermingled. Nevertheless, for the dissemination of universal norms and values among people and for effective communication between societies, institutionalization and coordination of international activities are basically inevitable and indispensable.

Today a cosmopolitan world view emphasizing the significance of “intergenerational equity” has been embraced by the environmentalists and it has been evolving at the normative sphere. Intergenerational equity implies that present generations should have concern and responsibility for future generations in terms of bestowing a healthy and undestroyed natural environment. Human beings have to fulfil their present needs by considering the needs of future generations as equally valuable as their own; they should not compromise the ability of the future generations to meet their needs and survive.²³⁵ In this respect, adoption of biocentric considerations and preservation of the international ecosystem not only for the present but also for future generations has a very important and

²³⁵ See, World Commission on Environment and Development, “Brundtland Report,” 1987.

valuable connotation for both the international society and global environmental politics.

Conclusion:

The observation of climate science and politics has revealed that the global climate change problem emanates as the most complex and immense atmospheric threat requiring elaboration of related scientific knowledge and augmentation of appropriate international response mechanisms in order to restructure the limited aspects of the existing international regime. Major political forces such as consideration of national economic interests and abatement costs, lack of motivation towards collective action due to ecological invulnerability, the persistent North-South controversy, and the existence of scientific uncertainty with respect to climatic variability and its future impact appear as elements complicating the evolution of legal and political aspects of the climate change issue.

Notwithstanding the criticisms directed towards the insufficiency of the existing response measures, collective strategies and legal mechanisms established among world states - as of late 1997 - to address the problem, the cooperation which has already been structured over global climate change has some remarkable features that should be appreciated as well. First of all, it is important to note that the unknown and unpredictable scientific aspects of this unique global threat cannot be underestimated when the climate cooperation is evaluated, taking into consideration that the criteria employed in the assessment of this cooperation may make a difference. In world politics, and in particular in global environmental

issues, knowledge, transparency and clarity are the basic factors that open the way towards collective policy formulation and law-making. As far as global climate change is concerned, such clarity and scientific certainty have not been consummated since the nature of the problem does not permit a thorough understanding within the capacities of the current scientific modelling and assessments. Thus, given the existence of a considerable scientific uncertainty and lack of knowledge about climate change, the progress achieved by the international community in collective policy-making and regime construction is appreciable.

In addition, the climate change issue requires a global solution and an international law-making process which means that more than a hundred of world states and their national-interests - which are greatly divergent as a result of the huge gap existing between the North and South - should be considered. Thus, a tremendous international effort has been made to achieve institutionalization over global climate change and to accomplish convergence of national interests by decreasing abatement costs and risks of collaboration to minimum. In order to enable an effective integration of social, economic, scientific and political aspects of the problem at an international level, institutionalization has even reached complex dimensions. Generation of scientific knowledge and attempts to utilize this knowledge in producing collective strategies and law-making through international institutions have been impressive. However, it is understandably not easy to entirely transcend complicated economic and

political forces, and development aspirations of nation-states that overshadow the increasing recognition of common ecological interests among world states.

Moreover, international environmental law and attempts to establish legal arrangements for the protection of the environment have a very short history. It is only since the 1972 Stockholm Conference that a proliferation of environmental conventions and treaties have been observed. Therefore, it is not realistic to expect rapid developments in global legal constructions. Again, when climate cooperation is assessed this factor should not be deemphasized.

Furthermore, climate change cooperation is not a static phenomenon; the issue has been evolving and efforts will be continuing to create more effective international measures which are required to eradicate the dangerous anthropogenic interferences to the global climate. In other words, the existing protocol and international collaboration achieved provide the necessary mechanisms to move forward the climate cooperation. In this respect, the international community has to wait and see the future evolution and its results.

An observation of the evolution of climate politics has indicated that states are still the key players in international relations and they perform decisive roles regarding issue outcomes. However, as far as international environmental issues and cooperation are concerned, international institutions, along with nongovernmental organizations and epistemic

communities, mitigate difficulties with respect to multinational concerted activities, and they emerge as initiators and supporters of coordinated policy formulation and international regime formation.

Notwithstanding the shortcomings of the current regime over climate, international institutions have been the most significant agents of collaboration in the global climate change issue. They have coordinated the transmission of knowledge and facilitated communication between world states to enable the formation of a regime. International institutions introduced the climate change problem to the international community, and through coordinating interdisciplinary research and scientific networks they contributed to the recognition of the climate change as a significant political issue. The integration of science and politics in the climate issue at a global level has been impressive and this could not have been accomplished by means other than international institutions. As communication and transfers of knowledge have intensified, incentives for collective action for a common interest have been increased. In other words, institutional efforts have brought forth recalculation of preferences and reconsideration of interests among world states which have created new patterns of behaviour.

As the issue evolved, international institutions and intergovernmental bodies provided a forum for international negotiations and law-making processes as well. These institutions performed active and catalytic functions in international environmental law-making. As a result

of institutional and transnational endeavours, a convergence of opinion could be accomplished among states and it culminated in legal arrangements through a framework convention which in time progressed into a protocol.

Observations concerning climate change substantiate the argument that international institutions, along with nongovernmental organizations and international epistemic communities, are vital for environmental protection and international law-making in this world order. Developments and political processes insinuate that the climate change issue could have remained as a marginal phenomenon or could have only attracted attentions of the scientific and environmentalist groups rather than the whole international community if institutional efforts and functions were not launched to identify and combat the climate threat. Nation-states generally have not been responsive to the needs of the international ecosystem due to their economic interests and development aspirations, therefore, it has been within the sphere of international institutions - together with nongovernmental organizations and scientific communities - to accentuate and remind states the interconnectedness and interdependence of the biosphere and the international community. In this respect, international institutions appear to be vital and indispensable for generating knowledge, reshaping perceptions and reconstructing interests in connection to a high level of ecological interdependence in the contemporary international system.

Climate change provides theoretical insights for the international relations discipline as well. The progression of climate cooperation has displayed that power-based realistic interpretations are not appropriate to elucidate the dynamics of environmental cooperative processes - at least in the case of global climate change. Common interests and information that states have become acquainted with - through institutional efforts and structures - emanate as factors that have been most influential in the evolution of international climate politics. State-centric and power-oriented theoretical approaches therefore are not adequate when explaining various aspects of climate cooperation, whereas neoliberal institutionalist assumptions appear to provide a more suitable theoretical framework when emphasizing the key functions and regulating roles of international institutions in cooperation along with other non-state actors of the international system.

This study has attempted to contribute to the understanding of climate change as a global ecological threat which has introduced the international community to novel and unique challenges. Climate change cooperation requires a more effective and substantial contribution of the world states; present response mechanisms are not satisfactory to eradicate the problem. The future success of climate cooperation is closely affiliated with the loyalty of world states to the adopted measures and to their efforts for strengthening the existing mechanisms and arrangements. A concern for “intergenerational equity”, and a global awareness and recognition that

inaction in global climate change might bring high prices to the international society are essential to maintain and evolve concerted activities among states. It remains to be seen whether the international community will display a genuine commitment to address this most complex global environmental problem for the sake of present and future generations. Nevertheless, international institutions' contributions and support – together with the contributions of epistemic communities and nongovernmental organizations - with respect to ecological cooperation give hope and appear to increase the likelihood of a strengthening regime over climate change in future.

APPENDIX I
UNITED NATIONS FRAMEWORK CONVENTION ON
CLIMATE CHANGE

The Parties to this Convention,

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

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

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

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

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

Acknowledging that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an

effective and appropriate international response, in accordance with the their common but differentiated responsibilities and respective capabilities and their social and economic conditions,

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

Recalling also that States have, in accordance with the Charter of the United Nations and principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

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

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

Recalling the provisions of General Assembly resolution 44/228 of 22 December 1989 on the United Nations Conference on Environment and Development, and resolutions 43/53 of 6 December 1988, 44/207 of 22 December 1989, 45/212 of 21 December 1990 and 46/169 of 19 December

1991 on protection of global climate for present and future generations of mankind,

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

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

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

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

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

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

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

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

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

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

Recognizing that all countries, especially developing countries, need access to resources required to achieve sustainable social and economic

development and that, in order for developing countries to progress towards that goal, their energy consumption will need to grow taking into account the possibilities for achieving greater energy efficiency and for controlling greenhouse gas emissions in general, including through the application of new technologies on terms which make such an application economically and socially beneficial,

Determined to protect the climate system for present and future generations,

Have agreed as follows:

Article 1

DEFINITIONS*

For the purpose of this Convention:

1. “Adverse effects of climate change” means changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare.

2. “Climate change” means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

* Titles of articles are included solely to assist the reader.

3. "Climate system" means the totality of the atmosphere, hydrosphere, biosphere and geosphere and their interactions.

4. "Emissions" means the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time.

5. "Greenhouse gases" means those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation.

6. "Regional economic integration organization" means an organization constituted by sovereign States of a given region which has competence in respect of matters governed by this Convention or its protocols and has been duly authorized, in accordance with its internal procedures, to sign, ratify, accept, approve or accede to the instruments concerned.

7. "Reservoir" means a component or components of the climate system where a greenhouse gas or a precursor of a greenhouse gas is stored.

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

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

Article 2

OBJECTIVE

The ultimate objective of this Convention and any related instruments that the Conference of the 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. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

Article 3

PRINCIPLES

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

1. The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.
2. The specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those Parties, especially developing

country Parties, that would have to bear a disproportionate or abnormal burden under the Convention, should be given full consideration.

3. The Parties should take precautionary measures to anticipate , prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits to the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors. Efforts to address climate change may be carried out cooperatively by interested Parties.

4. The Parties have a right to, and should, promote sustainable development. Policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programmes, taking into account that economic development is essential for adopting measures to address climate change.

5. The Parties should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all Parties, particularly developing country Parties, thus enabling them better to address the problems of climate change. Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.

Article 4
COMMITMENTS

1. All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall:

(a) Develop, periodically update, publish and make available to the Conference of the Parties, in accordance with Article 12, national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties;

(b) Formulate, implement, publish and regularly update national and where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change;

(c) Promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors;

(d) Promote sustainable management, and promote and cooperation the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including

biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystem;

(e) Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods;

(f) Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change;

(g) Promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies;

(h) Promote and cooperate in the full, open and prompt exchange of relevant scientific, technological, technical socio-economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies;

(i) Promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organizations; and

(j) Communicate to the Conference of the Parties information related to implementation, in accordance with Article 12.

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

(a) Each of these Parties shall adopt national 1/ 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 anthropogenic emissions consistent with the objective of the Convention, recognizing that the return by the end of the present decade to earlier levels of anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol would contribute to such modification, and taking into account the differences in these Parties' starting point and approaches, economic structures and resource base, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of these Parties to the global effort regarding that objective. These Parties may implement such policies and measures jointly with other Parties and may assist other Parties in contributing to the achievement of the objective of the Convention and, in particular, that of this subparagraph;

(b) In order to promote progress to this end, each of these Parties shall communicate, within six months of the entry into force of the Convention for it and periodically thereafter, and in accordance with Article 12, detailed information on its policies and measures referred to in subparagraph a) above, as well as on its resulting projected anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol for the period referred to in subparagraph a), with the aim of returning individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol. This information will be reviewed by the Conference of the Parties, at its first session and periodically thereafter, in accordance with Article 7;

(c) Calculations of emissions by sources and removals by sinks of greenhouse gases for the purposes of subparagraph b) above should take into account the best available scientific knowledge, including of the effective capacity of sinks and the respective contributions of such gases to climate change. The Conference of the Parties shall consider and agree on methodologies for these calculations at its first session and review them regularly thereafter;

(d) The Conference of the Parties shall, at its first session, review the adequacy of subparagraphs a) and b) above. Such review shall be carried out in the light of the best available scientific information and assessment on climate change and its impacts, as well as relevant technical, social and economic information. Based on this review, the Conference of the Parties shall take appropriate action, which may include the adoption of amendments to the commitments in subparagraphs a) and b) above. The Conference of the Parties, at its first session, shall also take decisions regarding criteria for joint implementation as indicated in subparagraph a)

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

(e) Each of these Parties shall;

(i) Coordinate as appropriate with other such Parties, relevant economic and administrative instruments developed to achieve the objective of the Convention; and

(ii) Identify and periodically review its own policies and practices which encourage activities that lead to greater levels of anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol than would otherwise occur;

(f) The Conference of the Parties shall review no later than 31 December 1998, available information with a view to taking decisions regarding such amendments to the lists in Annexes I and II as may be appropriate, with the approval of the Party concerned;

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

3. The developed country Parties and other developed Parties included in Annex II shall provide new and additional financial resources to meet the agreed full costs incurred by developing country Parties in complying with their obligations under Article 12, paragraph 1. They shall also provide such financial resources, including for the transfer of technology, needed by the developing country Parties to meet the agreed

full incremental costs of implementing measures that are covered by paragraph 1 of this Article and that are agreed between a developing country Party and the international entity or entities referred to in Article 11, in accordance with that Article. The implementation of these commitments shall take into account the need for adequacy and predictability in the flow of funds and the importance of appropriate burden sharing among the developed country Parties.

4. The developed country Parties and other developed Parties included in Annex II shall also assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects.

5. The developed country Parties and other developed Parties included in Annex II shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention. In this process, the developed country Parties shall support the development and enhancement of endogenous capacities and technologies of developing country Parties. Other Parties, and organizations in a position to do so may also assist in facilitating the transfer of such technologies.

6. In the implementation of their commitments under paragraph 2 above, a certain degree of flexibility shall be allowed by the Conference of the Parties to the Parties included in Annex I undergoing the process of transition to a market economy, including with regard to the historical level of anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol chosen as a reference.

7. The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.

8. In the implementation of the commitments in this Article, the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures, especially on:

- (a) Small island countries;
- (b) Countries with low-lying coastal areas;
- (c) Countries with arid and semi-arid areas, forested areas and areas liable to forest decay;
- (d) Countries with areas prone to natural disasters;
- (e) Countries with areas liable to drought and desertification;
- (f) Countries with areas of high urban atmospheric pollution;

(g) Countries with areas with fragile ecosystems, including mountainous ecosystems;

(h) Countries whose economies are highly dependent on income generated from the production, processing and export, and/or on consumption of fossil fuels and associated energy-intensive products; and

(i) Land-locked and transit countries.

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

9. The parties shall take full account of the specific needs and special situations of the least developed countries in their actions with regard to funding and transfer technology.

10. The Parties shall, in accordance with Article 10, take into consideration in the implementation of the commitments of the Convention the situation of Parties, particularly developing country Parties, with economies that are vulnerable to the adverse effects of the implementation of measures to respond to climate change. This applies notably to Parties with economies that are highly dependent on income generated from the production, processing and export, and/or consumption of fossil fuels and associated energy-intensive products and/or the use of fossil fuels for which such Parties have serious difficulties in switching to alternatives.

Article 5

RESEARCH AND SYSTEMATIC OBSERVATION

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

(a) Support and further develop, as appropriate, international and intergovernmental programmes and networks or organizations aimed at defining, conducting, assessing and financing research, data collection and systematic observation, taking into account the need to minimize duplication of effort;

(b) Support international and intergovernmental efforts to strengthen systematic observation and national scientific and technical research capacities and capabilities, particularly in developing countries, and to promote access to, and the exchange of, data and analyses thereof obtained from areas beyond national jurisdiction; and

(c) Take into account the particular concerns and needs of developing countries and cooperate in improving their endogenous capacities and capabilities to participate in the efforts referred to in subparagraph (a) and (b) above.

Article 6

EDUCATION, TRAINING AND PUBLIC AWARENESS

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

(a) Promote and facilitate at the national and, as appropriate, subregional and regional levels, and in accordance with national laws and regulations, and within their respective capacities:

(i) The development and implementation of educational and public awareness programmes on climate change and its effects;

(ii) Public access to information on climate change and its effects;

(iii) Public participation in addressing climate change and its effects and developing adequate responses; and

(iv) Training of scientific, technical and managerial personnel.

(b) Cooperate in and promote, at the international level, and, where appropriate, using existing bodies:

(i) The development and exchange of educational and public awareness material on climate change and its effects; and

(ii) The development and implementation of education and training programmes, including the strengthening of national institutions and the exchange or secondment of personnel to train experts in this field, in particular for developing countries.

Article 7

CONFERENCE OF THE PARTIES

1. A Conference of the Parties is hereby established.

2. The Conference of the Parties, as the supreme body of this Convention, shall keep under regular review the implementation of the Convention and any related legal instruments that the Conference of the Parties may adopt, and shall make, within its mandate, the decisions necessary to promote the effective implementation of the Convention. To this end, it shall:

(a) Periodically examine the obligations of the Parties and the institutional arrangements under the Convention, in the light of the objective of the Convention, the experience gained in its implementation and the evolution of scientific and technological knowledge;

(b) Promote and facilitate the exchange of information on measures adopted by the Parties to address climate change and its effects, taking into account the differing circumstances, responsibilities and capabilities of the Parties and their respective commitments under the Convention;

(c) Facilitate, at the request of two or more Parties, the coordination of measures adopted by them to address climate change and its effects, taking into account the differing circumstances, responsibilities and capabilities of the Parties and their respective commitments under the Convention;

(d) Promote and guide, in accordance with the objective and provisions of the Convention, the development and periodic refinement of comparable methodologies, to be agreed on by the Conference of the Parties, inter alia, for preparing inventories of greenhouse gas emissions by sources and removals by sinks, and for evaluating the effectiveness of measures to limit the emissions and enhance the removals of these gases;

(e) Assess, on the basis of all information made available to it in accordance with the provisions of the Convention, the implementation of the Convention by the Parties, the overall effects of the measures taken pursuant to the Convention, in particular environmental, economic and social effects as well as their cumulative impacts and the extent to which progress towards the objective of the Convention is being achieved;

(f) Consider and adopt regular reports on the implementation of the Convention and ensure their publication;

(g) Make recommendations on any matters necessary for the implementation of the Convention;

(h) Seek to mobilise financial resources in accordance with Article 4, paragraphs 3, 4 and 5, and Article 11;

(i) Establish such subsidiary bodies as are deemed necessary for the implementation of the Convention;

(j) Review reports submitted by its subsidiary bodies and provide guidance to them;

(k) Agree upon and adopt, by consensus, rules of procedure and financial rules for itself and for any subsidiary bodies;

(l) Seek and utilize, where appropriate, the services and cooperation of, and information provided by, competent international organizations and intergovernmental and non-governmental bodies; and

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

3. The Conference of the Parties shall, at its first session, adopt its own rules of procedures as well as those of the subsidiary bodies established by the Convention, which shall include decision-making procedures for matters not already covered by decision-making procedures stipulated in the Convention. Such procedures may include specified majorities required for the adoption of particular decisions.

4. The first session of the Conference of the Parties shall be convened by the interim secretariat referred to in Article 21 and shall take place not later than one year after the date of entry into force of the Convention. Thereafter, ordinary sessions of the Conference of the Parties shall be held every year unless otherwise decided by the Conference of the Parties.

5. Extraordinary sessions of the Conference of the Parties shall be held at such other times as may be deemed necessary by the Conference, or at the written request of any Party, provided that, within six months of the request being communicated to the Parties by the secretariat, it is supported by at least one third of the Parties.

6. The United Nations, its specialised agencies and the International Atomic Energy Agency, as well as any State member thereof or observers thereto not Party to the Convention, may be represented at sessions of the Conference of the Parties as observers. Any body or agency, whether national or international, governmental or non-governmental, which is qualified in matters covered by the Convention, and which has informed the secretariat of its wish to be represented at a session of the Conference

of the Parties as an observer, may be so admitted unless at least one third of the Parties present object. The admission and participation of observers shall subject to the rules of procedures adopted by the Conference of the Parties.

Article 8

SECRETARIAT

1. A secretariat is hereby established.

2. The functions of the secretariat shall be:

(a) To make arrangements for sessions of the Conference of the Parties and its subsidiary bodies established under the Convention and to provide them with services as required;

(b) To compile and transmit reports submitted to it;

(c) To facilitate assistance to the Parties, particularly developing country Parties, on request, in the compilation and communication of information required in accordance with the provisions of the Convention;

(d) To prepare reports on its activities and present them to the Conference of the Parties;

(e) To ensure the necessary coordination with the secretariats of other relevant international bodies;

(f) To enter, under the overall guidance of the Conference of the Parties, into such administrative and contractual arrangements as may be required for the effective discharge of its functions; and

(g) To perform the other secretariat functions specified in the Convention and in any of its protocols and such other function as may be determined by the Conference of the Parties.

3. The Conference of the Parties, at its first session, shall designate a permanent secretariat and make arrangements for its functioning.

Article 9

SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE

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

2. Under the guidance of the Conference of the Parties, and drawing upon existing competent international bodies, this body shall:

(a) Provide assessments of the state of scientific knowledge relating to climate change and its effects;

(b) Prepare scientific assessments on the effects of measures taken in the implementation of the Convention;

(c) Identify innovative, efficient and state-of-the-art technologies and know-how and advise on the ways and means of promoting development and/or transferring such technologies;

(d) Provide advice on scientific programmes, international cooperation in research and development related to climate change, as well as on ways and means of supporting endogenous capacity-building in developing countries; and

(e) Respond to scientific, technological and methodological questions that the Conference of the Parties and its subsidiary bodies may put the body.

3. The functions and terms of reference of this body may be further elaborated by the Conference of the Parties.

Article 10

SUBSIDIARY BODY FOR IMPLEMENTATION

1. A subsidiary body for implementation is hereby established to assist the Conference of the Parties in the assessment and review of the effective implementation of the Convention. This body shall be open to participation by all Parties and comprise government representatives who are experts on matters related to climate change. It shall report regularly to the Conference of the Parties on all aspects of its work.

2. Under the guidance of the Conference of the Parties; this body shall:

(a) Consider the information communicated in accordance with Article 12, paragraph 1, to assess the overall aggregated effect of the steps taken by the Parties in the light of the latest scientific assessments concerning climate change;

(b) Consider the information communicated in accordance with Article 12, paragraph 2, in order to assist the Conference of the Parties in carrying out the reviews required by Article 4, paragraph 2(d); and

(c) Assist the Conference of the Parties, as appropriate, in the preparation and implementation of its decisions.

Article 11

FINANCIAL MECHANISM

1. A mechanism for the provision of financial resources on a grant or concessional basis, including for the transfer of technology, is hereby defined. It shall function under the guidance of and be accountable to the Conference of the Parties, which shall decide on its policies, programme priorities and eligibility criteria related to this Convention. Its operation shall be entrusted to one or more existing international entities.

2. The financial mechanism shall have an equitable and balanced representation of all Parties within a transparent system of governance.

3. The Conference of the Parties and the entity or entities entrusted with the operation of the financial mechanism shall agree upon

arrangements to give effect to the above paragraphs, which shall include the following:

(a) Modalities to ensure that the funded projects to address climate change are in conformity with the policies, programme priorities and eligibility criteria established by the Conference of the Parties;

(b) Modalities by which a particular funding decision may be reconsidered in light of these policies, programme priorities and eligibility criteria;

(c) Provision by the entity or entities of regular reports to the Conference of the Parties on its funding operations, which is consistent with the requirements for accountability set out in paragraph 1 above; and

(d) Determination in a predictable and identifiable manner of the amount of funding necessary and available for the implementation of this Convention and the conditions under which that amount shall be periodically reviewed.

4. The Conference of the Parties shall make arrangements to implement the above-mentioned provisions at its first session, reviewing and taking into account the interim arrangements referred to in Article 21, paragraph 3, and shall decide whether these interim arrangements shall be maintained. Within four years thereafter, the Conference of the Parties shall review the financial mechanism and take appropriate measures.

5. The developed country Parties may also provide and developing country Parties avail themselves of, financial resources related to the

implementation of the Convention through bilateral, regional and other multilateral channels.

Article 12

COMMUNICATION OF INFORMATION RELATED TO IMPLEMENTATION

1. In accordance with Article 4, paragraph 1, each Party shall communicate to the Conference of the Parties, through the secretariat, the following elements of information:

(a) A national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, to the extent its capacities permit, using comparable methodologies to be promoted and agreed upon by the Conference of the Parties;

(b) A general description of steps taken or envisaged by the Party to implement the Convention; and

(c) Any other information that the Party considers relevant to the achievement of the objective of the Convention and suitable for inclusion in its communication, including, if feasible, material relevant for calculations of global emission trends.

2. Each developed country Party and each other Party included in Annex I shall incorporate in its communication the following elements of information:

(a) A detailed description of the policies and measures that it has adopted to implement its commitment under Article 4, paragraphs 2(a) and 2(b); and

(b) A specific estimate of the effects that the policies and measures referred to in subparagraph (a) immediately above will have on anthropogenic emissions by its sources and removals by its sinks of greenhouse gases during the period referred to in Article 4, paragraph 2(a).

3. In addition, each developed country Party and each other developed Party included in Annex II shall incorporate details of measures taken in accordance with Article 4, paragraphs 3, 4 and 5.

4. Developing country Parties may, on a voluntary basis, propose projects for financing, including specific technologies, materials, equipment, techniques or practices that would be needed to implement such projects, along with, if possible, an estimate of all incremental costs, of the reductions of emissions and increments of removals of greenhouse gases, as well as an estimate of the consequent benefits.

5. Each developed country Party and each other Party included in Annex I shall make its initial communication within six months of the entry into force of the Convention for that Party. Each Party not so listed shall make its initial communication within three years of the entry into force of the Convention for that Party, or of the availability of financial resources in accordance with Article 4, paragraph 3. Parties that are least developed countries may make their initial communication at their discretion. The frequency of subsequent communications by all Parties

shall be determined by the Conference of the Parties, taking into account the differentiated timetables set by this paragraph.

6. Information communicated by Parties under this Article shall be transmitted by the secretariat as soon as possible to the Conference of the Parties and to any subsidiary bodies concerned. If necessary, the procedures for the communication of information may be further considered by the Conference of the Parties.

7. From its first session, the Conference of the Parties shall arrange for the provision to developing country Parties of technical and financial support, on request, in compiling and communicating information under this Article, as well as in identifying the technical and financial needs associated with proposed projects and response measures under Article 4. Such support may be provided by other Parties, by competent international organizations and by the secretariat, as appropriate.

8. Any group of Parties may, subject to guidelines adopted by the Conference of the Parties, and to prior notification to the Conference of the parties, make a joint communication in fulfilment of their obligations under this Article, provided that such a communication includes information on the fulfilment by each of these Parties of its individual obligations under the Convention.

9. Information received by the secretariat that is designated by a Party as confidential, in accordance with criteria to be established by the Conference of the Parties, shall be aggregated by the secretariat to protect its confidentiality before being made available to any of the bodies involved in the communication and review of information.

10. Subject to paragraph 9 above, and without prejudice to the ability of any Party to make public its communication at any time, the secretariat shall make communications by Parties under this Article publicly available at the time they are submitted to the Conference of the Parties.

Article 13

RESOLUTION OF QUESTIONS REGARDING IMPLEMENTATION

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

Article 14

SETTLEMENTS OF DISPUTES

1. In the event of a dispute between any two or more Parties concerning the interpretation or application of the Convention, the Parties concerned shall seek a settlement of the dispute through negotiation or any other peaceful means of their own choice.

2. When ratifying, accepting, approving or acceding to the Convention, or at any time thereafter, a Party which is not a regional economic integration organization may declare in a written instrument submitted to the Depositary that, in respect of any dispute concerning the interpretation or application of the Convention, it recognizes as compulsory *ipso facto* and without special agreement, in relation to any Party accepting the same obligation.

(a) Submission of the dispute to the International Court of Justice, and/or

(b) Arbitration in accordance with procedures to be adopted by the Conference of the Parties as soon as practicable, in an annex on arbitration.

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

3. A declaration made under paragraph 2 above shall remain in force until it expires in accordance with its terms or until three months after written notice of its revocation has been deposited with the Depositary.

4. A new declaration, a notice of revocation or the expiry of a declaration shall not in any way affect proceedings pending before the International Court of Justice or the arbitral tribunal, unless the parties to the dispute otherwise agree.

5. Subject to the operation of paragraph 2 above, if after twelve months following notification by one Party to another that a dispute exists between them, the Parties concerned have not been able to settle their dispute through the means mentioned in paragraph 1 above, the dispute shall be submitted, at the request of any of the parties to the dispute, to conciliation.

6. A conciliation commission shall be created upon the request of one of the parties to the dispute. The commission shall be composed of an equal number of members appointed by each party. The commission shall

render a recommendatory award, which the parties shall consider in good faith.

7. Additional procedures relating to conciliation shall be adopted by the Conference of the Parties, as soon as practicable, in an annex on conciliation.

8. The provision of this Article shall apply to any related legal instrument which the Conference of the Parties may adopt, unless the instrument provides otherwise.

Article 15

AMENDMENTS TO THE CONVENTION

1. Any Party may propose amendments to the Convention.

2. Amendments to the Convention shall be adopted at an ordinary session of the Conference of the Parties. The text of any proposed amendment to the Convention shall be communicated to the Parties by the secretariat at least six months before the meeting at which it is proposed for adoption. The secretariat shall also communicate proposed amendments to the signatories to the Convention and, for information, to the Depositary.

3. The Parties shall make every effort to reach agreement on any proposed amendment to the Convention by consensus. If all efforts at consensus have been exhausted, and no agreement reached, the amendment shall as a last resort be adopted by a three-fourths majority vote of the Parties present and voting at the meeting. The adopted amendment shall be communicated by the secretariat to the Depositary, who shall circulate it to all Parties for their acceptance.

4. Instruments of acceptance in respect of an amendment shall be deposited with the Depositary. An amendment adopted in accordance with paragraph 3 above shall enter into force for those Parties having accepted it on the ninetieth day after the date of receipt by the Depositary of an instrument of acceptance by at least three fourths of the Parties to the Convention.

5. The amendment shall enter into force for any other Party on the ninetieth day after the date on which that Party deposits with the Depositary its instrument of acceptance of the said amendment.

6. For the purpose of the Article, "Parties present and voting" means Parties present and casting an affirmative or negative vote.

Article 16

ADOPTION AND AMENDMENT OF ANNEXES TO THE CONVENTION

1. Annexes to the Convention shall form an integral part thereof and, unless otherwise expressly provided, a reference to the Convention constitutes at the same time a reference to any annexes thereto. Without prejudice to the provisions of Article 14, paragraphs 2(b) and 7, such annexes shall be restricted to lists, forms and any other material of a descriptive nature that is of a scientific, technical, procedural or administrative character.

2. Annexes to the Convention shall be proposed and adopted in accordance with the procedure set forth in Article 15, paragraphs 2, 3 and 4.

3. An annex that has been adopted in accordance with paragraph 2 above shall enter into force for all Parties to the Convention six months after the date of the communication by the Depositary to such Parties of the adoption of the annex, except for those Parties that have notified the Depositary, in writing, within that period of their non-acceptance of the annex. The annex shall enter into force for Parties which withdraw their notification of non-acceptance of the annex. The annex shall enter into force for Parties which withdraw their notification of a non-acceptance on the ninetieth day after the date on which withdrawal of such notification has been received by the Depositary.

4. The proposal, adoption and entry into force of amendments to annexes to the Convention shall be subject to the same procedure as that for the proposal, adoption and entry into force of annexes to the Convention in accordance with paragraphs 2 and 3 above.

5. If the adoption of an annex or an amendment to an annex involves an amendment to the Convention, that annex or amendment to an annex shall not enter into force until such time as the amendment to the Convention enters into force.

Article 17

PROTOCOLS

1. The Conference of the Parties may, at any ordinary session, adopt protocols to the Convention.

2. The text of any proposed protocol shall be communicated to the Parties by the secretariat at least six months before such a session.

3. The requirements for the entry into force of any protocol shall be established by that instrument.

4. Only Parties to the Convention may be Parties to a protocol.

5. Decisions under any protocol shall be taken only by the Parties to the protocol concerned.

Article 18

RIGHT TO VOTE

1. Each Party to the Convention shall have one vote, except as provided for in paragraph 2 below.

2. Regional economic integration organizations, in matters within their competence, shall exercise their right to vote with a number of voters equal to the number of their member States that are Parties to the Convention. Such an organisation shall not exercise its right to vote if any of its member States exercises its right, and vice versa.

Article 19

DEPOSITARY

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

Article 20
SIGNATURE

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

Article 21
INTERIM ARRANGEMENTS

1. The secretariat functions referred to in Article 8 will be carried out on an interim basis by the secretariat established by the General Assembly of the United Nations in its resolution 45/212 of 21 December 1990, until the completion of the first session of the Conference of the Parties.

2. The head of the interim secretariat referred to in paragraph 1 above will cooperate closely with the Intergovernmental Panel on Climate Change to ensure that the Panel can respond to the need for objective scientific and technical advice. Other relevant scientific bodies could also be consulted.

3. The Global Environment Facility of the United Nations Development Programme, the United Nations Environment Programme and the International Bank for Reconstruction and Development shall be the international entity entrusted with the operation of the financial mechanisms 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 fulfil the requirements of Article 11.

Article 22

RATIFICATION, ACCEPTANCE, APPROVAL OR ACCESSION

1. The Convention shall be subject to ratification, acceptance, approval or accession by States and by regional economic integration organizations. It shall be open for accession from the day after the date on which the Convention is closed for signature. Instruments of ratification, acceptance, approval or accession shall be deposited with the Depositary.

2. Any regional economic integration organization which becomes a Party to the Convention without any of its member States being a Party shall be bound by all the obligations under the Convention. In the case of such organizations, one or more of whose member States is a Party to the Convention, the organization and its member States shall decide on their respective responsibilities for the performance of their obligations under the Convention. In such cases, the organization and the member States shall not be entitled to exercise rights under the Convention concurrently.

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

Article 23

ENTRY INTO FORCE

1. The Convention shall enter into force on the ninetieth day after the date of deposit of the fiftieth instrument of ratification, acceptance, approval or accession.

2. For each State or regional economic integration organization that ratifies, accepts or approves the Convention or accedes thereto after the deposit of the fiftieth instrument of ratification, acceptance, approval or accession, the Convention shall enter into force on the ninetieth day after the date of deposit by such State or regional economic integration organization of its instrument of ratification, acceptance, approval or accession.

3. For the purpose of paragraphs 1 and 2 above, any instrument deposited by a regional economic integration organization shall not be counted as additional to those deposited by States members of the organization.

Article 24

RESERVATIONS

No reservations may be made to the Convention.

Article 25
WITHDRAWAL

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

2. Any such withdrawal shall take effect upon expiry of one year from the date of receipt by the Depositary of the notification of withdrawal, or on such later date as may be specified in the notification of withdrawal.

3. Any Party that withdraws from the Convention shall be considered as also having withdrawn from any protocol to which it is a Party.

Article 26
AUTHENTIC TEXTS

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

IN WITNESS WHEREOF the undersigned, being duly authorized to that effect, have signed this Convention.

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

Annex I

Australia
Austria
Belarus^{a/}
Belgium
Bulgaria^{a/}
Canada
Czechoslovakia^{a/}
Denmark
European Economic Community
Estonia^{a/}
Finland
France
Germany
Greece
Hungary^{a/}
Iceland
Ireland
Italy
Japan
Latvia^{a/}
Lithuania^{a/}
Luxembourg
Netherlands
New Zealand
Norway

^{a/} Countries that are undergoing the process of transition to a market economy.

Poland^{a/}
Portugal
Romania^{a/}
Russian Federation^{a/}
Spain
Sweden
Switzerland
Turkey
Ukraine^{a/}
United Kingdom of Great Britain and Northern Ireland
United States of America

Annex II

Australia
Austria
Belgium
Canada
Denmark
European Economic Community
Finland
France
Germany
Greece
Iceland
Ireland
Italy
Japan
Luxembourg
Netherlands

New Zealand

Norway

Portugal

Spain

Sweden

Switzerland

Turkey

United Kingdom of Great Britain and Northern Ireland

United States of America

APPENDIX II

THE BERLIN MANDATE

CONCLUSION OF OUTSTANDING ISSUES AND ADOPTION OF DECISIONS

Proposals on agenda item 5(a)(iii) submitted by the President of the
Conference

*Review of the adequacy of Article 4, paragraph 2(a) and (b) of the
Convention, including proposals related to a protocol and decisions on
follow-up*

The Conference of the Parties, at its first session, having reviewed Article 4, paragraph 2(a) and (b) and concluded that these are not adequate, agrees to begin a process to enable it to take appropriate action for the period beyond 2000, including the strengthening of the commitments of Annex I Parties in Article 4, paragraph 2(a) and (b), through the adoption of a protocol or another legal instrument.

I

1 The process shall be guided, *inter alia*, by the following:

(a) The provisions of the Convention, including Article 3, in particular the principles in Article 3.1 that reads as follows: “The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective

capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof”;

(b) The specific needs and concerns of developing country Parties referred to in Article 4.8; the specific needs and special situations of least developed countries referred to in Article 4.9; and the situation of Parties, particularly developing country Parties referred to in Article 4.10 of the Convention;

(c) The legitimate needs of the developing countries for the achievement of sustained economic growth and the eradication of poverty, recognizing also that all Parties have a right to, and should, promote sustainable development;

(d) The fact that the largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that the per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs;

(e) The fact that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international responses, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions;

(f) Coverage of all greenhouse gases, their emissions by sources and removals by sinks and all relevant sectors;

(g) The need for all Parties to cooperate in good faith and to participate in this process.

II

2 The process will, *inter alia*:

(a) Aim as the priority in the process of strengthening the commitments in Article 4.2(a) and (b) of the Convention, for developed country/other Parties included in Annex I, both

.to elaborate policies and measures, as well as

.to set quantified limitation and reduction objectives within specified time-frames, such as 2005, 2010 and 2020, for their anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol

taking into account the differences in starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of these Parties to the global effort, and also the process of assessment and analysis referred to in section III, paragraph 4, below;

(b) Not introduce any new commitments for Parties not included in Annex I, but reaffirm existing commitments in Article 4.1 and continue to advance the implementation of these commitments in order to achieve sustainable development, taking into account Article 4.3, 4.5 and 4.7;

(c) Take into account any result from the review as referred to Article 4.2(f), available, and any notification as referred to in Article 4.2(g);

(d) Consider, as provided in Article 4.2(e), the coordination among Annex I Parties, as appropriate, of relevant economic and administrative instruments, taking into account Article 3.5;

(e) Provide for the exchange of experience on national activities in areas of interest, particularly those identified in the review and synthesis of available national communications; and

(f) Provide for a review mechanism.

III

3 The process will be carried out in the light of the best available scientific information and assessment on climate change and its impacts, as well as relevant technical, social and economic information, including, *inter alia*, IPCC reports. At will also make use of other available expertise.

4 The process will include in its early stages an analysis and assessment, to identify possible policies and measures for Annex I Parties which could contribute to limiting and reducing emissions by sources and protecting and enhancing sinks and reservoirs of greenhouse gases. This process could identify environmental economic impacts and the results that could be achieved with regard to time horizons such as 2005, 2010, and 2020.

5 The protocol proposal of the Alliance of Small Island States (AOSIS), which contains specific reduction targets and was formally submitted in accordance with Article 17 of the Convention, along with other proposals

and pertinent documents, should be included for consideration in the process.

6 The process should begin without delay and be conducted as a matter of urgency, in an open-ended *ad hoc* group of Parties hereby established, which will report to the second session of the Conference of the Parties on the status of this process. The sessions of this group should be scheduled to ensure completion of the work as early as possible in 1997 with a view to adopting the results at the third session of the Conference of the Parties.

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