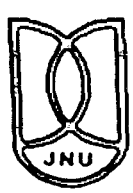
JAPAN'S CLIMATE CHANGE POLICY: A STUDY OF KYOTO PROTOCOL

Dissertation submitted to Jawaharlal Nehru University in Partial Fulfillment for the Requirement for the Award of the Degree of

MASTER OF PHILOSOPHY

ANITA PASSI



JAPANESE STUDIES DIVISION
CENTRE FOR EAST ASIAN STUDIES
SCHOOL OF INTERNATIONAL STUDIES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI - 110067
INDIA
2002.

CENTRE FOR EAST ASIAN STUDIES
SCHOOL OF INTERNATIONAL STUDIES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI - 110 067 INDIA

Telegram : JAYENU
Phones Off. : 6107676, 6167557 Extn. 2346

Fax: 91-11-616 5886
91-11-616 2292

Date :.....

CERTIFICATE

This is to certify that the dissertation entitled, **"Japan's Climate Change Policy: A study of Kyoto Protocol"**, submitted by **Anita Passi** in partial fulfillment of the requirements for the award of the degree of **MASTER OF PHILOSOPHY**, is her own work and has not been submitted for the award of any degree or diploma, in part or full, of this university or any other University.

We recommend that this dissertation be placed before the examiners for evaluation.

Lalima Varma

Dr. Lalima Verma
(Chairperson)

Prof. K. V. Kesavan
(Supervisor)

Dedicated

to

My Parents

ACKNOWLEDGEMENT

I gratefully acknowledge my debts to my supervisor Prof. K.V. Kesavan who has rendered constant help and invaluable guidance throughout. It has been a source of great inspiration to the researcher throughout the period of his work, to be beneath the shade of Prof. K.V. Kesavan's extensive scholarship. At every step during my work, I benefited from his ideas, professional knowledge and research skills. His beneficent supervision has been an asset to the case of this work.

My deepest regards to my husband, Mr. Vimlesh Rakesh who stood by my side all through. His 'humane' nature with a blend of cooperative attitude has been an intense source of strength to me. No form of expression can realize my indebtedness to him.

Words fail to express my gratitude to the academic environment of JNU where this work took its final shape. There is a bit of JNU in everything that I do.

I would like to thank the staff members of JNU Library, Sapru House, American Centre Library (ACL), British Council Library, the Institute for Defence Studies and Analysis and JCIC.

I am also grateful to my sisters - Sunita, Renu and Ritu; my brother - Siddharth and my most importantly brother in law Mr. Ajay Passi for their constant support and love in completion of this work.

My sincere thanks are due to Mr. Satish for his perseverance in giving a final shape to the draft. Finally, needless to say the shortcomings are my own.

(ANITA PASSI)

PREFACE

Japan's ratification of the Kyoto Protocol on 4th June 2002 gave the final shape and direction to the country's dynamic climate change policy. It placed a new and important issue of environment restoration in Japan and abroad on the agenda of changing paradigm of existence. Environmental degradation in general and global warming in particular has emerged as a major challenge during the last few decades, bringing both developed and the developing world on a common podium. Though the concern for climate started with the beginning of 1970s, the climate mitigation efforts emerged against the backdrop of acknowledgement of possible threats to life and ecosystem by the international community in the early 1990s.

For the first time such a huge endeavour as the Kyoto Protocol is being undertaken by concerned states against the threats to the environment. Kyoto Protocol is the first legal and diplomatic attempt to set obligation for world community in general and developed world including Japan in particular to control the emissions of green house gases responsible for global warming.

Japan despite being a major greenhouse gas producer, has played an important role during the formative phase of the protocol probably in view of the fact that this issue has the potential to change the course of international cooperation, deliberation and negotiations along with a markedly strict change in the way states produce and consume.

The focus of this study will invariably be on gaining in-depth understanding of Japan's policy on the issue of climate change along with an analysis of various factors, domestic as well as international which have made their influence in shipping Japan's policy and position in regard to climate mitigation. Finally a description of the efforts pursued by Japan towards this end would be undertaken.

The **first chapter** is an introductory one, providing a basic theoretical framework against which Japan's policy on this issue can be comprehended. The researcher will dwell upon the various dimensions of the concept of global warming and its effects on the world in general and Japan in particular. This chapter will take a retrospective view of the developments concerning international efforts to combat climate change finally culminating into the Kyoto Protocol. It will also make an effort towards establishing the process of evolution of consensus among

Japanese policy makers regarding formulation of a coherently strategic policy in this regard.

Chapter II - This chapter will dwell upon the formidable contents of the protocol and the Japanese response to it. An analysis of the contentious issues concerning Japan will be attempted here along with the summary of efforts pursued by Japan towards mitigating climate change in terms of fulfilling its obligation under the protocol.

Chapter III takes into account the linkages that Japan has had with the international community on the issue of climate change. The researcher would also attempt to take into account the rigmarole of the negotiation process and deliberations over the crunch issues in light of Japan's maneuvering at the post Kyoto conferences of parties to the United Nations Framework Convention on Climate Change.

In writing this work, the researcher has mainly relied on secondary sources due to the contemporary nature of the topic. Regarding the treatment of the subject, the researcher has tried her best to be objective, but how far her efforts have been successful, is left to the fair judgement of the readers.

CONTENTS

LIST OF TABLES AND FIGURES

ABBREVIATIONS

APN	:	Asia Pacific Network
CDM	:	Clean Development Mechanism
CEC	:	Central Environment Council (Japan)
CFC	:	Choloro Fluro Carbon
CITES	:	The conversion on International Trade in Endangered species of wild Fauna & Flora
Co_2	:	Carbon Dioxide
CoP	:	Conference of Parties
EA	:	Environment Agency
EC	:	European Commission
EU	:	European Union
FCCC	:	Framework Convention on Climate Change
GHG	:	Green House Gases
GTC	:	Giga Tons of Carbon
GW	:	Global Warming
INC	:	Intergovernmental Negotiating Committee
JI	:	Joint Implementation
NEAC	:	North East Asia Conference
PPM	:	Parts per Million
UNDP	:	United Nations Development Programme
UNEP	:	United Nations Environment Programme
UNFCCC	:	United Nations Framework Conversion Climate Change
UNGA	:	United Nations General Assembly
WG	:	Working Group

Chapter 1:

INTRODUCTION

"We have not inherited the land from our parents, we are borrowing it from our children"

Dieter Frisch
Director General of Dt. Commission of the European Community 2000, (Brussels), Belgium.

The common Japanese expression, "*mizu ni nagasu*", literally, means "let it be washed away", or to settle a dispute by letting bygones be bygones – originated in the belief that any and all troubles can be purified by nature.[1] Because, Japan has always had a thriving and rich natural environment, Japanese people have for a long time taken this natural bounty for granted. In the late 1960s, however, environmental mayhem resulting from Industrial pollution caused alarming danger to the people of Japan. For the first time, policy-makers and ordinary people alike began to recognize "the environment" as a special policy agenda.

Modern Japan has proved to be one of the most resource-efficient countries in the world. A population of over 125 million people occupies only 145,856 square miles of land, an area smaller than the state of California.

---

[1] Morishima, Akio, "Japan's Environmental Policies Amid A Changing Global Landscape".http://www.nira.go.jp/publ/review/99summer/mori.html.

Japan possesses no significant energy or mineral deposits. It imports virtually all of it energy supplies, primarily from the Middle East. It is one of the most efficient users of energy among the world's advanced industrial nations. However, Japan like other industrial nations, is a major generator of green house gases which contribute to climate change and ozone layer depletion.

Most of Japan is mountainous and thus not suitable for agriculture or commercial forestry, forcing the country to embark on a path of industrialization. But the rapid industrialization and economic development of Japan in the 1950s and 1960s was accompanied by severe air pollution and marine degradation. Several environmental disasters such as the outbreak of Minamata disease (a type of mercury poisoning caused by the dumping of industrial pollutants into the waste water) and Yokkaichi asthma (asthma and other chronic lung diseases caused by airborne pollutants) were examples of such disasters that resulted from industrial pollution. These resulted in public outrage. But, the government's, "economic development first" priority did not initially recognize the need for preventive measures to halt pollution, which might have slowed economic growth. However, as the anti-pollution movement among citizens spread nationwide by the later half of the 1960s, local governments were forced – first to, take up the regulatory measures for pollution. That inevitably led the Central

Government to enact the basic law for pollution control in 1967 along with several other pollution control measures.

Environmental policies in Japan from the latter half of the 1960s and throughout the 1970s were exclusively focused on regulating air and water pollution carried by harmful chemicals. Other environmental issues, including nature conservation, were not included in the main policy agenda during the period.

Compared with the early 1970s when Japan was armed with the strongest environmental laws in the world, the mid 1970s saw a decline in the environmental movement in Japan. There were many reasons for the fall in interest in the movement. Perhaps most important was that by the mid 1970s many of the worst environmental problems in Japan had been addressed and the quality of the environment had improved. Particularly noteworthy were the major improvements in the quality of air. A 1977, OECD report commented that "Japan was an example of how a legal environmental regulation could be successfully integrated into a growing economy".[2]

[2] Schreurs, Miranda, A., "Policy Laggard or Policy Leader?. Global Environment Policy-making under the LDP". http://law.rikkyo.ac.jp/npa/020101.htm.

Agenda setting and the environment

There have been two periods in Japanese history when the environment had been a big issue on the political agenda. The first of these periods revolved around such tragic pollution cases as Minamata mercury poisoning and itai-itai cadmium poisoning. The severity of air, water, and noise pollution at this time triggered the emergence of a strong grassroot environmental movement in Japan.

In sharp contrast with the events of 20-plus years ago, grassroot pressures appear to have played little role in getting the international environment into the Japanese policy agenda. Japan's recent interest in becoming an international environmental leader stands in sharp contrast with the posture Japan took prior to 1988 to various environmental problems. Before 1988, the international movement received but minimal attention from the Japanese public, environmental groups, the media or political parties. Despite this, Japan's sudden interest in becoming a global environment leader is suggested by Japanese decision-making literature's explanatory models as:

First is the dominant model of policy making in Japan, that of an elitist or bureaucracy led system. This model assumes that pluralistic

influences play little role in influencing policy and that bureaucrats determine and shape Japan's policy goals.[3]

A second body of literature points to the pluralist elements influencing policy change. The general theme of this literature is that numerous interest groups exist in Japan and are given a voice in policy-making but primarily through such specified channels as are provided by different ministries and their sections. One view found in this literature suggests that in Japan compartmentalized government's system, bureaucratic agencies tend to take the lead in determining the policy agenda but within this context of "bureaucratic primacy", other actors also try to affect policy changes by influencing the direction in which an agency moves.[4]

The third approach focuses attention on the emergence of "*Zoku*"[5] informal political network that claim a certain expertise in a policy area and are often closely tied to a specific ministry or agency. Their argument is that the power of politicians in decision-making has grown vis-à-vis the bureaucracy, as policy specialists emerge within the parties' ranks.

---

[3] Ibid, p. 2.

[4] Ibid, p. 3.

[5] Ibid, p. 4.

Finally, there is a conception of Japan as a reactive state that responds to international pressures and changes in the international context when it is in Japan's best interest to do so.

As a corollary, the rise of global climate change and other international environmental problems has influenced the environmental policy community and brought about major changes in the environmental policy of Japan.

Global environmental issues

It was after the start of the 1990s when global environmental issues began to draw increasing attention in the international community–that environmental issues really took hold as important political agenda in Japan. Until then, much of the international community considered Japan as a country that did not seriously tackle global environmental issues. With regard to two issues – Whaling and implementation records of the Washington Convention, The Convention on International Trade in Endeared Species of Wild Fauna and Flora (CITES) – Japan was a major target of criticism by environmental protection groups.[6] The stance of the Japanese government in these areas was to protect domestic industries. However, in the last years of

[6] Morishima, Akio, "Japan's Environmental Policies Amid A Changing Global Landscape". http://www.nira.go.jp/publ/review/99summer/mori.html.

the Liberal Democratic Party's hold on power, the global environment became a major area of international and domestic policy concern, thus converting Japan from being a policy laggard among the industrialized nations in recognizing and responding to problems of stratospheric ozone depletion, tropical deforestation, ocean resource depletion and global climate change, to becoming one of the primary financiers of overseas environmental programs and an active player in interntional efforts to address global climate change problems.

The climate change problems

The climate change problems or the Green house effect refer to the phenomenon whereby carbon dioxide and other gases trap heat in the atmosphere, thereby warming the earth. The infra-red radiation emitted by the earth can be trapped by atmospheric carbon dioxide, nitrous oxide, chlorofluro carbons, methane and other gases. These gases referred to as the Green House Gases (GHGs) have an important influence on the climate of our planet. They impede the outward flow of infra-red radiation more effectively than they impede incoming solar radiation. Its because of this that the earth, its atmosphere and its oceans are warmer than they would be in the absence of such gases.

Table 1: Global warming potential referenced to the updated Bern carbon cycle model keeping CO_2 atmospheric concentrations constant

Species	*Lifetime*	*Global warming potential*	
		20-years	*100 years*
CO_2	**Variable**	1	1
Methane	12	56	21
Nitrous oxide	120	280	170
HFC Compounds	1.5-48	460-9199	140-11700
SF6	3200	16300	23900
CFC compounds	2600-50000	4400-6200	6500-9200

Source: Data taken from "The Science of Climate Change", Working Group I, IPCC

Human activity has led to increasing atmospheric concentration of GHG's and this increasing atmospheric concentration of GHGs has resulted in the green house warming. Moreover, GHG's released in any part of the world can dispense and spread rapidly in the global atmosphere.

Global climate is changing due to the build up the atmosphere of carbon dioxide, methane, nitros oxide, the chloroflurocarbon (CFCs) Powerful greenhouse gases as well as destroyer of stratophere ozone and other green house gases produced by fossils fuel burning by deforestation and by producing food for the rapidly increasing population at the global level. Some of the important issues underlying the analysis of global climate change are the depletion of the ozone

layer, the greenhouse effect in total, acid rain, deforestation especially in the tropical regions, bio-diversity, floods and other related issues which are directly or indirectly involved.

Human emissions are still small compared to the natural flux of greenhouse gases into the atmosphere, but they can have significant effects.[7] If current trends in anthropogenic gases continue, the combined radioactive effects of this group of gases will equal by middle of the next century, the warming effect that could be expected from raising the concentration of carbon dioxide alone to twice its pre-industrial level.[8] Although the build up of GHG will warm the entire planet, warming due to this build up will not be evenly distributed world wide.

Burning coal oil and natural gas for heating our homes, powering our cases and illuminating our cities produced carbon dioxide and other green house gases as by products (more than 6 million metric tonnes worth of carbon in the form of carbon dioxide annually). Similarly, deforestation and land clearing also release significant quantities of such gases (another 1 to 2 billion tonens a year). The atmospheric concentration of carbon dioxide, a GHG, has increased by 31 percent

---

[7] Irving Ministry of Leonard, Amber, "Negotiating Climate Change: the inside story of the Rio Convention", (London, Cambridge University Press, 1994), p. 8.

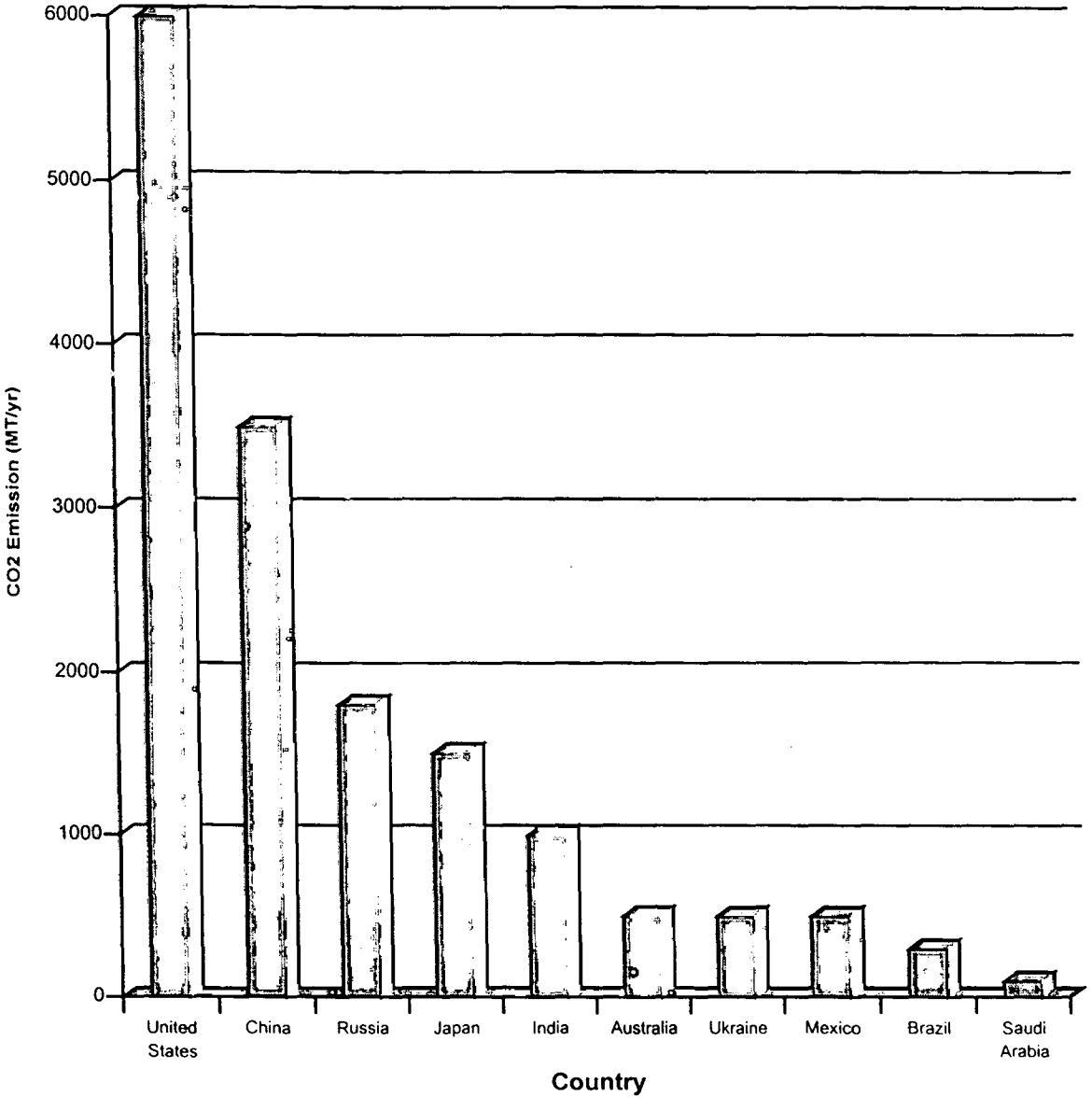
[8] J.T. Hougton, G.J. Jenkins, & J.J. Ephraums, "Climate Change: The Scientific Assessment", (Cambridge University Press, 1990), p. 2.

since 1750. 75 percent of carbondioxide emissions during the past twenty years is owing to fossil fuel burning, the rest is predominantly owing to change in land use, especially deforestation. Each year fossil fuel adds up to an estimated 5.5 Giga tons of carbon (GTC) to atmosphere. Deforestation and agricultural techniques add upto about 2.0 GTC to the atmosphere each year. The rate of increase of atmospheric carbondioxide has been 1.5 parts per million (ppm) per year. This concentration of GHG could exceed 700ppm by 2100 under "business as usual", the level of seem not seen on the planet for 50 million years.[9]

[9] Third Assessment Report (TAR): Intergovernmental Panel on Climate change (IPEC), 2001. http://www.ipcc.c.

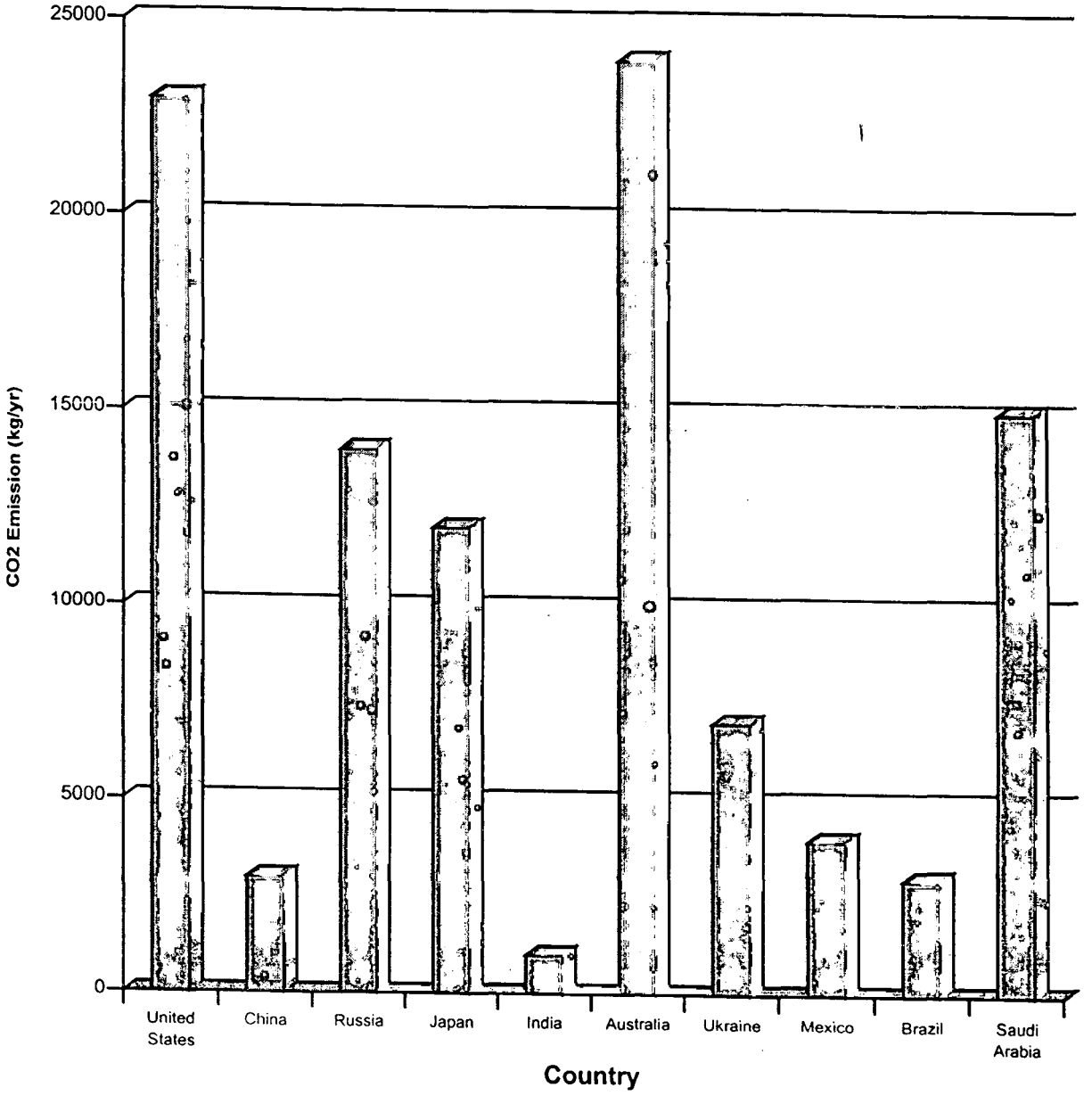
Annual emissions of CO2 from selected countries: total and per capital

Total



Source: Data from UNFCCC Web Site

PER CAPITA



Source: Data from UNFCCC Web Site

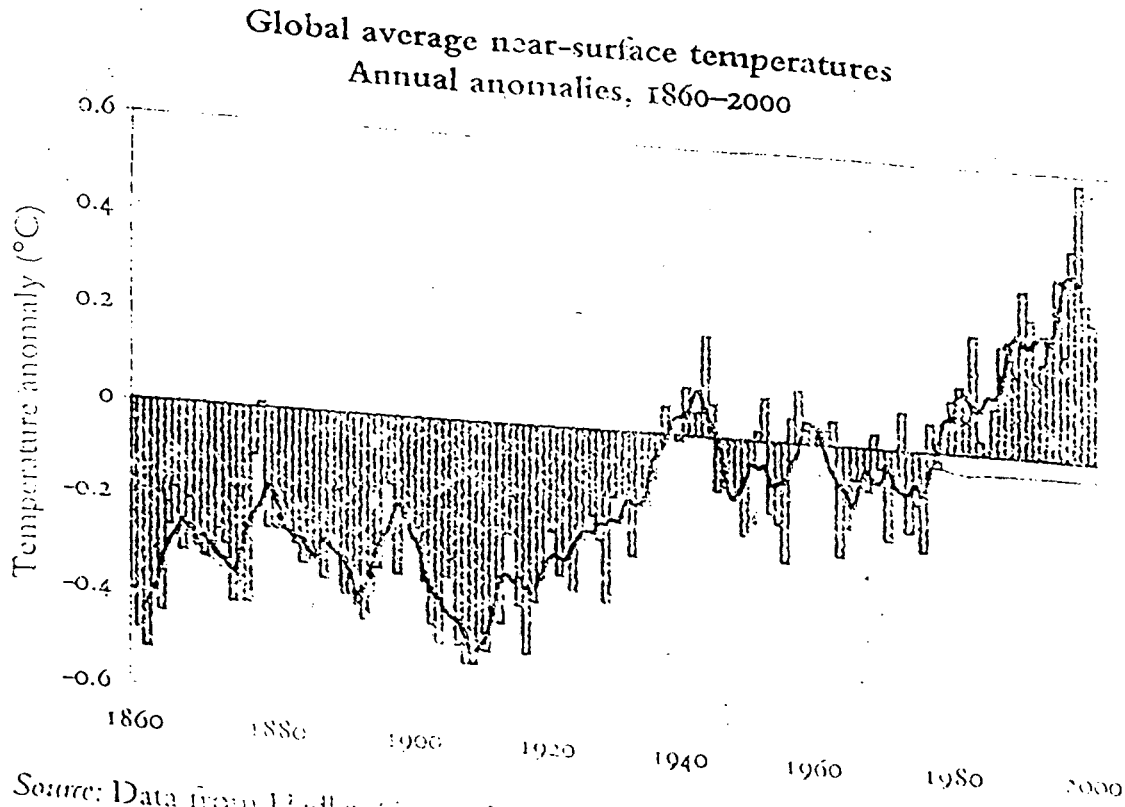
Most of the warming in 20th century occurred during two periods - 1910 to 1945 and 1976 to 2000. The US Environment Protection Agency reported that the 20th century was the hottest in the last thousand years and that the nine hottest years on record have all occurred since 1987, and that 1998 was the hottest year ever.[10]

Considering the rate of increase since 1840, an increase in global surface temperature of about 1.35 degree Celsius by 2100 is expected in comparison with 1900 temperatures. A rate of warming which would probably be greater than any seen in the last 1000 years.[11]

[10] Hermann, E. Ottt, "Climate Change: An Important Foreign Policy Issue", International Affairs, vol. 77, no. 2, 2001, p. 278.

[11] Environmental hot topic series, "Global Warming and the Kyoto Protocol", July 2001. File:c:/my%20documents/environmental%20hot%20topic%20sec. ....17/09/01.

Global Average near-surface temperatures: Annual anomalies, 1860-2000



Source: Data from Hadley Centre for Climate Prediction and Research, UK Met Office, see *http://www.met-office.gov.uk/research/hadleycentre/obsdata/globaltemperature.*

Source: Data from Hadley Centre for Climate Prediction and Research, UK Met Office, see http://www.met-office.gov.uk/research/hadleycentre/obsdata/globaltemperture.html.

Effects of global warming

Some of the effects of global warming (GW) are uniform world wide while certain others are similar. Some are region specific changes in the surface temperature, occurring both on land and in the oceans. But the region specific variations in temperature rise are difficult to predict because general circulation models are not yet sophisticated enough to provide the required details. Its also true that if current trends in GHG emissions continue, the generalized pattern of warming could become clearly detectable at statistically significant levels within a few decades.

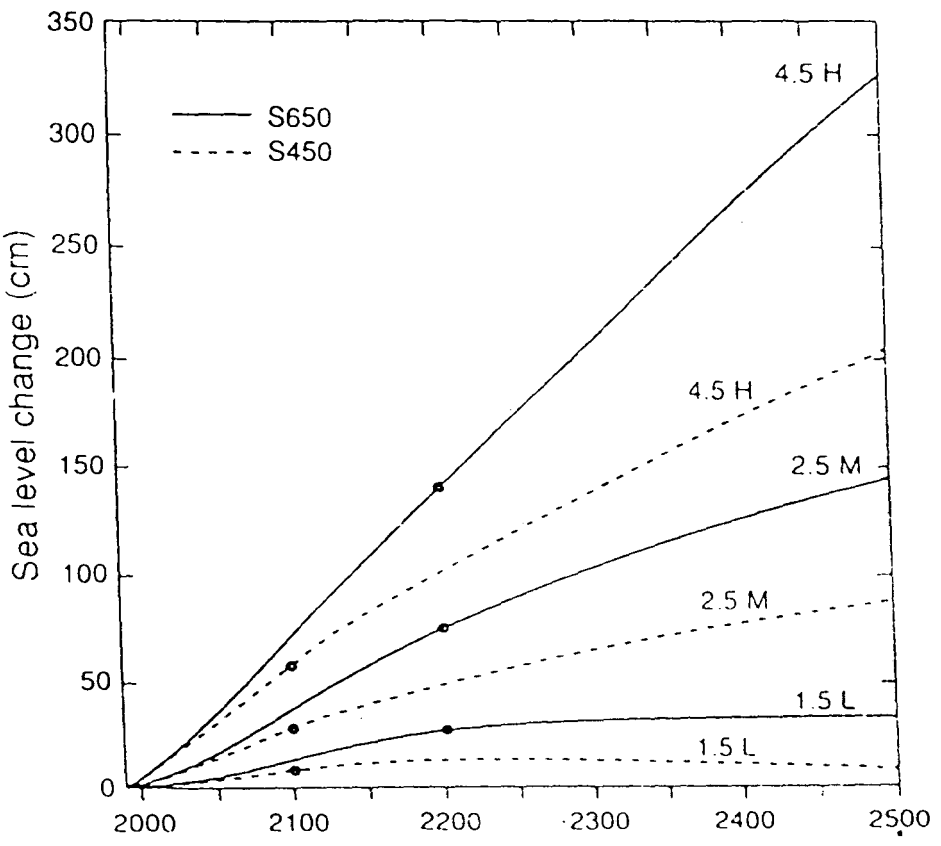
Global warming will affect the sea level by thermal expansion of the oceans by melting mid and high latitudes, small glaciers and ice sheets perhaps by melting the Greenland and Antarctic ice sheets, and possibly by disintegrating the west Antarctic gloating ice sheets.[12]

Various studies suggest that increased temperature are expected to speed up global water cycle. Faster evaporation will lead to a drying of soil and in some areas increased drought. Overall, however, due to faster global cycling of water there will be an increase in precipitation. Sea levels are expected to rise between 6 and 37 inches over the next century. A 20 inch sea level rise could double the population at risk from storm surges, from roughly 40m to over 90 million. Even if

[12] Daviud W. Pearce, & Jeremy J. Warford, "World Without End: Economics, Environment and Sustainable Development", (Oxford University Press, NY1993), p.367.

coastal population does not increase, low lying areas are particularly vulnerable.[13]

Sea level change estimates



Source: Climate Change 1995, of the IPCC

Human health is likely to be affected. Warmer temperature will increase the chances of heat waves (like the Chicago event in 1995 that killed ever 400 people) and can exacerbate air problem such as smog, and lead to an increase in allergic disorders.

[13] H. Oeschger, and L.M. Mintzer, "Lessons from the Ice Core: Rapid Climate Changes during the last 160000 years" in L.M. Mintzer ed., "Confronting Climate Change: Risks, Implications and Responses", (Cambridge University Press, Cambridge, 1992), p. 9.

Diseases that thrive in warmer climates such as dengue fever, malaria, yellow fever, cholera are likely to spread due to the expansion of the range of disease carrying organism.

Agriculture, forests and natural eco-systems are likely to be affected. The poorest countries already subject to food production and distribution problems will be the one to suffer the greatest agricultural impacts.

Climate change also has its effects on non-human parts of the ecology. These effects may include changes in the composition and geographic distribution of many species and recent analysis of ice-core data have shown that earth's average temperature can shift upto 5°C in period of less than the 100 years.[14] As a result of this many species face extinction. The capacity of the species to tolerate rapid climate change depends on how fast they can migrate away from the inhospitable condition.

Implications of climate change for the mankind concern various countries, men and women, the rich and the poor, different professional groups, owners and tenants, different communities and do not affect all of them equally. Certain repercussions go together with

[14] Ibid, p. 13.

advantage for some and disadvantage for others. Most vulnerable to climate change are those countries which:

- depend heavily on agriculture, since this is obviously the economic sector most dependent on climate.
- cannot help themselves easily when agriculture production is detrimentally affected.
- already suffer from droughts or otherwise depend on climate variability.
- will suffer from flooding when the sea level rises.[15]

By analyzing some or all of these conditions, it can be said that they apply to the third world. On the other end certain industrialized countries which depend on climate to some extent could help themselves. With this general and broad analysis, it is observed that the third world is on the loser's side, while the industrialized countries tend to be the winners atleast relatively.

Effects on Japan

The following are some of the chief among many effects that Japan would have to endure as a consequence of GW.

---

[15] Kalus Meyer, Abich, "Winners of Loosens in Climate Change", in Wolfgang Sechs, "Global Ecology: A New Era of Political Conflict", (Fernwood Publishers, Canada, 1993), p. 72.

- In Japan the average temperature has risen 0.9 degrees since the beginning of this century. By 2100 Japan can expect a 1-2.5 degree increase in average temperature and a sea level rise of 20-40cm.

- A temperature increase of 3 degree centigrade would push the isothermal lines north by 500 cm the accompanying impact of which on Japan's agriculture would be grave, as the most popular variety of Japonica, the primary rice strain grown in Japan is vulnerable to high heat. Rice yield would change in a range of 6 percent below to 9 per cent greater than present. Wheat production would be as much as 22 per cent lower.

- Adverse impact on ecosystem would wipe out 40 per cent of beach forests and many plants species.

- Other projections include an increase in disease transmission of epidemic proportions and more natrual disasters such as flooding. A 40 cm rise in sea level would cover 60 per cent of nation's sand beaches, dislocate 4m people who live along the coast and affect property worth £100 trillion in area. Such changes would also subject Japan to more destructive typhoons with accompanying high tides that would do great harm.[16]

---

[16] Hiroyoki, Ishi, "Japan's Challenge in Curbing Global Warming", Japan Quarterly, Oct-Dec, 1997, pp. 20-25.

The world's efforts

Putting the brakes on GW is no easy matter. Some ways to reduce our contribution of GHG's include: setting our fossil fuel are, developing alternative sources of energy to replace fossil fuels use, removing CO_2 from emissions at the sources, eliminating the use of CFCs, slowing or mitigating deforestation and developing agricultural techniques that release less CO_2 to the atmosphere.

In the perspective of these considerations, the Intergovernmental Panel on Climate Change (IPCC) was established in 1988 by world meteorological organisation and the United Nations Environment Programme (UNEP) to assess the scientific basis and impact of climate change. IPCC was given the mandate of providing "internationally coordinated assessments of the magnitude, turning of potential environmental and socio-economic impacts of climate change and realistic response strategies".[17]

In Dec 1989, the UN General Assembly (UNGA) passed a resolution on protection of global climate for present and future generations of mankind. It urged governments, inter-governmental and non-

[17] United Nations General Assembly Resolution, 43/55, 1988.

governmental organisations and scientific institutions to consider climate change as a priority issue.[18]

At the first meeting in November 1988, the IPCC, established three working groups (WG) – they agreed on the inadequacy of the existing level instruments and on the need for a Framework on Climate Change Convention (FCCC) modeled on Vienna Convention and framed so as to gain the adherence of the largest number of nations.[19]

The IPCC's first scientific assessment report was published in 1990 and served to underline the need for the negotiation of Framework Convention to Combat GW.[20]

The UNGA on Dec 21, 1990 adopted the Resolution 45/212, establishing the Intergovernmental Negotiating Committee (INC) as a single inter-government negotiating process under the auspices of General Assembly. With a view to drafting a framework treaty for signature in June 1992 at UN conference on Environment and Development (UNCED) in Rio.[21] The INC was to take into account the

---

[18] Hermann, E. Ott, "Climate Change: an Important Foreign Policy Issue", *International Affairs*, vol. 77, no. 2, April 2001, pp. 280.

[19] Sebastian, Oberthur, "Introduction and Overview", *International Affairs*, vol. 77, no. 2, April 2001, pp. 261.

[20] First assessment report, IPCC. http://www.ipcc.ch.

[21] UNGA, Resolution 4/212, 1990.

work of IPCC and the contribution of UNEP and World Meterological Organisation.

The INC met five times between February 1991 and May 1992. The main controversy during the second meeting of INC was regarding the concept of pledge and review introduced by Japan as a potential compromise on the targets of timetable issue.[22]

Under the Japanese proposal, states were required to make unilateral pledges. consisting of national strategies and responsive measures to limit their green house gas emissions together with an estimate of resulting emissions.[23]

After much hard bargaining, INC was able to in the Earth Summit in 1992 to set up the UNFCCC. Under this convention the parties have committed themselves to the stabilization of GHG concentration at the level that would prevent dangerous arthopogenic interface with the climate system. The treaty came into force on 21 March, 1994. It had a relatively conservative approach of trying to stabilize the

---

[22] Daiel Bondansky, "Prologue to the Climate change convention", in Irving Mintzer, and Leonard Amber, "negotiating Climate Change: The Inside Story of the Rio Convention", (London: Cambridge University Press, 1994), p. 65.

[23] Ibid, p. 65.

concentration of GHG's in atmosphere at a level that will prevent dangerous changes in climate system.[24]

Of the total GHG emissions in the world, the USA emitted 36.1 percent, EU 24.2 per cent, Russia 17.4 per cent and Japan 8.5 per cent respectively in 1990.[25]

Parties to the treaty decided in 1995 to enter the negotiations on a protocol to establish legally binding limitations on reduction in GHG. It was decided by the parties that this round of negotiations would establish limitations only for the developed countries (those listed in Annex 1 to the UNFCCC, including the former communist countries and referred to as Annex 1 countries). Developing countries are referred to as non-annex 1 countries".[26]

At the climate convention's first conference of parties (COP), Berlin, April 1995, countries reached two important conclusions:[27]

---

[24]Thomas C. Schelling, "What makes Greenhouse Sense", *Foreign Affairs*, vol. 81, no. 3, May-June, 2002, p. 3.

[25] Narain Sunita, "Down to Earth", July 31, 2001, p. 33.

[26] Jefferson, Michael, "Climate Change: Falling Behind", The Hindu Survey of the Environment, 1997, p. 21.

[27] Patwardhan, Anand, "Climate Change: Shifting the Burden", The Hindu Survey of the Environment, 1999, p. 131.

- Existing commitments were unlikely to be met by 2000 and additional measures were needed for the period beyond 2000. So new legally binding commitments would be required.

- Action by industrialized countries alone would not stabilize GHG concentration at safe levels because developing countries' emissions would surpass those of industrial countries by 2030. Nonetheless, in recognition of "differential responsibilities", it was agreed that initially only industrialized countries would take on legally binding targets.

Finally, in December 1997, the third Conferenc of Partues saw the long awaited adoption of "Kyoto Protocol" to the UNFCCC in Kyoto, Japan. The protocol is one of the most significant international agreement ever drafted. With potentially profound world wide economic impacts, as it for the first time in history contains legally binding reduction targets of all GHG's. As such it represents a major step forward in the international efforts to avert the threat of climate change.

Dynamics of Japanese climate change policy

A complex set of regulations, standards and practices make up a nation's environmental policy. Although many similarities exist

between policies, each nation's policy has distinctive elements which result from factors such as its legal structure, economic system and cultural context. Japan's environmental policy too is an immense conglomeration of measures, directed towards environmental concern, the remnants of which can be traced to the factors deeply rooted in her socio-political and economic milieu.

A succinct outline of the environmental chronology of Japan can be presented as under:[28]

Year	**Event**
1967	Basic law for environmental pollution control enacted.
1968	Air pollution control law enacted
1970	Environmental Pollution Diet. 14 laws enacted or amended including the Basic law for Environmental Pollution Control Waste Management and public cleansing law and water pollution control law.
1971	Environment agency established
1973	First oil crisis
1974	National Institute for Environmental Studies established.
1977	Industrial Structure Council Compiled a report on how

[28] Environmental Chronology, Environmental Report 2001. http://www.kobelco.co.jp./enviso/report_e/nenpyo.htm.

	wastes should be recycled.
1979	Second oil crisis.
1989	Tokyo Conference on the Global environment: "Environmental Ethics" proposed.
1990	Action programmes to arrest GW adopted.
1991	Global Environment Charter adopted by Keidanren (the Federation of Economic Organisation), Law forPpromotion of Effective Utilization of Recycled Resources enacted.
1992	Waste Management Public Cleansing Law amended.
1993	Basic Environmental Law enacted. Environmental Protection and Industrial Location Bureau formed at the Ministry of International Trade and Industry (now Ministry of Economy, Trade and Industry).
1994	Basic Environment Plan formulated.
1995	Law for Promotion of Sorted Collection and Recycling of Container and Packaging enacted.
1997	Environmental Impact Assessment Law enacted. Japan's Greenhouse gas emission reduction target set at 6%.
1998	GW prevention HQ established. Law concerning the promotion of the measures to cope with GW enacted. Home appliances recycling law enacted. Law concerning the regional use of energy (Energy Conservation Law) amended.

1999	PRTR Law (Law Concerning Reporting etc. of Releases to the Environment of Specific Chemical Substances and Promotion Improvements in Their Management) enacted.
2000	The Basic Law for Establishing the Recycling based society enacted. Law on Promoting Green Purchasing enacted. Law for promotion of Effective Utilization of Recycled Resources Amended. Various Recycling laws enacted Waste management and public cleansing law enacted.
2001	Ministry of Environment formed. Law concerning special measures against PCB (Polychlorinated biphenyl) enacted. Law concerning the recovery of destruction of fluorocarbon enacted.

As international understanding of Japan's influence on the global environment grew, Japan's environmental policies and the institution responsible for their implementation were subjected to increasing scrutiny and pressure. In response the members of a cabinet meeting on global environment agreed on 30 June 1989 that Japan should take a lead in creating an International Framework for protection of environment. In 1989, the Japanese government established the

Council of Ministers for Global Environment Conservation, a select group of public officials to work on global environmental issues.[29]

In July 1989, the administration headed by Prime Minister Sousuka Uno, stated that 1989-90 would be Japan's year of global environmental diplomacy.[30]

Since the 1990s there has been a marked shift in the policy in form adopting principles and measures directed towards mitigating the newly discerned phenomenon of green house. In the 1990s, the Japanese government adopted an 'action programme' to arrest global warming,[31] known as Japan's national climate change program for the period 1991 to 2010. The programme consists of a wide range of actions to be taken by both the government and the private sector to achieve CO_2 emission targets. In addition, the plan also includes measures to reduce emissions of methane and other greenhouse gases, enhance CO_2 sinks (such as oceans and trees which absorbed the GHG's, thereby reducing their concentration in the atmosphere) and foster international cooperation on environmental issues.

---

[29] Environmental programe of Initiatives in Japan. http://www.ela.doe.gov./env./env./japan.html.

[30] Abe, M. &Diden, J.D., "Regional Development Planning in Japan", Regional Studies, vol. 22(5), p. 429-38.

[31] Jacob, Park, "Japanese Policy on Climate Change", http://www.iss.u.tokyo.ac.jp/newslet/ssju/park./html.

Thus, four important global and domestic factors can be cited in the development of Japan's climate change policy.

First, unlike other environmental issues such as deforestation and endangered species, global warming has a particular resonance in Japanese public consciousness. While the threats of deforestation and animal extinction seem far removed from daily life of most Japanese people, the prospect of hotter summers and colder winters is more threatening immediately.

Second, NGO's such as Friends of the Earth, Greenpeace and World Wide Fund for nature seem to be exerting more influence on policy makers in Japan.

Third, Japanese businesses see a large commercial opportunity in the climate change problem. It offers Japanese companies a chance to exploit their well established energy efficiency and environmental technologies.

Four, activism on climate change gives the Ministry of Foreign Affairs a post cold war agenda for its foreign policy and a way of countering Japan's eco-terrorist image. Japan has started to use environmental issues as a way of taking the sting out of foreign criticism over burden sharing.

Japan's position

CO_2 emissions in Japan totalled a record 332 million tons in fiscal 1995 (April-March) (an average of 2.70 tons per capita). The figure for the year that ended in fiscal 1996 was up 0.5 per cent, from the previous record level in fiscal 1994 and some 8.3 per cent higher than fiscal 1990 emission amount. While CO_2 emissions from plants and other industrial sources stayed almost unchanged due to corporate energy saving efforts, emissions from transportation vehicles increased by 16 percent. Emissions from households and corporate offices also increased 16 per cent and 15 per cent respectively, due to the increase in use of air conditioners and electronic products.[32]

Of the global CO_2 emissions totalling about 6.1 billion tons in 1995. Japan accounted for 5 percent ranking fourth in the world. In the light of this perspective, Japan emerges as the worst offender in terms of rate of increase in CO2 emissions over the past 30 years. According to a 1996 report by the Oak Bridge National Lab of US, Japan also ranked among the worst three along with US and Canada in a "score card" report on the world's 20 advanced nations in terms of their CO_2 emissions level and their efforts to combat GW.[33]

---

[32] "NGO's and the Climate Change in Japan", http://www.geic.or.jp/jp-ngo-cc.html.

[33] Hiroyoki, Ishi, "Japan's Challenge in Curbing Global Warming", Japan Quarterly, Oct-Dec, 1997, pp. 20-25.

Japan is a leader in the development of pollution control techniques but is also one of the world's major polluters. It has some of the world's strictest environment quality standards and some of its most environmentally damaged areas.

Japan differs from other countries however in magnitude and polarity of changes as after second world war all of the nation's efforts were directed into developing its economic base. Environmental problems had to reach a critical state with hundreds of people sick or dying of pollution related illness, before their existence was acknowledged.

However, Japan has adduced whole-hearted participation in the international efforts of combating climate change and especially to the Kyoto protocol. As the host of CoP3. Japan has the desire to see the Kyoto Protocol in force because it represents one of the greatest diplomatic achievements and bears the name of its old imperial city. Above all because of its far reaching implications for the way we produce and consumer, the Kyoto Protocol (KP) itself is likely to affect the life of every person living in this planet in the next century more than any other international agreement.

Chapter 2:

KYOTO PROTOCOL AND JAPAN

A protocol is an international agreement that stands on its own but is linked to an existing treaty. This means that the Climate Protocol shares the concerns and principles set out in the Climate Convention. It then builds on these by adding new commitments, which are stronger and far more complex and detailed than those in the convention.

The adoption of Kyoto Protocol (KP) in December 1997, was a significant achievement towards the endeavor to tackle the problem of global climate change at the dawn of the 21st century as it attempts to reverse the trend towards rising emissions of green house gases and presents one of the most astounding achievements in international environment policy.

This is an attempt at long term planning by politicians, very long term that is to say, as it will occupy human kind for the greatest part of the next century. It definitely deserves praise for it embodies the relentless efforts to put together what has been termed, "the most complicated non-military agreement ever".[1]

Negotiations on the Kyoto Protocol to United Nations Framework Convention on Climate Change (UNFCCC) were completed on December 11, 1997 committing the industrialized nations to specified legally binding reductions in emissions of six green house gasses (carbon dioxide, methane, nitrous oxide, hydroflurocarbon, perflurocarbon, and sulphur hexafluoride)[2]. The Third Conference of Parties (COP) to UNFCCC after a long and exhausting

[1] Global Climate Change Student Guide. http://www.doc.mmu.ac.uk/aric/gccsg/html.
[2] Colin Warbreick and Dominic Mcgoldbrick, "Global warming and the Kyoto Protocol : current developments", Public International Law, vol. 47, April 1998, p.446

negotiation adopted differentiated targets for industrialized countries for the commitment period 2008-12 of an average 5.2 percent.[3]

THE BACKGROUND

As scientific consensus grow that human activities are having a discernible impact on global climate system possibly causing a warming of the earth that would result in significant impacts such as sea level rise, changes in life patterns and health effects - and as it become apparent that major nations such as USA & Japan would not meet the voluntary stabilization target by 2000, parties to the treaty decided to enter into negotiations on a protocol to establish legally binding limitations or reductions in green house gas emissions. It was decided by the parties that the 1995 round of negotiation would establish limitations only for Developed countries (Berlin Mandate, 1995)

During negotiations that preceded the December 1-11, 1997 meeting in Japan, little progress was made and the most difficult issues were not resolved until the final days and hours of the conference. There was wide disparity among the key players especially on three items:

- The amount of binding reduction in greenhouse gases to be required and the gases to be included in these requirements

[3] Hermann E. Ott., "The Kyoto Protocol to the UNFCCC-finished and unfinished business", http://www.wuppernist.org/publications/kyotoprotocol.html

- Whether developing countries should be part of the requirement for green house gases limitations.

- Whether to allow emissions trading and joint implementation which allow credit to be given for emission reduction to a country that provides funding or investment in other countries that bring about the actual reduction in these other countries or locations where they can be cheaper to attain.[4]

But finally the COP3 to the FCCC adopted the KP, at Kyoto, Japan. Ambassador Raul Estrada-Oyuba, who had chaired the committee of the whole established by the conference to facilitate the negotiation of the protocol text espoused the view that, "this agreement (Kyoto Protocol) will have a real impact on the production of green house gas emissions. Today should be remembered as the Day of the Atmosphere".[5]

THE PROTOCOL

The KP was opened for signature march 16, 1998 for one year and would enter into force when 55 nations have ratified it, provided that these ratification's include Annex 1 countries that account for at least 55 percent of total carbon dioxide emissions in 1990.[6] On Nov. 12, 1998, the USA signed the protocol in part because the Clinton administration wanted to revitalize what was seen as

[4] Susan R. Fletcher, "Global Climate Change Treaty:The Kyoto protocol", (Congressional Research Service Report for Congress No. 98-2),http://www.cnie.org/nie/elinn.3html.
[5] UN Environmental Programme, (UNEP), press release, 11 Dec. 1997.
[6] "A beginners guide to the UNFCCC and its Kyoto protocol",http://COP.5.unfccc.int/convkp/begconkp.html

some loss of momentum during COP4. As on February 2000, 84 countries had signed the treaty including EU and most of its members, Canada, Japan, China and a range of developing countries. Some 22 countries were reported by the UNFCCC's Secretariat to have ratified the treaty.[7] The latest to ratify were EU and Japan who did so on the 1 June 2002 and 4 June 2002 respectively.[8] Nations are not subject to its commitments unless they have ratified it and it enters into force.

THE PROVISION OF KP: A COMENTARY[9]

Article 1 : preamble and definitions

Article 2 : policies and measures

Article 3 : emission limitation and reduction commitments

Article 4 : joint fulfillment of commitments

Article 6 : joint implementation

Article 12 : the Clean Development Mechanism

Article 17 : Emissions trading

Article 5, 7, 8, 16, 18, and 19: implementation review and compliance

Article 10,11 : developing country participation

Article 13,14,15: institutions

Article 3.9, 9.20,21: review, development and amendment to KP

---

[7] Eizenstat prepared testimony on Kyoto Protocol, http://www.litap.lastate.edu/gep/kyoto/protocol.html
[8] The Hindu, 2.06.2002 and 5.06.2002
[9] "A beginners guide to the UNFCCC and its Kyoto Protocol",http://cop.5.unfccc.int/convkp/begconvkp.html

Article 22-28 : final provisions of KP

The most remarkable feature about the Kyoto Protocol is the wide array of concerns it takes into account. It provides answers to some of the most baffling problems in combating global climate change. These can be enumerated as:

Growing emissions

The protocol response to this problem in the following manner:

- It sets legally binding targets and timetables for cutting developed country emissions. The Convention encouraged the countries to stablize emissions; the protocol will commit them to reducing their collective emissions by at least 5 per cent. Each country's emissions levels will be calculated as an average of the years 2008-2012;[10] these five years are known as the first commitment period. Governments must make "demonstrable progress" towards this goal by the year 2005.

These arrangements will be periodically reviewed. The first review is likely to take place in the middle of the first decade of the new century. At this time the parties will take "appropriate action" on the basis of the best available scientific, technical, and socio-economic information. Tasks on targets for the second commitment period must start by 2005.

- The Protocol addresses the six main greenhouse gases. These gases are to be combined in a "basket", so that reductions in each gas are credited

[10] Kyoto Protocol to the UNFCCC, UNDocument.Fccc/cp/1997/1.7/add.1, article 3.1

towards a single target number. This is complicated by the fact that, for example, a kilo of methane has a stronger effect on the climate than does a kilo of carbon dioxide. Cuts in individual gases are therefore translated into "CO_2 equivalents" that can be added upto produce one figure.

Cuts in the major gases - carbon dioxide, methane, and nitrous oxide - will be measured against a base year of 1990 (with exceptions for some countries with economies in transition).[11] Cuts in the three long-lived industrial gases - hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6) - can be measured against either a 1990 or 1995 baseline.[12]

Carbon dicxide is by far the important gas in the basket. It accounted for over four-fifths of total greenhouse gas emissions from developed countries in 1995, with fuel combustion representing all but several percent of this amount. Fortunately, CO_2 emissions from fuel are relatively easy to measure and monitor.

Deforestation is the second largest source of carbon dioxide emissions in developed countries. Under the Protocol, targets can be met in part by improving the ability of forests and other natural sinks to absorb carbon dioxide from the atmosphere. Calculating the amount absorbed, however, is

[11] In 1996, the CoP 2 agreed that Romania may use 1989 and Polan, 1988 as their respective base years (UN Doc. Fccc/cp/1996/l. 13).
[12] A beginners guide to UNFCCC and its Kyoto Protocol. http://www.cop5.unfccc.int/convkp/legconk.html.

methodologically complex, so the Governments must still agree on a common approach.

The second most important gas covered by the Protocol is methane. Methane is released by rise cultivation, domesticated animals such as cattle, and the disposal and treatment of garbage and human wastes. Methane emissions are generally stable or declining in the developed countries and their control does not seem to pose as great a challenge as carbon dioxide.

Nitrous oxide is emitted mostly as a result of fertilizer use. As with methane, emissions from developed countries are stable or declining. Nitrous oxide and methane emissions are also similar in being relatively difficult to measure.

One major group of greenhouse gases that the Protocol does not cover is chlorofluorocarbons. This is because CFCs are being phased out under the 1997 Montreal Protocol on Substances that Deplete the Ozone Layer. Thanks to this agreement, atmospheric concentrations of many CFCs are stabilizing and expected to decline over the coming decades.

However, the Protocol does address three long-lived and potent greenhouse gases, that, like CFCs, have been created by industry for specialized applications. The use of HFCs and PFCs threatens to go up dramatically in part because they are being adopted as ozone-safe replacements for CFCs. Governments are now working to make sure that the incentives and controls for ozone depletion and global warming are compatible.

The third man-made gas, sulphur hexafloride, is used as an electric insulator, heat conductor, and freezing agent. Molecule for molecule, its global warming potential is thought to be 23,900 times greater than that of carbon dioxide.

- The Protocol recognizes that emissions cuts must be credible and verifiable. Ensuring that governments comply with their targets will be essential to the Protocol's success. Each country will need an effective national system for estimating emissions and confirming reductions. Standardized guidelines must be crafted to make figures comparable from one country to the next and the whole process transparent.

The Protocol allows governments that cut emissions more than they are required to by the national target to "bank" the "excess" as credit for future commitment periods.

Making our behaviour and economies more climate-friendly

The protocol addresses this concern in the following manner:

- It highlights effective domestic policies and measures for reducing emissions. National governments can build a fiscal and policy framework that discourages emissions. They can phase out counter-productive subsidies on carbon-intensive activities, and they can introduce energy-efficiency and other regulatory standards that promote the best current and

future technologies. Taxes, tradable emissions permits, information programmes, and voluntary programmes can all contribute.[13]

Local and urban governments - which often have direct responsibility for transport, housing, and other greenhouse gas-emitting sectors of the economy - can also play a role. They can start designing and building better public transport systems and creating incentives for people to use them rather than private automobiles. They can tighten construction codes so that new houses and office buildings will be heated or cooled with less fuel.

Meanwhile, industrial companies need to start shifting to new technologies that use fossil fuels and raw materials more efficiently. Wherever possible they should switch to renewable energy sources such as wind and solar power. They should also redesign products such as refrigerators, automobiles cement mixes, and fertilizers so that they produce lower greenhouse gas emissions. Farmers should look to technologies and methods that reduce the methane emitted by livestock and rice fields. Individual citizens, too, must cut their use of fossil fuels - take public transport more often, switch off the lights in empty rooms - and be less wasteful of all natural resources.

The Protocol also flags the importance of conducting research into innovative technologies, limiting methane emissions from waste management and energy systems, and protecting forests and other carbon sinks.

[13] Ibid, p. 13.

- The Protocol encourages governments to work together. Policymakers can learn from one other and share ideas and experiences. They may choose to go further, coordinating national policies in order to have more impact in a globalized market place. Governments should also consider the effects of their climate policies on others, notably developing countries, and seek to minimize any negative economic consequences.

Dividing the burden fairly

The protocol responds as follows:

- It assigns a national target to each country. In the end, it was not possible to agree in Kyoto on a uniform target for all countries. The resulting individual targets were not based on any rigorous or objective formula. Rather, they were the outcome of political negotiation and compromise.

The protocol states that Annex 1 parties are committed individually or jointly to ensuring that their aggregate anthropogenic carbondioxide equivalent emission of GHG's do not exceed amount assigned to each country in Annex B to the protocol. Annex I list the six major GHG's covered by the treaty. Annex B lists 39 nations including US, EU plus the individual EU members. Japan and many former communist countries. The amount for each country are listed as percent of base year, 1990 (except for some communist countries)[14] and

[14] In 1996, the cop agreed that Romania may use 1989 and Poland 1988 as their respective base years,(UN Doc. FCCC/CP/1996/L.13)

range form 92 percent (8 percent reduction) for most European countries to 110 percent (an increase of 10 percent) for Iceland.[15]

Once the protocol has entered into force Annex 1 parties must submit an annual inventory of emission to the convention's Secretariat, enabling expert review teams to provide a full assessment of such parties' Compliance to the protocol.[16]

The overall 5% target for developed countries is to be met through cuts of 8% in the European Union (EU), Switzerland, and most Central and East European states; 7% in the US; and 6% in Canada, Hungary, Japan and Poland. New Zealand, Russia, and Ukraine are to stabilize their emissions, while Norway may increase emissions by upto 1%, Australia by upto 8%, and Iceland 10%.

The EU has made its own internal agreement to meet its 8% target by distributing different rates to its member states, just as the entire developed group's 5% target was shared out. These targets range from a 28% reduction by Luxembourg and 21% cuts by Denmark and Germany to a 25% increase by Greece and +27% for Portugal.

- The Protocol offers additional flexibility to the countries with economies in transition. In particular, they have more leeway in choosing the base year against which emissions reduction are to be measured. They also do not share the commitment of the richer developed countries to provide "new

[15] Collin Warbrick and Dominic Mcgoldbrick, "Global Warming and the Kyoto Protocol: Current Developments", Public International Law, vol. 47, april 1998, p. 456.
[16] Art. 7(1), The Secretariat is located at Bon, Germany

and additional financial resources" and facilitate technology transfer for developing country parties.

- It also reconfirms the broader commitments of all countries - developed and developing. Under the Convention, both developed and developing countries agree to take measures to limit emissions and adapt to future climate change impacts; submit information on their national climate change programmes and emissions levels facilitate technology transfer; cooperate to scientific and technical research; and promote public awareness, education, and training. These commitments are reaffirmed in the Protocol, which also sets out ways of advancing their implementation.

Article 10 of the protocol reaffirms existing commitments in climate change convention [17] on part of both annex 1 and non-annex 1 parties. It includes the obligation periodically to update national inventories or green hose gases to formulate and implement national progress to reduce effects of climate change. The protocol does call on all the parties developed and developing to take a number of steps to formulate national and regional programs to improve "local emission factors", activity data, models and national inventories of GHG emission and sinks that remove these gases from the atmosphere.

Combating climate change economically

Calculating the costs of climate change policies is not easy. How quickly power plants and other infrastructure are replaced by newer and cleaner

[17] Article 4(1) of Climate Change Convention

equipment, how interest rate trends affect corporate planning and investment, and the way businessmen and consumers respond to climate change policies are just a few of the variables to consider.

Costs can also vary from place to place. In general, the costs of improving energy efficiency should be lower in countries that are the most energy inefficient. Countries in the early stages of industrialization may offer cheaper opportunities for installing modern environment friendly technologies than do countries whose industrial plant is already developed. And so on.

- The Protocol innovates by giving Parties credit for reducing emissions in other countries. It establishes three "mechanisms" for obtaining these credits. The idea is that countries that find it particularly expensive to reduce emissions at home can pay for cheaper emissions cuts elsewhere. The global economic efficiency of reducing emissions is increased while the overall 5% reducing target is still met. The Protocol stipulates, however, the credit for making reductions elsewhere must be supplementary to domestic emissions cuts.

Governments must still decide just how the three mechanisms for doing this will function. The rules they adopt will strongly influence the costs of meeting emissions targets. They will also determine the environmental credibility of the mechanisms - that is, their ability to contribute to the Protocol's aim rather than opening up "loopholes" in emissions commitments.

- An emissions trading regime will allow industrialized countries to buy and sell emissions credits amongst themselves. Countries that limit or reduce emissions more than is required by their agreed target will be able to sell the excess emissions credits to countries that find it more difficult or more expensive to meet their own targets. Trades will be needed to be approved by all of the involved parties. Beyond this, however, the rules have not yet been decided on.

Trading means that any nation that under uses its emissions quota (commitment) may transfer its unutilized quota (the excess of its allowed emission over actual emissions) to any country that offers financial compensation.

Japan, Russian and Ukraine are the most prospective beneficiaries of this provision of the protocol as they have large areas of their territory under forests which act as sinks or GHG absorbers.

	1990 level (MtC)	Kyoto target (weighted)	Deficit (surplus) emissions					
			A1	A2	A3	B	C1	C2
Russian federation	650	0.0%	-102	-9	-367	-877	-532	-552
Ukraine	178	0.0%	-28	-3	-101	-241	-146	-152
Total	828	0.0%	-130	-12	-468	-1117	-667	-703

Some observers are concerned that the Kyoto targets of some countries are so low that they can be met with minimal effort. These countries could then sell large quantities of emission credits (known as "hot air"), reducing pressure on other industrialized countries to make domestic cuts. Governments are debating the best way to ensure that emissions trading does not undermine incentives for countries to cut their own domestic emissions.

- Joint Implementation (JI) projects will offer "emissions reduction units" for financing projects in other developed countries. A joint implementation project could work like this: Country A faces high costs for reducing domestic emissions, so it invests in low-emissions technologies for a new power plant in Country B (very likely an economy in transition). Country A gets credit for reducing emissions (at a lower cost than it could domestically), country B receives foreign investment and advanced technologies, and global greenhouse gas emissions are reduced: a "win-win-win" scenario.

The basic concept of JI should be "supplemental of domestic actions".[18] Two aspects here are worth mentioning. First, article 6.1 refers to annex 1 of the FCCC and not to annex B of the protocol

Second, any treaty may authorize "legal entities" to participate under its responsibility in JI activities.

[18] Idem. Art. 6.1(d)

Not only governments, but businesses and other private organizations will be able to participate directly in these projects. Some aspects of this approach have already been tested under the Convention through a voluntary programme for "Activities Implemented Jointly". Reporting rules, a monitoring system, institutions, and project guidelines must still be adopted. Not only must this infrastructure establish the system's credibility, but it must ensure that JI projects transfer appropriate and current technology, avoid adverse social and environmental impacts, and avoid distorting the local market.

- A Clean Development Mechanism will provide credit for financing emissions - reducing or emissions - avoiding projects in developing countries. This promises to be an important new avenue through which governments and private corporations will transfer clean technologies and promote sustainable development. Credit will be earned in the form of "certified emissions reductions".

This is another important free market component of the Kyoto Protocol which embraces the US proposal for "Joint implementation of credits"[19]

The CDM will allow companies in the developed world to enter into cooperative projects to reduce emission in the developing world-such as the construction of high-tech environmentally sound power plants for the benefit of both parties. The companies will be able to reduce emission at lower costs

[19] "The Kyoto Protocol on Climate Change", Fact sheet released by the Bureau of Oceans and International Environment and Scientific Affairs, Jan 15, 1998. http://www.state.gov/www/global/oes/fs_kyoto_climate_980115.htm.

than they could at home, while developing countries will be able to receive the kind of technology that can allow them to grown more sustainable. The CDM will certify and score projects .The CDM can also allow developing countries to bring projects forward in circumstances where there is no immediate developed country partner.[20]

Under the CDM, companies can choose to make investments in projects or to buy emission reductions; in addition parties will ensure that small portion of proceeds be used to help particularly vulnerable developing countries, such as island states, adapt to the environmental consequences of climate change.

Importantly, certified emission reductions achieved starting in the year 2000 can count towards compliance with the first budget period. This means that private companies in the developed world will be able to benefit from taking early action.

It would allow companies based in wealthy countries to invest in emission reduction projects in poorer countries and receive credit towards their own reduction targets. It's hoped that this provision will encourage cost saving technologies and provide possible source of income for developing nations.

The CDM has a dual purpose in that it enables developing countries to operate projects which result in emission reduction and to contribute to the objectives of the convention, and also allows annex 1 countries which finance such

[20] ibid, p.2.

projects t o reduce their own emissions totals. The private sector will be encouraged to participate in such projects.

The introduction of CDM was supported by the G-77 group of developing sates despite long standing fears that this type of joint implementation between annex 1 parties and developing states would allow rich developed states as finance projects in the third world, gain credit for doing so.[21]

Whereas joint implementation and emissions trading merely shift around the pieces of the industrial countries' overall 5% target, the CDM involves emissions in developing countries (which do not have targets). This in effect increases the overall emissions cap. Verification is therefore particularly important for this mechanism.

The Protocol already details some of the ground rules. The CDM will be governed by the Parties through an Executive Board, and reductions will be certified by one or more independent organisations. To be certified, a deal must be approved by all involved parties, demonstrate reductions that would be additional to any that would otherwise occur. A share of the proceeds from CDM projects will be used to cover administrative expenses and to help the most vulnerable developing countries meet the costs of adapting to climate change impacts. Again, the operational guidelines must still be worked out.

[21] Article 12(3) of the Protocol

Calculated Commitments

Calculating credits for activities

Under Article 3.4 in the first commitment period]

I tier	Full credit for forest management, upto the level of net emissions under article 3.3, with an annual limit of 8.2 million tonnes of carbon.
II tier	15 per cent credit beyond first tier for forest management
III tier II + IIII tier LULUCF projects under CDM and JI	Full credit for agricultural management. Not more than 50 per cent of Kyoto target for countries that have to reduce their emissions below 1990 levels, or not more than 2.5 per cent of base year emissions for countries that have for countries that have to maintain their emissions at 1990 levels or can increase them.

Implementation of policies and measures by industrialized countries: In achieving the green house gas emission reductions specified in the protocol, Annex 1 parties will implement and or elaborate policies and measures such as energy efficiency programs,[22] measures to protect carbon sinks and reservoirs,[23] afforestation and reforestation activities,[24] sustainable forms of agriculture,[25] the promotion of research and development of technology limiting carbon dioxide emissions[26] and programs that will reduce GHG emissions in the transport sector. In doing so annex 1 parties will cooperate with one another to enhance the overall effectiveness of such policies[27] and

[22] Kyoto Protocol to the UNFCCC, UNDoc. Fccc/cp/1997/l.7/add.1, Article 2(1)(a)i
[23] Idem, Art. 2(1)(a)ii
[24] ibid.
[25] Idem, Art.2(1)(a)iii
[26] Idem. Art. 2(1)(a)iv
[27] Idem. Article 2 (1) (b)

take into account the effect of such pollicies on those states particularly vulnerable from the effects of global warming such as Organisation of Petroleum Exporting Countries (OPEC)[28]

The "EC Bubble": Joint Action By EC Member States: Annex 1 parties may agree to take joint action to fulfil their emission reduction targets provided that they have notified the Secretariat to that effect. Any agreement between the two countries must indicate the emission level attributed to each state concerned.[29]

This provision is of particular relevance to the European community and thus has been refereed to as the "EC bubble". However the notification must set out the respective obligations for each party to such an agreement and will remain operative for the duration of a full commitment period. The accession of new member to the EU does not affect the obligations for this period.[30]

Under the bubble as long as the EC achieves its overall reduction targets of minus 8 percent, the community as well as the all of its member states are deemed to be in compliance. Should the EC fail to achieve its own target the community (since it is a party to the protocol) as well as those individual members that have not achieved their target under the notified agreement will be held "responsible".[31] Should the parties establish a non-compliance

[28] Idem. Article (2) (3)
[29] Idem. Art. 4(1)
[30] Hermann Ott, The Kyoto Protocol to UNFCCC-finished and unfinished business",http://www.wuppernist.org/publiccation/kyoto_protocol.html
[31] Kyoto protocol, Art. 4.6

procedure, the European Community might thus be forced with sanction under this mechanism.

The burden sharing agreement agreed to by the Environment Council in March 1997 will have to be renegotiated due to the inclusion of three more gases and inclusion of sinks (oceans and forests that absorb GHG's thus reducing their concentrations in the atmosphere). Despite this apparently positive result however, the EU and its member states did not fare well in those negotiations. Furthermore, their proposal contained some provisions that would have allowed the EU and its member states utmost flexibility. This was not only unacceptable to many industrialized and developing countries, but in turn it undermined their credibility to press for higher reduction targets for all industrialized countries. It should be noted that Article 4 is framed in general terms and does not allow all other parties to enter into a bubble agreement as well (which could be termed "trading without rules").[32] Already in Kyoto, the US, Japan, Canada, Australia, New Zealand and Russia engaged in bubble negotiations. This general bubble provision has the potential to create a loophole in the protocol's obligations. No mandate to negotiate further rules for "bubbling', however, has been given to the conference of parties so far.

Protocol reaffirms the existing commitments on parties to cooperate in the transfer of environment friendly technologies to the developing countries.

[32] Hermann Ott, The Kyoto Protocol to UNFCCC-finished and unfinished business",http://www.wuppernist.org/publiccation/kyoto_protocol.html

Developing Countries Participation: World's developing counties are not currently required to reduce their own green house gas emission although-Argentina and Kazakhastan have voluntarily agreed to do so.[33]

While annual green house gas emission in a few developing countries are growing rapidly, industrialized countries (the US in particular) are disproportionately responsible for global greenhouse gas emission and for increased concentration of such gasses in the atmosphere. They are therefore obligated to take the first step. Various protocol provisions taken together represent a preliminary step on developing country participation in efforts to reduce green house gas emission:

- Developing countries will be engaged through the clean development mechanism (CDM)
- The protocol advances the implementation by all parties of their commitments under the 1992 FCCC. For e.g. The protocol identifies various sectors (including the energy, transport, and industry sectors as well as agriculture, forestry and waste management) in which action should be considered in developing national programs to combat climate change and provide for more specific reporting on action taken.

[33] "The Kyoto Protocol on Climate change", Fact sheet released by the bureau of oceans and international environmental and scientific affairs, jan 15, 1998, http://www.state.gov/www/global/oes/fs_kyoto_climate_980115.html

Several annex 1 parties including Japan strongly supported a proposal by New Zealand that reference to a process to establish new commitments in the form of emission limitation objectives on the part of the wealthier developing states should be included in the protocol. The proposal noted that any emission limitation objectives adopted in this process would not have been applicable in the 2008-12-commitment period. This proposal was rejected by the developing countries as being contrary to the spirit of "Berlin Mandate" which decided on no introduction of new commitments for developing states. However New Zealand's proposal was dropped.

The issue of emissions targets for developing countries, and the broader question of how commitments should evolve in the future given continuing growth in global emissions, has generated a great deal of intense debate. A proposal that the protocol should establish a procedure whereby developing countries could take on voluntary commitments to limit (that is, reduce the rate of increase) in their emissions was not accepted in Kyoto. Many developing countries resist formal commitments, even if voluntary, that would put an upper limit on their emissions noting that their per capita emissions are still low compared to those of developed countries. Once developed countries start to convincingly demonstrate that they are taking effective actions to achieve their emissions targets, the debate on how new countries might eventually be brought into the structure of specific commitments may be revived.

This is in keeping with the step-by-step approach of the intergovernmental climate regime. The Kyoto Protocol is not an end result, and can be strengthened and built on in the future. What's more, although developing countries are not currently subject to any specific timetables and targets, they are expected to take measures to limit the growth rate of their emissions and to report on actions they are taking to address climate change. There is a good deal of evidence that many developing countries are indeed taking steps that should help their emissions grow at a slower rate than their economic output. This is particularly true in the field of energy.

Compliance And Enforcement: The protocol contains several provisions intended to promote compliance. These include requirement related to measurement of green house gases, reporting and review of implementation.

The protocol also contains certain consequences for failure to meet obligations, for e.g.. A party not in a compliance with its measurement and reporting requirements cannot receive credits for joint implementation efforts.

Effective procedures and a mechanism to determine and address non-compliance are to be decided at a later meeting. For both environmental and competitiveness reasons, the United States will be working on proposals to strengthen the compliance and enforcement regime under the protocol.

Non-Compliance Procedure: The first COP to the protocol was to establish an appropriate ineffective non compliance procedure and in doing so was

supposed to draw up an indicative list of consequences taking into account the type, degree and frequency of non-compliance.

It is important to note that if the non-compliance mechanism provides for the possible imposition of binding penalties on parties. The introduction of such a mechanism can be made only by formally amending the protocol and not simply by decision of the COP to the protocol. It is therefore possible for a party which objects to the implementation of binding penalties to signify such disapproval by failing to ratify the amendment to the protocol in which case the amendment would not apply as far as that party is concerned.

The Kyoto Protocol should be regarded as a milestone in the history of climate change as although it does not represents a final solution to the manifold problems confronting the international community as regards cooperation on climate change, but it does, however, provide a sound basis for international climate policy in the next century.

JAPAN'S EFFORTS IN PURSUANCE OF KYOTO PROTOCOL

For Japan the real test lies just ahead: convincing the world community of the reality of the global warming crisis, clarifying the existing gaps and ambiguities in the new protocol and achieving its enforcement in time to ameliorate the most serious environmental problems facing our planet. With this understanding Japan took following measures in this regards with the intention that other states might follow Japan's example and follow suit:

1. **NEW TASK FORCE TO ARREST GLOBAL WARMING:** recognizing global warming as one of the pressing issues humanity is facing today, the government of Japan took swift action by deciding to set up the Task Force to Arrest Global Warming on 19 December 1998.[34] The task force headed by the Prime Minister Hashimoto comprised of ministers and state agency heads with special assistance provided by the Environment Agency (EA), the Ministry of international trade and industry. It works for smooth coordination and implementation by government agencies and ministers of the KP.

POLICY AREA OF THE TASK FORCE

a. Carbon dioxide emission reduction

b. Methane and nitrous oxide emission reduction

c. Emissions limitations by hydroflyurocarbons, perflurocarbons and SF6

d. Afforestation and reforestation on carbon sinks enhancement

e. International cooperation

f. Promotion and support to voluntary public initiative for life style challenge

2. **GLOBAL ABATEMENT POLICY:** At a meeting of Central Environment Council (CEC), the highest advisory body to the government on environment matters, on 16 December, 1997, Environment Minister

[34] "Climate change: Japan's post Kyoto initiatives"; Japan Environment Quarterly, vol. 3, no. 1, march 1998, p, 1

'OKHI' formally submitted a request for CEC to recommend a national long term green house gas emissions reduction strategy including explaining national legislation necessary for implementing the protocol.[35]

3. **ENVIRONMENT AGENCY'S POST KYOTO INITIATIVES:**[36] In order to fulfil the national targets in the KP, the EA conducted an agency wide effort and working for efficient coordination within the rest of the government. A project team to arrest GW was set up within the EA. Further measures announced by EA on 12 Jan. 1999 included:

National Abatement Policy: government prepared for domestic legislation to implement the international accord. In order to achieve the legally binding targets through limitation and reduction of six GHG emissions, carbon sinks enhancement and reduction credit purchases, EA prepared a comprehensive legal package aimed at stimulating voluntary Initiatives by all sectors, a balanced and effective implementation of official instruments such as regulatory measures, economic instruments and public works. Equally important were reviewing and updating the previous action program to arrest GW (announced in 1990) examining technological and factual aspects to secure the reduction of GHG emission by 6 percent from 1990 levels. Plans on the table to deepen public awareness of global warming and expanding citizen efforts include information dissemination in cooperation with local

[35] ibid, p.3
[36] Ibid.p.5

governments continuation of the economic life pledge aiming for 1 million pledges, organizing conferences and giving strong support to various voluntary activities which aim for a shift of objectives from "awareness raising" to "citizen participation and action".

International mechanisms: Advances in scientific understanding about carbon sinks and other issues are needed urgently to guide negotiations. Part of the EA research budget will be used for this purpose. Active contributions to the IPCC are expected through Japan's research on IPCC criteria and guidelines to calculate sinks not only in forests but also in agricultural land. One of the most important issues left in the post Kyoto process relates to developing countries efforts to tackle global warming. Japans answer to the need for technical transfer to developing countries was reflected in the "Green Initiative" advocated by PM Hashimoto at the UN special session for Environment and Development. In order to materialize the Green Initiative, the existing support measures will be strengthened with emphasis on capacity building. In addition, the EA planned to set up a global warming information center (provisional name) and to create a new international committee to start building the infrastructure for a healthy global environment in the future, entitled committee for future image of earth environment (provisional name).[37]

Kyoto initiative announced by Japan at Kyoto conference consists of human resources development (plan to train three thousand persons in area related to

[37] Ibid, p. 6.

combating global warming in five years from 1998), provision of official development assistance loans with the most concessional conditions (0.75 percent annual interest rate and a 40 year repayment period) and transfer of Japan's technology and expertise to developing countries.[38]

Japan also plans to play a leadership role in international negotiations by planning to host an ECO ASIA Congress, a ministerial meeting including developing countries, to discuss agenda item towards the fourth conference of parties to the UNFCCC.

Strengthening Scientific Infrastructure: Japan strengthened its contribution to science relating to global warming through projects at the new institute to study long term policies for sustainable development particularly in Asia and the Pacific; through rule of the global warming mechanisms and improve the accuracy of forecasts and through work to predict and assess the impact of global warming on eco-systems, water resources, industry and human health under different scenarios and consideration of early warming systems.

The task of addressing the threat of climate change will involve all sectors of society. In its capacity, the EA is involved in many of the initiatives mentioned above to make its contribution to finding solutions.

[38] "Japan's Policies Towards Environmental Development Assistance", Japan International Cooperation Agency (JICA), Global Issues.
http://www.jica.go.jp/english/global/environment/policies.html.

Prior to the Earth summit (officially called UNCED) in Rio in 1992, the Japanese government was determined to "make contributions" to the international community concerning the global environmental issues. Subsequently Japan proposed to set up the World Commission on Environment and Development (UNCED)-the so called Brutland commission at the General Assembly of thew UN and actually made a financial contribution to the idea. In the 1989 Tokyo Declaration, to the Earth summit in 1992, Japan promised financial aid for developing countries to tackle the environmental issues and later implemented more than promised. Furthermore, at the UNCED special session of the United Nations General Assembly (UNGA) in 1997, Japan announced a "Green Initiative" that focussed on technology transfer to developing countries.[39]

In an effort to reduce carbon dioxide emissions in industry, the sector that accounts for about 60 percent of Japan's total carbon emissions, the government has promoted energy saving technology under "the energy conservation law". The law has improved standards on fuel combustion and provided for assistance in energy measures and low interest financing.

In the residential sector, five main initiatives have been undertaken:

- Tightening standards on insulation in construction
- Strengthening standards for home appliances

[39] Ibid, p. 7.

- Utilizing waste heat and promotion other under utilized forms of energy through low interest financing
- Decreased demand for cooking through measures to plant more trees in urban areas
- Formulating an urban environment policy to help integrate environmental safeguards into city planning.[40]

In the transport sector carbon dioxide emission are being curbed by setting and strengthening standards for gasoline engine cars. Fuel efficiency targets for the year 2000 have been set at 8.5 percent greater than 1992 on average. Freight transport is shifting again towards railway and coastal shipping because of interest free loans and special taxation measures. Increased use of public transportation is being promoted, as is the development of transportation system that general less carbon dioxide such as monorails and high speed rails

JAPAN'S POLICY TOWARDS ENVIRONMENTAL DEVELOPMENT ASSISTANCE:

The UNCED served as an opportunity to address the environmental problems that concern the international community. The Japanese government demonstrated its active involvement in environmental cooperation by announcing that it would expand its environment related official development assistance (ODA) to a total of yen 900 billion to yen 1 trillion during a five

[40] Environmental Program and Initiative. http://www.eva.doc.gov/emeu/env/japan/html.

year period beginning in 1992. In reality however, by 1997, Japan's ODA in the environmental field had surpassed this goal by 40 percent reaching a figure of yen 1.44 trillion (approx. $ 13.3 billion).[41]

In June 1997, five years after the UNCED, then Japanese Prime Minister Hashimoto announced before the UNGA in New York the "initiative for sustainable development towards the 21st century (ISD)", a comprehensive environmental cooperation policy primarily involving Japan's future ODA

ISD laid out an action plan that deals with the following five areas:

- Measures to fight air and water pollution
- Global warming
- Water issues
- Protection of natural environment
- Capacity development in the environment

Since the historic conference in Kyoto in 1997, Japan has been making its all out efforts in close cooperation with other partners for the successful outcome of all negotiations. In course o f its negotiations Japan has always striven to ensure the viable and sustainable system and mechanism to achieve the goals under the convention and the KP.

[41] Japans policies towards Environmental Development Assistance http://www.jica.go.jp/english/global/eng/policies.html

OTHER ENDEAVOURS: A ministerial conference on the protection of global environment was set up in 1989. In 1990 the conference adopted an action plan for reduction of green house gases called the 'Action Program to Arrest Global Warming', which aimed to achieve interim goals by 2000. Taking the opportunity to host the Kyoto Conference in 1997, related government councils, including the Central Council for Environment, started discussing the situation of GHGs emissions and the proposal of GHG reduction. The government organized a joint conference of related councils and reported their results of studies conducted on the reduction of carbon dioxide. According to the government report, carbon dioxide emissions in 1995 had increased by approximately 9 percent since 1990.[42] Even if carbon dioxide levels are suppressed, and even if Japan implements measures like building additional nuclear power plants, carbon dioxide levels in the year 2010 would be approximately equal those of 1990. Considering that trend, Japan realized that unless it takes drastic policy measures, meeting the 6 percent GHG emissions reduction target assigned in the Kyoto Protocol would be extremely difficult. Consequently Japan set itself on the path of such changes which included:

- Adoption of Charter for Establishment of Institute for Global Environmental Strategies (IGES): On Dec. 7th, 1997, the charter of a new organization, the

[42] "Climate Change: Japan's Post Kyoto Initiaives", Japan Environment Quarterly, vol. 3, no. 1, March, 1998, p. 8.

IGES was adopted. It will provide a forum for cooperation of related people and organizations worldwide. It is expected to develop strategies and policies to address global environment issues. Key research themes of IGES are:

a. Climate Change

b. Environmental Education

c. Environmental Governance

- New Environmental Training Facilities: On 16th Oct. 1997, the EA announced the completion of additional facilities at the National Environment Training Institute in Tokorozawa. At the new facilities training courses will be held for personnel to be engaged in international environmental cooperation.

Internationally also Japan has been at the center stage along with the US since the inception of negotiations on climate change latching itself with the deliberateness regarding each issue meticulously making its opinion heard and enforced.

Japan along with EU initially favored counting only three gases – carbon dioxide methane, nitrous oxide. Finally a distinction was made in the 6 gases, demarcated in the form of different base years for three man made gases. The "three gas approach" adopted by Japan was approved by the US and finally a

different base year was demarcated as the baseline for the first three main gases, as a concession to Japan. Japan persistently argued for inclusion of carbon sinks in the inventories. The term "sink" is commonly used to refer to the uptake of GHG's by forests or soil etc. The final compromise allowed for the inclusion of net changes in GHGs-emissions resulting from direct human induced, land use change (limited at first to Afforestation, reforestation and deforestation since 1990, Article 3.3). The organs of the FCCC are requested to consider adding other activities to this list drawing up further work by the IPCC.

The inclusion of sinks might one day be considered as the biggest flaw of the KP. This is in large part because of the uncertainty regarding those three activities; the language is not particularly clear and does allow for a wide range of different interpretation. Second, the protocol does allow for the retroactive application of any decision on additional human induced activities for the first commitment period. This creates more uncertainty as regards the actual scope of party's obligation. Third the inclusion of sinks considerably reduces the obligations for a number of parties. Finally, and perhaps most dangerous the inclusion of sinks might undermine the verifiability and thus the credibility of the Kyoto protocol. It is of utmost importance; therefore that the future conferences of parties clarify this issue in order to prevent erosion of the protocols legitimacy and effectiveness.

Ms. Yoriko Kawaguchi, Minister of environment of Japan stated that, "Japan is committed to supporting the efforts of developing countries addressing climate change because this is a global protocol requiring global response". It announced the "Kyoto initiative" in 1997.[43] Under this, Japan has committed itself to providing on average about 2.4 billion US$ annually in highly concessional loans for projects related to climate change in developing countries. Japan has also provided financial and technical assistance amounting to 7400 million US $ for climate change projects since 1988. Japan considers developing countries should be legitimately recognized as contributing to strengthening developing countries actions against climate change.[44]

Finally, as for policies to prevent global warming, more tangible measures should be outlined. To help solve this issue, Japan's current socioeconomic system of mass production and mass consumption must be reviewed and rethought. A consensus on tangible measures to shift the country towards a more recycle-oriented society(such as encouraging the "greening" of Japan's industrial structure, and introducing economic instruments and tax incentives into environmental policies) has not yet been formed in Japan. A mechanism by which the administrative agencies, the industrial sector, and citizens can all take part must be developed.

---

[43] Japans policies towards Environmental Development Assistance http://www.jica.go.jp/english/global/eng/policies.html.
[44] Ibid.

CONCLUDING REFLECTIONS

Because the KP will affect virtually all major sectors of the economy. It is considered to be the most far reaching agreement on environment and sustainable development ever adopted. This is a sign that the international community is willing to face reality and start taking concrete actions to minimize the risk of climate change.

Chapter 3:

CLIMATE CHANGE ISSUE - JAPAN AND THE WORLD: THE LINKAGES

Measures to prevent global warming are regarded as the greatest challenge for Japan's environmental policies now. Especially since the Kyoto climate change conference, 1997, concerns about global warming have grown. As a consequence Japan has endeavored to render meaningful cooperation with other states in the efforts towards mitigating climate change.

Each year Japan provides much support to environmental protection projects around the world through its international aid programmes and non-governmental organisation. As demonstrated by its role as the host of the Dec. 1997 conference on Global Climate Change in Kyoto, Japan plays a lead role in the area of climate change and cooperates closely with the US on a number of broad environmental issues.

Under the "Common Agenda Framework" established in 1993, the US and Japan formed the "Environment Policy Dialogue", a forum for regular consultation on global environmental issues such as: biosafety, forestry, climate change, coral reefs and endangered species. The US Environmental Protection Agency and the Japanese National Environment Agency also consult regularly.[1]

[1] 'Environment in Japan', Fact Sheet released by the Bureau of East Asian and Pacific Affairs, US Dept. of State, http://www.state.gov/www/regions/eap/japan/fs_japan_enviro_000626.html

INTERNATIONAL COOPERATION MEASURES PURSUED BY JAPAN

The Foundation : A notable feature of the Basic Environment Law, 1993 of Japan is that it has a provision on the international cooperation for conserving the global environment. Because global environment issues cannot be solved by Japan alone, the law specifies that the central government facilitate international cooperation in international arenas such as the United Nations (UN) to support the conservation of environment in developing countries as well as to promote international cooperation activities conducted by local public organisations and private groups. It also has a provision for consideration of environmental issues in developing countries while conducting business outside Japan.

These measures are not designed as binding legal obligations, but rather as clear policy statements regarding national goals. But because this law includes stipulations, such as 'international cooperation' importance should be attached to the reference on international cooperation as part of domestic environmental policies in the law. According to the law a basic environment plan – the basis of comprehensive and long term policies on environmental protection should be formulated to puruse forward environmental protection systematically. This is, to formulate a Japanese version of national action plan for Agenda 21, decided at the RIO conference.

Forums

1. **North-East Asian Environment Meet:** Japan hosted the sixth North East Asian Conference (NEAC) on Environmental Cooperation, organised by the Environment Agency (EA) of Japan on 14-16 Oct. 1997 in Niigata, Japan, with the participation of China, the Republic of Korea, Mongolia and the representatives of United Nations Development Program (UNDP), United Nations Environment Program (UNEP). NEAC acts as a forum for the exchange of information and views on environmental issues on North East Asia and seeks to strengthen environmental cooperation.[2] Here Japan's proposal of Acid Deposition Monitoring Network in East Asia and the Expert meeting for long range transboundary Air pollution in North East Asia were recognized as beneficial.

2. **Asia Pacific Network for Global Climate Research (APN) :** The third inter-governmental meeting of APN was held in Beijing from 11-13 March 1998. Here Japan along with 15 other countries decided on founding of about US $ 500,000 to support global climate change research in the region, and the "human dimensions of global environmental change".[3]

---

[2] Japan Environment Quarterly. Vol.3, No.1, March 1998, P.5
[3] ibid. p. 2

The APN is an inter-governmental network whose primary purposes are to foster research about global environmental change in the Asia Pacific region, to increase developing country participation in that research, and to strengthen links between the scientific community and policy makers.

With Japan's active participation, the APN's priority areas were deliberated as ;

- Climate change system and variability
- Coastal processes and impacts, including sea level changes
- Terrestrial ecosystems change and impacts
- Other- impacts of agriculture on environment and policy support research.

The first workshop was held in Tokyo. The Secretariat of APN is based in Tokyo, sponsored by the EA of Japan.

3. **Eco-Asia Long Term Project :** The Long Term Project was first proposed at Eco-Asia ,1993 Congress (Ministerial meeting on Environment) to provide decision makers in the Asia Pacific region with a scientific basis for policy formulation to achieve sustainable development for a period leading upto the year 2025.

The fifth international workshop on the Eco Asia Long Term Project was held in Tokyo on 3-4 March, 1998 attended by participants from 14

countries in Asian Pacific region and five organisations. The main purpose of meeting was to plan an action oriented phase II of the project. Four main concepts of EcoAsia Long Term Project are :

- Eco consciousness
- Eco partnership
- Eco technology and Eco investment
- Eco policy linkages

In the Eco Asia Congress held at Sendai, (September, 1998) Japan led the countries to an agreement on objective of phase II as :

a. to identify options for the environment policy that can promote the long term sustainable development of Asia Pacific region and indicate environmental issues that may emerge from different development scenarios in the region.
b. To provide input to Eco Asia Congress for consideration as a possible contribution to 'RIO+10' conference to be held in later part of 2002
c. To enhance human resources and institutional capacities of the participating countries to realize sustainable development through implementation of this project.
d. United Nations Framework Convention on Climate Change

POST KYOTO DEVELOPMENT : OVERVIEW

The Kyoto-protocol adopted at the Third Conference of Parties set the ball rolling for all the environmentally conscious states to pursue and put into action what had been put in words at COP3. As a corollary various conferences of parties were held for the purpose; the chronology of which is as under:

COP 4	Buenos Aires	12-13 November, 1998
COP 5	Bonn	23 October – 24 November, 1999
COP 6	Hague	13-25 November, 2000
COP 6	Bonn	July 2001 (recommenced)
COP7	Marrakech, Morocco	16-27 July 2001

There have been four initial issues that have caused major upsets at all recent climate negotiations:

The first is related to the role of "Carbon Sinks" or trees and agricultural land that can store carbon which might otherwise be emitted into the air.[4]

Countries with Kyoto - prescribed targets want to be allowed to claim "credits" for afforestation and other atmospheric carbon-absorbing measures. But environmental groups of developing countries argued that this would provide loopholes that world defeat the very purpose of the

[4] Questions Remain over Kyoto Protocol, Geir Moulson, July 24, 2001, http:www//:speakout.com/activism/apstories/19970-1.html.

Kyoto Protocol. Japan, Russia, and Canada are particularly enthusiastic about "carbon sinks" whereas the EU considers sinks as a means of resorting to loopholes in order to avoid targets. [5]

The second issue relates to the demand from developing countries for funds to make technology transfers that would enable them to cope with problems caused by global warming.[6]

The third issue and probably the most contentious – relates to the role of an international regime in "carbon trading". The regime would allow countries with prescribed pollution target (mainly developed countries) to take credit for pollution-abatement projects in the developing world. Moreover, they would also participate in "hot air" trading among themselves.

[Russia's emission of CO_2 today is some 30% below 1930 level. Emissions of Ukraine are even lower and in both cases emissions are not expected to rise to 1990 level until 2008. This so called "hot air" therefore constitutes a "reservoir" from which western countries might cheaply buy emission

---

[5] Beekeff Delivers Kp to UK, 7 March, 2002, http://www.depa.gov.uk/news/2002/020307a.htm.

[6] Hermann, E. Ott., "Climate Change: An Important Foreign Policy Issue", Interntional Affairs, vol. 77, No. 2, 2001, p. 281.

credits rather than failing to meet their targets and facing harsh provision of non-compliance.].[7]

There has been apprehension that weak rules would leave the system open to abuse by major polluting nations.

The fourth problem has been one of ensuring that countries adhere to the protocol.

(A) BUENOS AIRES ACTION PLAN

Although it had been expected just after the 1997 Kyoto conference that the November 1998 COP-4 meeting in Buenos Aires would negotiate and begin to resolve some of the more difficult issues left unresolved in Kyoto, it became clear during the year leading up to COP 4 that parties were far from agreement. And so all the parties arrived in Buenos Aires with an agenda focused on formulating an "action plan" that would give final shape to the provisions, the details of which were left to be decided at a future conference of parties through negotiations between states. These include:

- Rules and guidelines for the "market-based mechanisms" that allow flexibility to parties in meeting their obligations, including emissions

[7] Kyoto Protocol Carbon Bubble: Implications for Russia, Ukraine and Emission Trading, Gordon J. MacDonald, International Institute for Applied Systems Analysis, A-2361, Laxenburg, Austria

trading, joint implementation and the Clean Development Mechanism (CDM).[8]

- Rules and procedures that would govern compliance, including provisions covering non-compliance with the treaty's commitments. This issue was left entirely open at Kyoto and was one of the major challenges facing negotiations.

- Issues concerning development and transfer of cleaner, lower-emitting technologies, particularly to developing countries;

- Consideration of the adverse impacts of climate change and also the impacts of measures taken to respond to it. [9]

Another issue under active negotiation and consideration by the parties related to was defining carbon sinks, including how to measure and verify the categories of carbon sinks. It was decided that the scientific panel that provides analysis to the parties, the Intergovernmental Panel on Climate Change (IPCC), should conduct a comprehensive study on land use, land-use change, and forestry activities to identify their roles as carbon sinks and deal with the measurement and verification issues related to them.

---

[8] Susan R. Fletcher, "Global Climate change treaty: the Kyoto protocol ", Congressional Research Service Report, 98-2, http://www.cnie@cnie.org.
[9] Ibid. pp. 3

(B) COP - 5 BONN, 23 October-24 November, 1995

It injected a new sense of vision and hope into the process. At Bonn, Japan along with 14 EU countries and Germany announced that they would work for an early entry into force of the protocol by 2002.[10]

(C) Subsequently At G-8 meeting (April 2000) in Otso, Japan, Japanese and EU leaders supported the entry into force of the Kyoto Protocol by the symbolic 2002 (10^{th} anniversary of Rio Summit, where UNFCCC was adopted) date though this was resisted by Canada and the US.

(D) The Sixth edition of COP of the UN on climate change was held at The Hague in November 2000. The conference was convened to shape the modalities of a plan that would ensure that countries reach the quantified targets that they were committed to at COP, at Kyoto in 1997 to reduce consumption of greenhouse gases responsible for global warming. But on November 25, after 11 days of hard bargaining among 160 participatory nations, talks collapsed after the EU and the US failed to settle a bitter row over ways to stop Global Warming.

The president of the COP6, Jan Pronk, the Dutch Minister of Housing, Spatial planning said, "unrelated success had been achieved by negotiations at Kyoto in reading an argument on quantified emission

[10] http://platts.com/kyoto/relatedkyoto.shtml.

targets".[11] He added that greater challenges lay in working out the arrangements and details to achieve these targets.

At the Hague conference, the US insistence on credits for 'carbon sinks' (forests and vegetation that draw CO_2 during photosynthesis and store it in the ground or wood) led the talks into a deadlock. The US argued that 'carbon sinks' projects undertaken by developed countries should also qualify for credits as they contributed to the cooling of the earth. Before COP6, the US had even indicated that it might be able to meet half of its reduction target by taking recourse to this method alone.[12]

Negotiators from EU countries opposed the US suggestion, which they perceived as an attempt by the US to prevent the curtailment of fossil fuel use. It was pointed out that US accounted for almost one-fourth of all green house gas emissions, and that an average American created three times as much green house gases emission, as the average French residents.[13]

Other thorny issues leading the negotiation, at the conference of Parties at Hague, to a collapse were - penalties for non-compliance, a proposed

---

[11] Michael Gross & Forha Yamin, "Climate collapse at the Hague: what happened, why and where do we go from here? Int. Affairs, Vol.77, No. 2, April 2001, pp. 256

[12] Ibid. p. 259

[13] Henry, Jacob, D. nd Reiner, David, M., "Getting Climate Policy on track after The Hague", *International Affairs*, Vol. 77, No. 2, 2001, p. 297.

market for trading pollution quotas and funding and technology transfers to developing countries.

However, a last ditch attempt to salvage the agreement was made by the delegates from key EU and umbrella group parties. They met in Ottawa for the preparation of minister level meeting which was planned soon after in Oslo. Since Ottawa meeting did not yield desirable results, the Oslo meet was cancelled.

Then US President George Bush pulled out of the 1997 Kyoto treaty in March 2001 saying that the deal signed by his predecessor, Bill Clinton would harm the economy. By pulling out of the deal, Bush removed the world's biggest economy, the emitter of one quarter of the world's man-made green house gases from a system based on 7 countries of the world-acting concert.[14]

However, COP6 reconvened in May 2001 in Bonn, Germany. The Bonn meeting saw the agreement on main points of the notebook but it was a relatively political agreement. The Bonn Agreement of July 2001 was in favour of Japan, Russia and Canada. It allowed the three countries to earn credits by planting trees and managing forests to soak up carbon, although scientific opinion on the "measurability" of carbon sinks was divided. The result was that a greater efficiency in the burning of fossil fuels will, it is

[14] Multilateralism unlikely for Kyoto
http://www.chinadaily.net/indy/2001-10*15/38386.html.

estimated reduce emissions by less than 2%, while the rest of the 5.2% reduction by 2012 is to be brought about by the use of indirect instruments. Obviously, countries can continue to be less than careful about the burning of fossil fuels. The agreement allowed Russia to offset 3% of the emissions against forest and land management, Japan and Canada were allowed even more. This in effect gave these countries a 25% discount on their emission targets, and these discounts which can also be sold to countries, which surpass their quotas.

A positive feature of the draft of Bonn Agreement was the framing of rules for punishment of countries, which do not meet their targets by 2012. The defaulting country it was agreed, would have to make up the shortfall at a penalty rate of additional 30 percent of the existing reduction targets, provide on action plan showing how it intended to cut emissions and would be barred from emissions trading.

Under the agreement reached in Bonn, Russia was allowed to claim a maximum of 17 million tonnes of carbon a year from 'sinks'.[15]

At this meeting, countries decided to push ahead with Kyoto Protocol in the hope that US would return to the treaty in the near future.

[15] Christiaan, Vrolijk, "Climte Change: the Road from Marrakesh", *The World Today*, February 2002, p. 27.

COP 7 - Marrakech

After four years of tortuous negotiations, the Kyoto Protocol was rendered fit for ratification and entry into force, following the agreements on the roles for its implementation at the latest round of talks in Marrakech.

Legally, the Marrakech agreement has fixed a tri-polar climate change regime consisting of "annex 1 minus one" (the industrialized countries apart from the US) the developing countries and the US. Even within these three regions, various sub-regions are emerging. The most obvious is within Annex 1 minus one, which can be broken down further into the EU, and it is near abroad, and the wing umbrella group (Japan, Australia, Canada, and Russia).[16]

The outcome of Marrakech is that the Kyoto protocol has been modified one last time, but it is finally ratifiable. Based on universally agreed legal texts of over 200 pages the "Kyoto-Bonn-Marrakech" agreement is now clearly discernible into treaty with reasonably predictable features. Non compliance will carry legally binding consequences, including ineligibiligy to participate in the flexibility mechanisms. The compliance regime will be put into place after the entry into force of the Kyoto Protocol. Rules and caps will set upper limits on the extent to which

[16] CEPS Commentary, November2001-Thomas legge and Christian Egenhrfer;http://www.scoop.co.nz/mason/stories/HL0205/Sooo24.html

countries can claim credit for their forestry and agricultural sinks. The rules for the flexible mechanisms - the CDM, and emission trading - have been set, although it is questionable whether this will lead to an international market for emission permits. International funds have been established to help least developed countries adapt to the effects of climate change.

At the Marrakesh, (COP 7) meet, the Russian demand of partially meeting its target of 8% under the proposal, through ttheuse of sinks to eh tune of 33 million tons of carbon was conceded; which was almost double of what it had demanded (17 Mtc) at COP6 – Bonn.

JAPAN AND CLIMATE CHANGE NEGOTIATIONS: THE MORASS

As the host country of the Third Session of the Conference of the parties to the UNFCCC (COP 3), Japan took a lead among the developed countries in the implementation of the Kyoto Protocol (KP). Japan has sought to promote positive national responses for this purpose. It is also important for developed countries to build the best of developing countries by exhibiting the seriousness in their implementation of the KP.

Japan's CO_2 emissions increased considerably by 9% from 1990-1996. For this reason, it was necessary to start immediately taking actions as much as

possible to meet the targets smoothly and confidently for the first commitment period which starts in 2008.

Japan's diplomatic moves must be seen in reflection of its importance in Kyoto Protocol's implementation. The Protocol can enter into force only when the Protocol is ratified by:

- at least 55 countries which are parties to the UNFCCC, including
- industrialized countries with emissions reduction commitments, called annex I countries, whose total emissions account for at least 55% of the total CO^2 emissions of 1990 of all annex I countries.

In 1990, the US accounted for 36% of the industrialized countries emissions.[17] Making the Protocol work without the US means finding countries to make up 55% of carbon emissions as only this can the protocol enter into force as per the 'double trigger clause' (Article 24 of the Protocol). The Kyoto protocol specifies that emissions from only those countries would be counted which communicated the percentage of emissions reduction on or before the protocol was adopted. Ukraine with roughly 2.5% communicated its 1990 emissions after the adoption and therefore, including it in the calculation will require an agreement by all countries. The options now therefore are:

[17] Michael Grobb and Farhona Yamin, p. 271.

- The EU (with Switzerland) 24.5% + Norway .3% + Russia 17.4% + Economies in transition (EIT's) 7.4% + Japan 8.5% = 57.1%.
- EU (with Switzerland) 24.5% + Norway .3% + Russia 17.4% + EIT's 7.4% + Canada 3.3% + Australia 2.1% = 55%.
- EU (with Switzerland) 24.5% + Norway .3% + Russia 17.4% + EIT's 7.4% + Canada 3.3% + Ukraine 2.5% = 55.4%.[18]

Therefore, it is essential that besides EU, Russia and all EITs

- Japan ratifies the protocol, or
- Canada and Australia ratify, or
- Canada and Ukraine ratify

With this perspective Japan introduced the "Bill for the measures to Tackle Global Warming" submitted to the Diet on 28 April 1998.[19] The core idea of the bill, essentially is that it urges all the relevant social sectors to make efforts to mitigate climate change, including formulation of plans for there actions and public reporting of the plan and the state of their implementation.

The major points of the bill are described below:

---

[18] Narain, Sunita, "Kyoto Protocol", Down to Earth a July, 2001, pp.33.
[19] Japan Domestic Exports to follow up on the Kyoto Conference". http://wired.com.

1. This is the first law in Japan with the explicit objective of combating global warming. Currently there is no law in Japan requiring the limitation of greenhouse gas (GHG) emissions. This law provides a basis upon which government measures and initiatives by each social actor will be developed.

2. The law promotes measures to reduce all six GHG emissions. As to carbon dioxide, it promotes a variety of measures, not limited to traditional energy saving whch has been promoted for long.

3. The law promotes public reporting of plans and the status of their implementation by the national Government and local authorities as well as business, which emit large volumes of GHGs.

4. Local authorities are requested to implement detailed measures taking into account their local natural and social conditions, following the idea of "Think Globally, Act Locally".

5. The law provides measures to raise awareness and to provide information dissemination in order to promote climate friendly lifestyles of citizens. (In each prefecture, a Center for Promoting Activities to Prevent Global Warming will be designated, and voluntary admission granted as a tribute to the emission limitation efforts by others (e.g. through providing energy efficient apparatus).

6. Limiting GHG Emissions Resulting from Daily Activities, etc.

(a) Prefectural governors are authorized to appoint voluntary advisors who promote awareness raising for climate friendly lifestyles. Prefectural governors are also authorized to designate an existing organization as the prefectural center for promoting Activities to Prevent Global Warming.

(b) The Director General of the Environment Agency may designate an existing organization as the national Center for Promoting Activities to Prevent Global Warming in order to promote awareness raising and information dissemination nationwide, carry out research to promote climate friendly lifestyles, and provide information for consumers about climate friendly goods, etc.

7. Public Reporting of Total Emissions of GHGs.

The Government shall make public the nation's total GHG emissions annually.

8. Cooperation of Related Ministries and Agencies, etc.

(a) The Director General of Environment Agency may request the cooperation of related ministers regarding measures to limit GHG emissions.

(b) The Director General of Environment Agency may request the submissions of information and explanation from prefectural governors.[20]

This Bill was adopted in 1998.

Before COP 6 in July 2001, Japanese environment Minister, Yoriko Kawaguchi, visited Washington for more talks. Thus, at that point of time, like USA, Japan also thought that the provisions of the protocol are flawed and need to be readjusted. And also like the US, Japan too was worried about the role of non-industrialized nations, which under the protocol would only be subject to voluntary targets, not binding ones.[21]

Japanese industry then opposed ratifying Kyoto Protocol without the participation of the US.[22]

Subsequent to COP 6, Japan welcomed the political declaration delivered by other members of Annex 1 countries at the end of COP6 at Bonn, and associated itself with many elements included in the declaration, such as those regarding the streamlining of the Global Environment Facility (GEF) procedure, and the establishment of an Adaptation Fund, a special climate change fund and a least developed countries fund, which should

[20] Ibid. p. 2
[21] "Kyoto Protocol at Crossroads", July 13, 2001. http://www.wired.com/news/politics/01283,45189-2000html.
[22] Ibid. p. 2

contribute substantively to supporting the efforts of developing countries in tackling climate change.[23]

According to the Ministry of Economy, Trade and Industry, Geneva, because Japan is the most advanced country in world in terms of energy saving, actually it has less room than other countries to reduce CO_2 emissions using existing resources. This fact, along with the looming deadline, created a sense of crisis within the Japanese government. Therefore, government representatives at the conference in Bonn (COP 6) negotiated tenaciously for broad acceptance of alternative methods of reducing CO_2, such as relying on forests as sinks.

At the same time the Japanese government made painstaking efforts to avoid a situation in which the USA, would be left permanently outside the framework. The government hoped to ensure that the rules would allow the possibility of a future US participation. Taking into account the position of the US, Japan also succeeded in the last minute negotiation to shelve the establishment of a system that would impose penalties on countries that fail to meet their reduction targets, a provision advocated by EU but opposed by the US.

---

[23] Statement of Japan delivered by H>E>M>Yoriko, Minister of environment of Japan, 23 july 2001',http://www.env.go.jp/en/topic/statement/0723,html

The "Bill on Amendment of the law concerning the promotion of the measures to cope with global warming" which aims to ensure the appropriate and smooth implementation of the Kyoto protocol was decided at the cabinet meeting on march 29,2002. These matters were submitted to the 154th ordinary Diet session.[24]

In the final stage of the negotiations– the EU relented on the use of forest absorption or sinks, and decided to allow greenhouse gases from 1990 levels that it is required to make under the pact. As this figure exceeded its demand of 3.7% Japan got more than what it expected.[25]

Inspired by the success of other countries like Brazil, Argentina, China and India, Japan too is considering introduction of a policy of mixing ethanol with gasoline to reduce automobile emissions. Mandatory use of ethanol as a fuel additive for cars in the same blending ratio as Brazil would reduce Japan's CO_2 emissions by about 2% as CO_2 emissions of 1225m tonnes in the year of March 31, 2001.

Between 1990 and '99 Japan is estimated to have emitted 9360000 tonnes of CO_2, 3.7% of global total. So overall emissions will have to fall to

[24] Kyoto Protocol, Ministry of Foreign Affairs of Japan, march 29, 2002, http://ww.mofa.go.jp/announce/announce/2002/3/0329-2.html
[25] Japan Gains Concessions on KP, http://www.jpcj.jp/e/shingo/jb/134.html.

about 2% below their 1990 level within the next decade in order to comply with the targets under the KP[26].

With the Agreement reached at COP7 Japan began full scale preparations for ratification of the KP, by vigorously promoting the following measures.

(i) to review the correct outline for global warming prevention in order to attain the Kyoto Protocol objectives.

(ii) To implement full-scale preparations for the next ordinary services of the Diet in order that approach of ratification of the Kyoto Protocol and the adjustment or establishment of the domestic structures necessary for ratification can be achieved.

(iii) In order that objectives of Kyoto Protocol are attained, it is vital that each and every person in Japan changes his or her lifestyle in order to prevent global warming and that socio-economic reforms progress through technological innovations such as the development and dissemination of energy efficient equipment machining.[27]

WORLD'S EFFORT

EUROPEAN UNION : On 1st June, 2002, EU formally ratified the Kyoto Procol legally binding member states to their greenhouse gas reduction

---

[26] Aya Takada, "Japan eyes ethanol to cut greenhouse gas emissions", http:www.hindustantimes.com/nongram/201201/Lfor08.asp.

[27] Reporting subsequent undertakings towards the ratification of the KP. Nov. 12, 2001. http://www.moga.go.jp/policy/environment/warm/cop/cop7_1.html.

commitments, averaging an 8% cut across the community. Member state reduction targets agreed in June 1998 under the "Burden Sharing Agreement" include[28]:

Luxembourg	28%
Germany	21%
Denmark	21%
Austria	13%
UK	12 %
Belgium	7 %
Italy	6 %
Netherlands	6%
Finland	0%
France	0%
Portugal	27%
Greece	25%
Spain	15%
Ireland	13%
Sweden	4%

The EU is now committed through Kyoto protocol, to a 12% reduction in greenhouse gases emission by 2008 to 2012 as compared to 1990 levels. The UK program aims to reduce CO2 emissions by 20% by 2010. Recent energy projections show that the UK is confident of meeting the original commitment of the Framework Convention of or a stabilization in CO2

[28] European to ratify KP, Eddie Weekly Summarises, http://www.edie.net/news/miche/5257.clm.

emission by 2000 and may exceed it by between 6 and 13 mtc below 1990 levels.[29]

Overall emissions will have to fall to about 2% below their 1990 levels within the next decade. The UK's Royal Commission on Environment pollution is among those arguing a 60% cut over the next half century in British CO2 emission.[30]

THE UNITED STATES OF AMERICA : America's CO2 emission by 2000 was about 13% above 1990 levels. To comply with its Kyoto assigned amount of 7%, the US would still have needed to get over 20 million tones of carbon a year of emission credits through the Kyoto mechanism and sinks.

Thus on February 14, 2002 US president announced a "new environmental path for America", the alternative to Kyoto protocol. Bush outlined a voluntary scheme for reducing the rate of growth in America's GHG emissions that "will benefit the entire world". His proposal involved encouraging American companies to comply with regulations to slow the increase in pollution of the skies. The plan is aimed at cutting "intensity" – emission per unit of gross domestic product by 18% over 10 years. Bush

---

[29] Global Climate Change Student Guide (6.11.5), http://www.doc.mmu.ac.uk/arie/gccsg/6-11-5.html.
[30] Japan Cools on Climate Pact", BBC News, 3rd Jan, 2002. http://news.bbc.co.uk/hi/english/sci/tech/newsid_1740000/1740677.stm.

favored tax credits to companies cutting pollution levels but opposed the compulsion of Kyoto protocol.[31]

But critics condemned the policy saying that this would mean a rise in emission of carbon dioxide over the next decade instead of the cuts required by the Kyoto protocol. They said that Bush administration's own forecast of growth of GDP over the next decade is 38% meaning that the emission will rise by 14%.[32]

US proposals are expected to increase emissions by 30 to 40% above 1990 levels compared with previous US target of a 7% reduction by 2010.

AUSTRALIA : In 1998 Australian Federal Cabinet had voted to ratify only after the US had done so, and subsequently, Australian environment minister David Keng signed a climate action partnership with the US. However, recently the federal government is coming under increasing pressure from Australian business, led by emerging industries in the environment sector service to ratify the Kyoto protocol on climate change.

While the government and the Aluminum council have argued that ratification could cost jobs and investment, other companies are considering moving offshore to take advantage of Kyoto protocol's opportunities.

---

[31] The Hindu, 15th February, 2002.
[32] Ibid.

According to the executive director of the Australian institute, Clive Hamilton, non-ratification of the protocol amounted to a betrayal of Australian business with losses to be counted in billions. Australia's business stands to lose access to carbon credits worth between $ 1 billion and $ 2 billion per year on the world market. Dr. Hamilton said, "if Kyoto Protocol is not ratified, no one –not farmers, corporations or any of the state governments will be able to access this revenue stream".[33]

Thus the government is shortly to receive a detailed analysis of the impact on Australia of the final Kyoto rules laid down in Marrakech in November 2001 and take a decision thereby.

DEVELOPING COUNTRIES : China's overall CO_2 emissions fell by 7.3% between 1990 and 2000 and its methane emissions declined by 2.2% between 1997 and 2000. Due to investments in new technologies and renewable energy sources such as wind power.[34]

In the African continent-Uganda holds that it will protect its natural environment and attract environment friendly investment under the Kyoto protocol expected to be ratified by the year 2005, reports General Tenywa, the Minister of state for investments.[35]

---

[33] Julie Maeken, Australia: KP non-ratification 'Costing Billions', http://afr.com/australia/2002/03/27/FFXAWRK192C.html.
[34] Feedback: KP, Monday 6th May, 2002. http://www.scoop.co.n2/mason/stories/HL0205/500024.htm.
[35] KP to protect nature, New Vision (Kampala), May 2, 2002. http://allafrica.com(stores/200205020298.html.

Throughout the negotiations the developing world has put up a consistent position of opposing any mandatory targets for them in the manner prescribed for the developed world. They seek as a matter of right and concession from the developed world, the transfer of environment friendly technology for a more healthy development theirs which would be consonant with the concern for environment.

EPITOME

In the absence of US, it is for Japan and EU to decide whether to take up the challenge of leadership in such a core area. It is for the US president to demonstrate statesmanship by not interfering with this vital policy area and by letting the world go ahead with international cooperation. The world needs US leadership, but sometimes the leader has to step back in order to pass on the baton to a fresh runner.

CONCLUSION

Japan has been a reactive state in the area of international environment policy making largely because of the lack of original scientific research into global environmental issues, the absence of strong environmental interest groups and the weakness of the Environment Agency. Here the contrast with countries like the Netherlands, and Germany is sharp. Nevertheless, while the push for policy change in Japan around international environmental problems may have originated abroad, these pressures were not effective until linked to the interest of domestic policy actors.

Not until non-cooperation in the international arena appeared more costly than participating in an international agreement did MITI and Japanese Chloro Fluro Carbons (CFC) manufacturers agreed to a policy change, first minimally in 1980 and then more significantly in 1987. Thus powerful interests groups content with keeping the status quo were able to shape Japan's international environmental position keeping them largely off agenda.

The unprecedented surge in environmental policy activity in Japan in recent years, however, cannot be so simply explained. The process was far more complicated and involved a far greater number of actors. International science and political developments were important in shaping a new international

context, but policy change in Japan came largely because domestic actors found ways to link their own interests to the global climate change debate.

A new environmental group, "*zoku*", centered around former Prime Minister, TAKESHITA, saw in the environment a way to improve international relations while pursuing 'clean' politics. This group played a very important role in legitimizing international environment issues and getting them onto the domestic policy agenda.

The environment issue in Japan has been marked by a constant clash of interests between the Environment Agency (EA) and the MITI but what is particularly striking are the numerous occasions the Liberal Democratic Party (LDP) chose to put its weight behind the EA's interpretation of the direction that the environment policy change should take. Although MITI continues to have great influence over the shape of Japan's international environmental policy stance, developments in the global climate change debate suggest a rather pluralistic policy making process with bureaucrats, environmental groups, politicians and business interests trying to influence policy output.

Still the most influential factor causing a transformation in the international policy agenda of Japan's environmental policy community has been the emergence of the problem of global climate change. This problem confronts not only Japan but the whole international community as the effects of increased concentration of greenhouse gases in the atmosphere are presently

the greatest threats to the viability of life on earth. Even though we have a sufficient knowledge to establish that the threats are genuine and that the first indicators of damage have already been observed, there remains much uncertainty regarding how the effects will impact in practice and where on earth the impacts may be most dramatic.

Thus in this context, the Third Assessment Report (TAR) of the IPCCs three working groups (July 2001), convey the message that:

- The climate is changing and it's caused by human activity.
- Socio-economic and natural systems are vulnerable to change in the climate, and costly problems could arise,
- Green house gas emissions and the impact of climate change can be mitigated successfully at a relatively low cost.

So in facing up to man-made climate changes, humanbeings are going to have to think in terms of decades and centuries. The job is just beginning. Many of the effects of climate shifts will not be apparent for two to three generations. In future every one may be hearing about and living with this problem.

In such a context, the Kyoto Protocol should be regarded as a milestone in the history of climate protection. It provides a relatively sound basis on which to proceed into the next century.

However, it is convincing that, while efforts need to continue in search for a global agreement on Kyoto scale issues, some domestic and international attention needs to be reallocated from the battle over national targets and timetables to those international gains. If a Kyoto style agreement is put back on the rails, the efforts will not have been wasted, because these issues would have needed to be dealt within any event. If international agreement on binding emissions reduction is delayed for a number of years, than the efforts made on these measures can yield experiences with green house emissions mitigation policies and help in creating conditions favorable to a future international agreement.

So, Japan need not procrastinate in the face of any adverse eventuality confronting the implementation of the Kyoto protocol which Japan was so persistent about, as it bears the name of its historic imperial city. What Japan needs to be contented about is that it atleast put global environment issues on to the policy agenda, making environmental policy change possible on a scale not seen since the early 1970's. This means that the EA finds varying degrees of support for its policy ideas where before it had largely found indifference or opposition.

Remarkably, notions of what the environment is, have changed in Japan, as the change in vocabulary to explain environmental problems has changed. In the 1960's and early 1970's newspapers referred primarily to '*kogai mandai*'

(pollution problems). By the late 1970's and early 1980's the environment was increasingly referred to in terms of '*kankyo madai*' (environmental problems). Finally in recent years, the phrase '*chikyu kanko*' (global environmental problems) has become commonplace.[2] Businessmen, bureaucracies and political parties have reorganized to incorporate this kind of global environmental thinking into their operation. New kinds of environmental groups have also emerged and existing ones were established where none existed before. The changes that have occurred in recent years will alter the nature of environmental policy making in Japan for years to come.

[2] policy laggard/policy leader, 'a new basic law on the environment', http://law.rikyo.ac.jp/npa/020104.htm

BIBLIOGRAPHY

Primary sources

- (1991, 8 March) report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the Work of its First Session held at Washington D.C., from 4 to 14 February 1991, UN Document A/AC.237/6.

- (1991, 19 August) Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the Work of its Second Session, held at Geneva from 1991 to 28 June 1991 UN Document A/AC237/9.

- (1993, 6 January) Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the Work of its Sixth Session, Held at Geneva from 7 to 10 December 1992, UN Document A/AC237/31.

- (1995, 6 June) Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the Work of its Eleventh Session, Held at New York from 6 to 17 February, 1995, UN Document A/AC 237/91. Add 1.

- (1995, 6 June) Report of the Confidence on a First Session, held at Berlin from 28 March from 7 April 1995, Addendum, UN Document FCCC/CP/995/7/Add.1.

- IPCC (1998) Report Of the First Session of the WMO/UNEP.

- Intergovernmental Panel on Climate Change, Geneva, 9-11 November World Climte Programme Publications Series, TD-No. 267, Generva: World Metrolcgical Organisation.

- (1980) Report of the Second Session of the WMPO/UNEP Intergovernmental Panel on Climate Change, Nairobi, 28-30 June, World Climate Publication Series, IPCC-3, Geneva: World Meteorological Organisation.

- (1990) IPCC First Assessment Report, Volume 1, Geneva: WMO/UNEP, August, Overview.

- (1994a) 'Equity in an International Agreement on Climate Change', paper for IPCC Working Group II Workshop on Equity and Social Consideration Related to Climate Change, Nairobi, July 1994.

- UNCTAD (1992) Tradable Entitlements for Carbon Emissions Abetments, Geneva: United Nations Conference on Trade and Development, INT/91A 29.

- UNCTC (1992) Climate Change and Transnational Corporation: Analysis and Trends New York: United Nations Centre on Transnational Corporations.

- UN General Assembly (1990) 'Protection of Global Climate for Present and Future Generation", Resolution 45/212, 21 December.

- (1992) "Protection of Global Climate of Present and Future Generation of Mankind", Draft Resolution, 25 November, Document A/C.2/47/L. 58.

- (1979 b), "The Declaration of the World Climate Conference", in WMO.

- (1979), Proceedings of the World Climate Conference - A Conference of Experts on Climate and Mankind, 12-23, February 1979, WMP Publications No. 537, Geneva: World Meteorological Organizations.

- (1996) Report of the International Conference on the Assessment of the Role of Carbon Dioxide and other Green House Gases in Climate Variations and Associated Impacts, Villach, Austria 9-15 October, 1985, WMO Publications, No. 661, Geneva: World Meterological Organization.

- United Nations General Assembly Resolution 43/155, 1998.

- United Nations General Assembly, Resolution 4/212, 1990.

- 'Environment in Japan'; Fact Sheet released by the Bureau of East Asian and Pacific Affairs, US Deptt. of State, June 26, 2000.
  (http://www.state.gov.www/regions/leap/japan/is_japan_envio_000626.html)

- Third Assessment Report (TAR): Intergovernmental Panel on Climate Change (IPCC), 2001.
  (http://www.ipcc.ch/pub/sarsom1.htm#four.)

- First Assessment Report: Intergovernmental Panel on Climate Change (IPCC), 1990.
  (http://www.ipcc.ch/pub/sarsum1.htm#four.)

- 'Environmental Chronology'; Environmental Report, 2001.
  (http://www.kobelco.co.jp/enviro/report_e/nenpyo.htm.)

- "Kyoto Protocol: A useless appendage to an irrelevant treaty" Statement of Michaels, Patricle J. (Prof. of Environment Sciences at University of Virginia), before the "Committee on small Business, United States Hare of Representatives", July 29, 1998.

- "The Kyoto Protocol Carbon Bubble: Implications for Russia, Ukraine and Emission Treaty", An Interim Report of David G. Victor, Nebojsa Nackicenovic and Nadeja Victor, Oct., 1998. International Institute for Applied Systems Analysis, Australia.
  (http://www.iiasa.ac.at.)

- Statement of Japan; declared by H.E.M. Yori Kauwaguchi, Minister of Environment of Japan, 23 July 2001.
  (http://www.env.go.jp/en/topic/statement/0723.html.)

- "The Kyoto Protocol on Climate Change", Fact Sheet released by the Bureau of Oceans and International Environment and Scientific Affairs, Jan 15, 1998.
  (http://www.state.gov/www/global/oes/fs_kyoto_climate_980115.html.)

- "Regarding Subsequent Undertakings Towards the Ratification of the Kyoto Protocol", Statement released by the Ministry of Foreign Affairs of Japan, Nov 12, 2001.
  (http://www.mofa.go.jp/policy/environment/warm/cop/cop7_1.html.)

- "Kyoto Protocol", Statement released by the Ministry of Foreign Affairs, of Japan, March 29, 2002.
  (http://www.moga.go.jp/announce/announce/2002/3/0329-2.html)

- Fletcher, Susan, R., "Globe Climate Change Treaty: The Kyoto Protocol", Congressional Research Service Report for Congress, 98-2, March 6, 2002.
  (http://www.cnie.org/nie/elinn-3html).

- Statement by "Environment Protection Agency' of Japan.
  (http://www.epa.gov/globalwarming/fag/foridana-fols.html#92.)

- United Nations Environment Programme (UNEP), 1998, Adhoc Working Group of Experts on Biological Diversity. Report of the Adhoc Group of Experts to the Director on Governing Council Decisions, 14/26, UNEP/Bio.div /Ing.

- United Nations Environment Programme (UNEP), Press Release, 11 Dec, 1997.

- Kyoto Protocol to United Nations Framework Convention on Climate Change (UNFCCC), UN Doc. FCCCs/CP/1997/7/add.1.

- "Global Climate Change Treaty: Negotiations and Related Issues", CRS Report (congressional Research Service Report), 97-1000, NCSE, Washington.
  (http:/www.cme.org/nic/clinn-3.html.)

Books

- Abich, Klaus Mayer, *Winners and Losers in Climate Change*, in Sachs, Wolfgang, *Global Economy: A new Era of Political Conflict*, (Canada, Fernwood Publishing, 1993).

- Barry, John, *Rethinking Green Politics*, (London: Thousand Oaks and New Delhi, Sage Publications, 1999).
- Bionie, Patricia, W. and Allan E. Boyle, *International Law and the Environment*, Book Review by McCaftray, Stephen in "Yearbook of Environment Law", Vol. 4 (London: Graham and Trotman, 1993).
- Carroll, John E. (ed.), *International Environmental Diplomacy*, (Cambridge: Cambridge University Press, 1988).
- Chourcri, Nazli (ed.), *Global Accord: Environmental Challenges and International Response*, Massachusetts, MIT Press, 1995).
- Houghton, J.T. and Jenkins, G.J. and Ephrauns, J.J. (ed.), *Cliamte Change: The Scientific Assessment,* (Cambridge: Cambridge University Press, 1990).
- Kates, Robert W. and Ausubel, Jesse H. and Berberian, Mimi (ed.), *Climate Impact Assessment*, (New York: John Wiley and Sons, 1986).
- Kelly, D.R., Stunkel, K.R. and Wescott, R.R. (ed.), *The Economic Superpowers and the Environment: The US, the Soviet Union and Japan*, (San Francisco, W.H. Freeman and Co., 1976).
- Kondratyer, K.Y. and Cracknell, A.P., *Observing Global Climate Change*, (London: Taylor and Francis Ltd., 1988).
- Koustaal, Paul, *Economic Policy and Climate Change*, (Lyne (UK): Edward Elgar Publishing Ltd., 1997).
- Miller, Austin A., *Climatology,* (London, Methuen and Co. Ltd., 1971).
- Miller, Tyler G., *Living in the Environment: Principles, Connections and Solutions*, (London: Brooke/Cole Publishing Co., 2001).
- Mintzer, Irving and Leonard Amber, *Negotiating Climate Change: The Inside Story of the Rio Convention*, (London: Cambridge University Press, 1994).
- Mousin, A.S. *An Introduction to the Theory of Climate*, (Tokyo: D Reidel Publishing Company, 1986).
- Pearce, David W. and Warford, Jeremy J., *World Without End: Economics, Environment and Sustainable Development*, (New York: Oxford University Press, 1993).

- Peterson, Mathew, *Global Warming and Global Politics,* (London: Routledge, 1996).

- Rowland and Greene, Malany (ed.), *Global Environment Change and International Relations*, (Houndmills: Macmillan Press, 1992).

- Schreurs, Miranda A. and Economy, Elizabeth, *The Internationalization of Environmental Protection*, (Cambridge, Cambridge University Press, 1997).

- Slesser, Malcolm, *The Politics of Environment*, (London: George Allen and Unwin Ltd., 1972).

- Tickell, C., *Climate Change and World Affairs*, (Harrold: Centre for International Affairs, 1997).

- Tolba, Moustafa K, and Balseka, Iwona Rsmmel, *Global Environmental Diplomacy: Negotiating Environmental Agreements for the World* (1973-1992), (Cambridge, The MIT Press, 1998).

Articles

- Abe, M and Diden, J.D., "Regional Development Planning in Japan"; *Regional Studies*; vol. 22, no.5, pp.429-38.

- Charnovitz, Steve, "Free Trade, Fair Trade, Green Trade: Dejogging Debate", *Cornell International Law Journal* (NY), vol. 27, no. 3, 1994, pp. 459-525

- Chatterjee, Kalipada, "Global Climate Change", *Monthly Public Opinion Surveys*, Dec. 1997, pp. 14-18.

- Corwin, T.K., "Economics of Pollution Control in Japan"; *Environment Science and Technology*; vol. 14, no.2, 1970, pp.154-7.

- Gaan, Narottam, "Rethinking Security: The Environmental Approach", *International Studies*, vol. 38, no. 3, 2001, pp. 299-301.

- Grobb, Micahel and Yamin, Farhana, "Climate Collapse at the Hague: What happened, why and where do we go from here?", *International Affairs*, vol. 77, no. 2, April 2001, pp. 261-276.

- Hiroyuki, Ishi, "Japan's Challenges in Curbing Global Warming", *Japan Quarterly*, Oct –Dec, 1997, pp. 20-25.

- Jacoby, Henry D. and Reiner, David M., "Getting Climate Policy on Track after the Hague", *International Affairs*, vol. 77, no. 2, April, 2001, pp. 267-312.

- Japan Environment Quarterly, vol.3, no.1, March 1998, pp.1-8.

- Jefferon, Michael, "Climate Change: Falling Behind", *The Hindu Survey of the Environment*, 1997, pp. 21-26.

- Lomberg, Bjorn, "Truth About Environment", *The Economist* (London), August 4, 2001, pp. 63-65.

- Narain, Sunita, "Kyoto Protocol: Climate Change Negotiations", *Down to Earth*, July 2001, pp. 31-43.

- Ott, Hermann, E., "Climate Change: an Important Foreign Policy Issue", *International Affairs*, vol. 77, no. 2, April 2001, pp. 277-296.

- Patwardhan, Anand, "Climate Change: Shifting the Burden", *The Hindu Survey of the Environment*, 1999, pp. 127-133.

- Paul, Derck, "Climate Change: Facts, Strategies, Choices and Innovations", *Social Indicators Research*, vol. 42, 1997, pp. 117-149.

- Schelling, Thomas C., "What makes Greenhouse Sense", *Foreign Affairs*, Vol. 81, no. 3, May-June 2002, pp. 1-8.

- Schoenbaun, Thomas J., "International Trade and Protection of Environment: The continuing Search for Reconciliation", *American Journal of International Law*; vol.9, no.2, April 1997, pp.268-313.

- Steven, Candice, "Interpreting the Polluter Pay Principle in Trade and Environment Context"; *Cornell International Law Journal*; vol. 27, no.3, 1994, pp.577-90.

- Vayrjnen, Raimo, "Environmental Security and Conflicts: Concepts and Policies", *International Studies*, vol. 35, no. 1, 1998,j pp. 3-20.

- Vrolijk, Christian, "The Road from Marrakesh", *The World Today*, Feb 2002, pp.26-27.

- Warbrick, Colin and McGoldrick, Dominic, "Current Developments: Public International Law", *International and Comparative Law Quarterly*, vol. 117, April 1998, pp. 446-461.

- Zwaan, Bob Van Der, "Nuclear Power and Global Warming", *Survival*, vol. 42, no. 3, Autumn 2000, pp. 61-71.

Websites

- Global Warning and the Kyoto Protocol; Environmental Hot Topic Series, July 2001.
  (file://c:\my%20downents\environmental%20hot%20topic%20se)

- 'Japan Geography' 2000.
  (http://www.photius.com/wyb2000/countries/japan/japan-geography.html).

- Thomas Legge and Christian Egenhoger, 'After Marrakech: The regionalisation of the Kyto Protocol', The Centre for European Policy Studies, Nov. 2001.
  (http://www.ceps.be/commentary/nov01/ marrakech.html)

- 'Feedback: Kyto Protocl', Monday, 6 May 2002, 11.38am.
  (http://www. scoop. co.nz/nason/stories/HL0205/500024.htm).

- 'Japan Cools on Climate Change Pact', BBC News, Thursday, 3 January, 2002, 17:28 GMT.
  (http://news.bbc.co.uk/hi/english/sci/tech/newsid_1740000/ 1740677.stm)

- Multilateralism Unlikely for Kyoto, China Daily Print Edition, 10/15/2001.
  (http://www.chinadaily.net/endy/2001-10-15/38386.html).

- Climate Change: The Kyoto Protocol in Perspective", Environmental Issues.
  (http://environment-about.com/library/weekly/bllogic.htm)

- "Japan eyes ethanol to cut greenhouse gas emissions".
  (http://www.hindustantimes.com/nonfram/20120/dLFORO8.)

- "Kyoto Protocol at Crossroads", July 13, 2001 PDT.
  (http://www.wired. com/news/politics/0.1283,45189-200.html).

- "Japan Gains Concessions on Kyoto Protocol", August 6,2001. (http://www.jpcj- jp/e/shingo/jb/0134.html.

- "Financial Review – Kyoto Protocol Non-Ratification Costing Billions", March 27, 2002. (http://www.afr.com/australia/2002/03/27/FFXAWRKI92C.html)

- "Kyoto Protocol to Protect Nature", New Vision (Kampala), May 2, 2002. (http://www.allafrica.com/stories/2002050202987.html.)

- "Europeans to Ratify Kyoto Protocol", Edie Weekly Summaries, 810312002. (http://www.edie.net/news/archive/5257.cfm.)

- "Japan's Domestic Efforts to Follow upon the Kyoto Protocol". (http://www.env.go.jp/en/pol/jde.html.)

- "Kyoto Protocol – Kyoto Stories". (http://www.platts.com/kyoto/ relatedkyoto.shtml).

- "Global Climate Change Student Guide". (http://www.doc.mmu.ac.uk /aric/gccsg(6-11-5.html.)

- "Global Warming: full Steam Ahead". (www.guardianunlimited. co.uk/ globalwarming/story.)

- "Japan's Environmental Policies Amid a Changing Global Landscape", an Essay by Akio Morishima. (http://www.nira.go.jp/publ/ review/ 99summer /mori.html)

- Park, Jacob, "Japanese Policy on Climate Change: Research Reports, Social Science Japan, No. 4, August 1995. (http://www.web.iss.u-tokyo.ac.jp/newslet/SSJ4/PARK.html.)

- "Environmental Programs and Initiatives", Japan Energy and the Environment.
  (http://www.cia.doc.gov/emeu/env/japan.html).

- The Kyoto Protocol – Climate Change and Wildlife – National Wildlife Federation".
  (http://www.nwf.org/climate/protocol.html.)

- "Japan Casts Aside Kyoto Agreement: Report" Dec. 30, 2001.
  (CNN.Com/world.http://www.cnn.com/2001/WORLD/Aasiapcy/east/12/30/japan.kyoto/?related).

- "Japan set to ratify Kyoto Protocol"; Asia Times Online, June, 2002.
  (http://www.attimes.com/japan-ecom/DF01Dh03.html.)

- Oberthur, Sebastian and Ott, Hermann, E., "he Kyoto Protocol – International climate Policy for the 21st Century".
  (http://www.kyotoprotocol.de.)

- "NGO's and Climate Change in Japan".
  (http://www.geic.or.jp/jp-ngo-cc.html.)

- "Japan's policies towards Environmental Development Assistance", Japan International Cooperation Agency (JICA) Global Issues.
  (http://www.jica.go.jp/english/global/emnv/policies/html.)

- "A New Basic Law on the Environment"; Policy Laggard/poliy leader – JPA, Vol. 2, Schemwes 4.
  (http://www .law.rikkyo .ac.jp/npa /020 104.htm.)

- Schreus, Miranda A., "Policy laggard or Policy Leader? Global Environmental Policy-making under the Liberal Democratic Party", JPA Vol. 2, Schemes 1.
  (http://www.law.rickkyo.ac.jp/npa/020101.htm.)

- "A Beginners guide to the UN Framework Convention on Climate Change and its Kyoto Protocol".
  (http://www.cop5. unfccc.int/ convkp/ begconkp.html.)

- "Beckett Delivers Kyoto Protocol to UK", 7 March 2002.
  (http://www.defra.gov.UK/news/2002/020307.htm.)

- "Eizenstat Prepared Testimony on Kyoto Protocol".
  (http://www.litap.iastate.edu/gcp/kyoto/protocl.html.)

Periodicals

- Adelphi papers (New York)
- Far Easter Economic Review
- Foreign Affairs (New York)
- Foreign Policy (Washington)
- Frontline (Chennai)
- International Affairs (Oxford)
- International Journal (Toronto)
- International Studies (New Delhi)
- Japan Echo
- Japan Environment Quarterly
- Japan Quarterly
- Occasional Papers (California)
- Outlook (New Delhi)
- Survival (London)
- The Economist (London)
- The Time (New York, Hong Kong)
- World Affairs (New Delhi)

Newspapers

- Hindustan Times (New Delhi)
- Indian Express (New Delhi)
- International Herald Tribune (Paris)
- Japan Times
- Newstime (Hyderabad)
- Pioneer (New Delhi)
- Statesman (Calcutta)
- Telegraph (Calcutta)
- The Hindu (New Delhi)
- The New York Times
- The Times of India (New Delhi)
- The Washington Post