

**MARKET BASED MECHANISMS IN GLOBAL
ENVIRONMENTAL GOVERNANCE: A CRITICAL
STUDY OF CLEAN DEVELOPMENT MECHANISM IN
INDIA**

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REVA PRAKASH



INTERNATIONAL POLITICS DIVISION
CENTRE FOR INTERNATIONAL POLITICS, ORGANIZATION AND DISARMAMENT
SCHOOL OF INTERNATIONAL STUDIES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI- 110067

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DECLARATION

I declare that the dissertation entitled "Market Based Mechanisms In Global Environmental Governance: A Critical Study of Clean Development Mechanism in India" submitted by me for the award of the degree of **Master of Philosophy** of Jawaharlal Nehru University is my own work. The dissertation has not been submitted for any other degree of this University or any other university.


Reva Prakash

CERTIFICATE

We recommend that this ^{dissertation} ~~thesis~~ be placed before the examiners for evaluation.


Professor Swaran Singh
Chairperson, **CIPOD**
Center for International Politics,
Organization & Disarmament
School of International Studies
J.N.U., New Delhi


Dr. Jayati Srivastava
Supervisor

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I accept responsibility for any errors of fact/language that you may encounter in this thesis.


Reva Prakash

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CHAPTER 1

INTRODUCTION

Some of the most pressing concerns of the global society today are those of environmental degradation. The resultant global warming has disturbed the natural systems leading to climate change. Climate change further manifests into irregular weather patterns in turn affecting agriculture and production, rising sea-levels, melting glaciers, gradual shifting of sub-tropical weather conditions to higher latitudes. While health and food security are endangered, the number of climate related impacts' refugees is constantly increasing - the declaration of famine in southern Somalia on June 20, 2011, one of the many glaring cases. Now, realizing that climate change is real and its effects universal and dire, all nations, both developing and developed are gradually realizing that unless a concerted and synchronised effort is made on a global scale, not only by governments but also by non-state actors, we shall have nothing but an extremely bleak future to pass down to the generations to come, by way of an heirloom.

Realizing the gravity of the situation, international community especially nation states have tried to evolve a process through to deal with and slow down the process of environmental degradation, resulting in a number of meetings like the United Nations Conference on the Human Environment 1972, Earth Summit at Rio (1992) and leading to the signing of numerous MEAs (multilateral agreements) like the Basel Convention, the Convention on Biodiversity, the Montreal Protocol, the Kyoto Protocol etc.

That environmental agenda had started to feature prominently on the international stage around the same time as the forces of contemporary globalisation had started to integrate the world economy and society into a 'global village' model is instructive. The linkages between the effect of increasing industrialisation, and other human made processes on environment were beginning to manifest. These were not localised any more, but were trans-boundary in nature with some assuming proportions of a global scale slowly (Speth 2006:1). Processes of globalisation had two effects on the state of global environment and the governance architecture emerging around it. Firstly, with the expansion of capitalist mode of development on a global scale, unprecedented

levels of exploitation of natural resources took place. It generated pollution on a large scale. The whole expansion was carried out with the help of new technologies of transport and communications, and the whole process was fuelled by use of non-renewable sources of energy like coal and oil. It was maintained by most economists that adoption of the LPG (liberalisation, privatisation and globalisation) model is the sure-shot engine of growth (because of comparative advantage and gains from trade) and development (because it enlarges the quality and quantity of the consumer's basket). Institutions like the WTO came into being with the purpose of reducing trade barriers between countries allowing free flow of goods, services, capital and technology and ushering development. Secondly, the process of globalisation also made the concepts of sustainable development and policies and laws relating to environmental protection also global. There were inter-governmental processes that sought to promote growth whilst at the same time minimizing environmental degradation.

The debate around the economic globalisation and globalisation of ecological issues found common interface in framing of the problems and seeking solutions for them. It was established that the globalisation of capitalist mode of production along with the free market economy was instrumental in environmental degradation of unprecedented scale. If market was the culprit then the solution was to address the market anomalies. In framing of the problem as a market anomaly, the search for solution also was organised around the same line. That the issue of climate change is linked directly to the emissions of green house gases emitted due to the use of fossil fuels that run our economies and have much importance in our daily life. And now it has come to become the most challenging issue that the market needs to deal with.

Intergovernmental Panel on Climate Change (IPCC)'s Fourth Assessment report 2007 has clearly established that the result changes being observed in the earth's atmosphere were due to human induced factors.¹ It is instructive to see that between 1750 and 2000, the atmospheric concentration of carbon dioxide (CO₂), methane

¹ For a comprehensive look at the report refer to 'Intergovernmental Panel for Climate Change(1997), 'AR4: Summary for Policy Makers.' (Online:Web) Accessed on 10 November 2010. URL:http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf

(CH₄), and nitrous oxide (N₂O) have grown by about 31%, 151% and 17%, respectively (IPCC 2001: 5-6). This period also corresponds with the Industrial Revolution and the use of fossil fuels by human beings. Greenhouse gases (for example, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), water vapour), re-emit some of this heat to the earth's surface. If they did not perform this useful function, most of the heat energy would escape, leaving the earth cold (about -18 °C) and unfit to support life. As the GHGs are transparent to incoming solar radiation, but opaque to outgoing long wave radiation, an increase in the levels of GHGs could lead to greater warming, which, in turn, could have an impact on the world's climate, leading to the phenomenon known as climate change. Indeed, scientists have observed that over the 20th century, the mean global surface temperature increased by 0.6°C (IPCC 2001: 5-6). They also observed that since 1860 (the year temperature began to be recorded systematically using a thermometer), the 1990's have been the warmest decade (IPCC 2007: 3)

The motivation to undertake this research was fuelled by my own participation in the global youth movement, which sought to ask policy makers and negotiators of the world the question – ‘How old will you be in 2050?’ The world that they have bequeathed upon us, with the systems that they have created to exploit and strive for particular life style and the standard for living that it has come to represent motivates me to ask this question. Greenhouse gas abatement policy design is exceedingly difficult because GHG emissions result from nearly all modern human activities. It involves every sector of the economy as well as habits and choices of individuals.

The urgency to deal with the problem as dictated by science has led to speeding up of efforts by the actors across different levels and geographies. The motivation for this work also began with following the developments around the negotiations on the successor of the Kyoto Protocol on the issue of climate change.

Kyoto Protocol (KP) considered to be the most far-reaching agreement on environment and sustainable development, binds the signatories to binding reductions in emissions. The actions required to meet the commitments in KP are believed to affect all major sectors of the economy of the developed industrialised world, and would be very challenging. To provide countries with certain degree of ‘flexibility’ in

meeting their emission reduction targets, the protocol provided the countries with three market-based mechanisms of Joint Implementation (JI) in Art 6, Clean Development Mechanism (CDM) in Art 12, and Emissions Trading (ET) in Art 17. Annex I countries may use these mechanisms to meet a part of their carbon-emissions commitments by reducing or removing atmospheric CO₂ in accordance with Articles 3(3) and 3(4). Two mechanisms, Joint Implementation and the Clean Development Mechanism are similar in concept where in an Annex I legal (public or private) entity finances emissions reduction or removals in another Annex I country (JI), or non-Annex I country (CDM) and acquires emissions-reduction units (ERUs) for JI or certified emissions reductions (CERs) for CDM projects. The ERUs and CERs count towards fulfilling the financing country's national emission-reduction commitment.

CDM's were included along with the other two mechanisms to ensure 'meaningful participation' by the large developing economies like China and India at the behest of USA, which continues to hold out from taking binding emission reduction targets.

The bargaining and muscle flexing by the world's largest emitter of GHG's, USA, resulted in the legitimacy of the market based mechanism as the most widely accepted and popular instruments for emission reductions and mitigation. These talks about India and China have also found supporters in the think tanks of US like World Resources Institute and Washington based World Watch Institute. World Resources Institute in its 1990 report pointed out the changing land use pattern and deforestation "Deforestation and other land use changes now account for about one-third of the carbon dioxide produced by human activity and some of the methane. If just China and India were to increase their greenhouse gas emissions to the global average per capita rate, today's global total would rise 28 per cent; if these two countries matched France's per capita rate, the total would be 68 per cent higher". He further argued that "As a practical matter, developing countries expect industrial countries to take the first and strongest actions on global warming. These developing nations want to see the seriousness of the threat validated, and they conclude correctly that industrial nations are largely responsible for the problem and have the most resources to do something about it.

"But carrying this argument too far could lead to a tragic stalemate" (Speth, 1990)

This invites a critical review of the theoretical and ideological premises from which it

emerges and in turn also leads one to question the efficacy of market mechanisms in achieving the emission reductions that it purportedly is intended to achieve.

Apart from the proposed solutions to make the Global Environmental Governance more effective, the trend towards use of market forces to manage environment has grown considerably in the last decade. The emphasis on harnessing the market forces arguably results from the dissatisfaction with the traditional form of governance and policy instruments especially where effective government action is absent (Lemos, 2006: 313). But primarily and more importantly, it also reflects that there is large consensus around the neo-liberal frame. Famously, The Stern Review of 2008, which had described 'climate change' as the biggest market failure, concluded that a broadly similar global carbon price is an essential element of international collective action to reduce greenhouse gas emissions. (Stern, 2008: 487)

The reference around the market based mechanisms, for both its proponents and critics, is the problem of addressing the 'negative externality' that stems out of capitalist mode of production. Simply put, the environmental costs within the fossil fuel intensive capitalist economies are externalised. Externalisation of cost doesn't reflect in the cost of the commodity which leads to market imperfections. Addressing this externality was done through the regulatory framework of taxation in what came to be called as the Pigouvian Taxes.

However, a clear shift towards a free market economy approach led the proponents of free market environmentalism to argue that the problem of commons stemming from negative externality could be addressed through emissions trading system. This understanding about solving the problems of the commons stems from the famous ecologist Garret Hardin's discussion of the 'tragedy of the commons.' Hardin (1968) noted that in absence of clear property rights over the common resource, the incentive to preserve the resource rests with everybody and therefore with nobody, leading to its extreme exploitation. This understanding when applied to the problem of global commons, for some, then explains the continued degradation of environmental resources even with the proliferation of multilateral environmental agreements. A growing number of scholars and analysts are turning to the space of market place to address the environmental concerns. This growing or rather influential school of

thought is called the 'free market environmentalism.' It tries to find a middle ground by reconciling the human needs and environmental concerns, and is grounded in clearly defined property rights, voluntary exchange, common law liability protections, and the rule of law. The problem of externality is not viewed as the 'failure of market' but as a failure to create markets where they do not yet exist. The only way to internalise such externality is by creating a system of well specified property rights to natural and environmental resources, as, if the rights are held politically, then the responsibility and the costs get diffused and cooperation gets reduced. (Anderson and Leal, 2001: 4) The function of the government in this framework is to define and enforce the property rights or otherwise '*the incentives inherent in private ownership disappear and with them goes the potential for environmental stewardship wise*' (Anderson and Leal, 2001:5).

Market based mechanisms came to enjoy greater legitimacy due to the organisation of the world economy on the capitalist lines and dominance of free market ideology. Economic globalization acts as a backdrop for much environmental governance research especially on market based arrangements, as a lot of literature in this area highlights the impact of economic globalisation on environment.

The legitimacy of market based mechanisms within the larger environmental governance structure has resulted in the shift on the policies at both the global and national levels across the world. Countries such as China and India which were critical of the inclusion of 'flexibility mechanisms' in the Kyoto Protocol are now the ones that enjoy and constitute the largest share in the market of the carbon market through CDM projects. This goes on to prove that market will simply not benefit whole of the developing world equally and it needs to be regulated and its claims of efficient allocation of resources constantly assessed.

The critics of market based mechanisms including some of the large environmental NGO's like Environment Defense Fund and environmental networks like Climate Action Network proposing agendas for the reforms in the market based mechanisms especially CDM to make it more equitable and just. The sustainable development benefits of market based mechanism such as CDMs are severely limited and are also inequitably distributed not only across developing countries but within India as well.

The extent to which CDM fulfils the objective of sustainable development is questionable and the reach of its benefits also remains limited to the fast emerging economies like China, Brazil and India, and that too only to a few sections (Schneider, 2007: 61).

Chamber of Indian Industries (CII) organised a Conference titled 'Climate Change – Response & Action: Promoting the Carbon Market' in April 2010 stating that its clear objective was to 'focus on areas of tremendous potential for industries in Clean Development Mechanism.' The 'stakeholders' of carbon markets in India see it as an added opportunity for growth and investment. It is slowly creating a class of people that are interested in trading in the new commodity –carbon. This is also 'changing the dynamics of North-South relations in the global negotiations' (Newell and Matthew, 2010:92)

Notwithstanding the problems of 'low hanging fruits', inadequate levels of technological transfer and the criticism of cheap means of emission reduction; the growth of CDM in advanced developing economies like India, China and Brazil has been huge. These countries together account for nearly 60% of total registered projects and over 70% of all Certified Emissions Reductions (CERs) issued (CDM:UNFCCC). In India a host of actors are working towards capacity building including the Ministry of Environment and Forests (MoEF), The Energy and Resources Institute to enhance the technical know-how of businesses in the field through partnerships with international institutes (TERI 2011). There is move towards a 'more structured governance approach as the initial phase of learning by doing is over and there is a need to maintain a competitive edge over countries entering late in the field (Upadhyaya, 2008:4).

Thus, the problem of low-hanging fruits emerges as CDM pipeline projects are dominated by the projects having lowest marginal abatement costs. This provides for one of the strongest arguments against the CDM's in terms of it not leading to the desired change in moving towards a low carbon economy by attracting investment only in the 'low hanging fruit' like the removal of reductions of HFC-23 emissions from chemical plants or of CH₄ from landfill gas projects, and not contributing to the lofty goal of sustainable development (Newell and Matthew, 2010:130).

In looking at the above mentioned phenomenon, this dissertation is organised into three parts with the concluding remarks in the end. The first part of the work looks at the developments triggered by the contemporary forces of globalisation that pushed for the emergence of global governance. The processes of globalisation have brought a multiplicity of actors and institutions to address the questions related to global public goods in general, and environmental degradation in particular. It also seeks to look at the theoretical underpinnings that provide for initiation, development and maturation of different forms of governance while at the same time providing legitimacy to these.

Second part of the work looks at the negotiating history of the Kyoto Protocol especially of the flexibility mechanisms with it. Clean Development Mechanism that has come to become the most popular was termed as the Kyoto Surprise. The chapter also analyses the criticism of the mechanism.

Third part of the work seeks to look at CDM with respect to India. India, as mentioned above, though reluctant at first has come to become one of the major players in the market. However with the future of successor of Kyoto in trouble, the market also has gone sluggish. Though setting up of emissions trading for the air pollutants in two states of India- Maharashtra and Gujarat is a sign that the popularity of market based mechanisms as opposed to regulatory framework is gaining ground in India too.

Last part of the work concludes, looking at the solutions proposed that within the larger context where there is consensus around neo-liberal frame of development (with of course few dissenting voices), that market based mechanism even with all their short comings are seen to be more effective instruments than regulatory taxes.

CHAPTER 2
GLOBAL ENVIRONMENTAL GOVERNANCE AND MARKET BASED
INSTRUMENTS

INTRODUCTION

Past few decades have witnessed an intense debate around two distinct but inter-related phenomenon, 'globalisation' and 'global climate change.' While not completely new, the extensity and the intensity of both have been unparalleled. Not a novel phenomenon, historicising globalisation reveals that even in the past there have been phases of increased and decreased integration connecting diverse cultures, societies and markets (Hopkins 2002), but the present form of 'modern' globalisation has opened up a larger space of experience with an acceleration of history (Koselleck 1985). This acceleration has been aided by ever evolving technologies that connect people, ideas, commodities and capital in the remotest corners of the world, making it into a complex whole. These processes of contemporary globalisation¹ have impacted the different constituencies differently, empowering some, and disempowering others; transforming and creating new spaces, struggles, dialogues, debates, and newer issues to resolve. Thereby making its effects, implications and usefulness numerous and constantly debated. (Held and McGrew 2002, Berger and Huntington 2003).

Among the many effects and implications of the processes of present globalisation is also that of environmental degradation. But, just as globalisation is not a novel phenomenon, similarly problems of environmental pollution are not new, neither is the connection between the growth in economic activities and pollution. In past there have been instances of pollution and climatic shifts also. During 800 BC, intensive logging and rice terracing created environmental problems in China. Roman Empire was beset with problems of water and land contamination by agriculture, industrial and

¹ After having established that the globalisation is not a novel process, but that it has come to change forms in different times and at different places, I will refer to the present stage of globalisation characterized by unprecedented economic integration as globalisation throughout the dissertation.

human waste (Clapp 1994). In the fourth and fifth century, prolonged periods of cold snap forced the German and Huns tribe to surge across the Volga and Rhine leading to overthrow of Roman Empire by the Visigoths. The 'little ice age' partly brought about the end of Viking community in Greenland in the fifteenth century. Mayan civilisation is also believed to have disappeared due to changes in the climate (Dupont 2008: 31). However, the difference between the earlier episodes and the ones that are occurring now is that of both scale and intensity. While the earlier episodes of pollution were localised and the shifts in climate were not human induced, in the present scenario, increased integration has led both the sources of pollution and its effects to become 'globalised' with significant changes observed in the earth's environment. These changes have come to become visible in the form of ozone depletion, loss of bio-diversity, species extinction and climate change, and are manifested at local, regional, national and global levels. Some of these changes are believed to affect generations to come.

This multi-scalar and complex problem of environmental degradation brought on by globalisation is attributed to the continued and onward march of capital to the remotest places on the globe. By integrating far-flung markets, increasing demand, the present model of growth and development organised around capitalist lines, depends on increasing the consumption of resources and materials as its main driver. This march is fuelled by fossil fuels (Newell 2010, Barkin 2003). Thus, seen as a culprit, processes of globalisation led by the capitalist market forces have led to the exploitation of resources to an unforeseen extent in history. If the impacts are global, then finding ways of slowing down the impacts of environmental degradation must be global too.

It is in this context, the search for solutions across spectrums and scales has been undertaken. It must be noted however, that the search for solutions depends on the articulation of the problem itself. Environmental degradation very simply put is seen as a public bad or the problem of negative externality in economic terms. It becomes imperative to then ask as to how can then this negative externality be taken care of at the global level. How can the global

public goods be generated? And most importantly, if environment is understood as a common public resource, then how can it be managed or governed? Implicit within these questions are also very important questions of power, equity, and justice.

GLOBAL GOVERNANCE

Increasing integration with intensification of networks has led to changes in the way trans-sovereign global politics functions (Keohane and Nye, 1999). On one hand, globalisation has broadened the range of problems that government's face straining the resources of nation-states to deal with multifarious problems with implications beyond their own borders. On the other hand, neo-liberal policies reforms have 'complicated the efficacy of state action by shifting powers to alternative actors' and diffusing the decision making process through decentralization and privatization (Lemos and Agarwal 2006: 300). It has impacted different parts of the world differently and inequitably, at once benefitting some and depriving others, bringing new forms of social relations into place. While of some its forces have led to generation in employment, others have led to increasing displacement of people, by either wars or processes of economic development and industrialisation producing landlessness, refugees and migration for work to urban centres across South and North. But, inherent in the logic of economic globalisation is that there are gains to be reaped by participation in global economy. Mobility of goods, culture, labour, information, science and technology along with capital investment will be beneficial for societies, countries and markets that are brought within its fold. It is well established fact that neo-liberal forces of globalisation have led to inequalities, the problem of environmental degradation has only acted to exacerbate it (Lemos and Agarwal 2006:300). It is in this context that the concept of global governance emerges.

However, governance of global with its implications for sphere of 'local' is very different from the one practised 'inside' the system of nation-state. The mechanisms that need to be evolved cannot be that of a 'global government'

whose emergence will solve the realist problem of ‘anarchy’ in the system of sovereign states. Under the realist formulation, the conception of agency remains limited to the reified nation state. And the notion of nation state, in a period of ‘thick globalism’ with intensive networks fails to account for two essential elements. Firstly, the networks among agents (other than nation state) and norms (understood as standards of accepted behaviour) that are followed. This different number of actors and agents, other than and including nation state, gets subsumed under the concept of what we have come to understand as ‘global governance.’ Not only this opens up new perspectives on ‘who does what, and for whom’ as it also challenges the way discipline of international relations has come to be understood (Pattberg, 2004:10).

Different from the conception of global government, thus, global governance encompasses different systems of rule on the different levels of human activity as an organising social principle beyond hierarchical steering and the sovereign authority of nation-states (ibid:11). As Rosenau notes, “global governance is the sum of myriad – literally millions of – control mechanisms driven by different histories, goals, structures, and processes” (Rosenau, 1997). The concept of global governance, then seeks to depart from traditional concepts of International Relations theory in four ways. It seeks to serve as an analytical tool for making sense of the “crazy-quilt nature” of world politics (Rosenau, 1995:15) the concept includes (1) non-state actors, (2) analyses multiple spatial and functional levels of politics, (3) is concerned with new mechanisms of producing and maintaining global public goods, and (4) highlights the establishment of autonomous spheres of authority beyond the nation-state. When conceptualized as such, global governance enables one to look at transformations in the world politics by moving beyond the reified dichotomies public/private, national/international. And allowing one to get a more comprehensive multi-dimensional picture of world politics without implying that nation state has lost all its conceptual benefits (Pattberg, 2004:11).

Global governance, therefore, includes “the activities of governments, but it also includes the many channels through which ‘commands’ flow in the form of goals framed, directives issued, and policies pursued” (Rosenau 1995:14). This perception identifies two different ‘geographies’ of global governance. One includes both hierarchical and non-hierarchical modes of interactions that steer the inter-governmental and inter-organisational bargaining between states and non-state actors. Thus, this encompasses a wide range of actors across different spectrum. The other geography remains limited to the non-hierarchical mode, and does not include state actors. However, different modes and actor-constellations can also be understood as being positioned along a continuum from more traditional inter-state negotiations, which already involve non-state actors in the process of rule-making, to hybrid public-private partnerships and fully private co-operations, institutions, and organisations. (Pattberg, 2004). Examples of these can be clearly identified in bilateral negotiations, multi-lateral negotiations with non-state observer groups², groupings where business interests get overtly represented by the government of the states. Apart from negotiations these bargaining and interactions also happen through consultations and stakeholder interactions, like what World Bank has started to do. In case of India, consultations with groups initiated by Ministry of Environment and Forests in case of introduction of genetically modified BT Brinjal, the planning commission’s consultations for the eleventh five year plan.³ The end-result of these hybrid interactions are geared to meet needs and address concerns of various constituency.

As the global governance emerges intermeshing diverse actors across scales and geographies, not only the relationship between different networks get thickened and become more important, but also generate spill over effects in

² A lot of environmental negotiations see the phenomenon where non-governmental organisations are given limited representation and allowed to make interjections

³ As a participant in these consultations, I have represented the youth constituency to voice the reservations as well as views of youth on issues related to environment. Youth participation in these consultations is part of larger global climate movement that is geared towards getting youth recognized as a constituency in planning and negotiations. The movement’s constant and sustained efforts led to recognition of youth as a constituency in UNFCCC process.

other areas. Across this continuum, depending on the question of the kind of global public good or bad is being dealt with, each actor and mode acquires different significance at different times and spaces, deriving legitimacy from different constituencies. It is with understanding of global governance and globalisation we move on to explore the terrain of global environmental governance.

THE NEED FOR GLOBAL ENVIRONMENTAL GOVERNANCE:

As the debate on the effects of unprecedented intensification and integration of the world has gained ground, so have the negative spill over effects of this increased integration on environment started to become more visible (Rosenau, 1997). Realities dictate that continued economic development as we know it in the form of global capitalism is becoming difficult to be sustained. This can be attributed to the fact that capitalist economy does not take into consideration the externalized cost of renewing the ecological base that it requires for ever expanding global production (Wallerstein, 1995). The inter-linked problems between the market and environment can be broadly divided into three categories. Firstly, the shared problems involving the global commons like atmosphere, the climate system, the oceans and seas. Amongst them, the problems related to these like climate change and ozone depletion have come to pose certain fundamental civilisational challenges now. Secondly, the problems of demographic expansion and resource consumption like desertification, loss of bio-diversity and extinction of species. Thirdly, the problem of trans-boundary pollution like acid rain, problems of contamination from nuclear radiations also get interlinked (Held 2000: 16).

There has been a growing consciousness in the international community of the various ecological crises since 1970's. This consciousness stemmed from the growing awareness in the developed countries because of the local environmental problems that they came to face. Moreover, export of the capitalist mode of production to the rest of the world meant that the problem of environmental degradation would only be further compounded making an ecological disaster imminent (Lieten 2004).

Thus, to manage the public bads that unbridled economic growth generated with a need to manage the interaction between ecology and economy, the need for global environmental governance emerges. Pushed on to the global agenda with the United Nations Conference on the Human Environment in 1972, the number of multilateral environmental agreements grew in the decades to come with agreements like Convention on International Trade in extinction of Endangered Species 1973 (CITES), Ramsar Convention on Wetlands 1971, World Heritage Convention 1972, Convention on Biodiversity 1992, Cartagena Protocol on Bio-Safety 2000, Basel Convention on the Control of Transboundary Movement of Hazardous Waste and their Disposal, Vienna Convention, 1985 and Montreal Protocol on Ozone Depletion, 1987 year and many more. The permanent sovereignty over natural resources, principles of cooperation and good neighbourliness, liability for preventive action, polluter pays, common but differentiated responsibility, sustainable development, inter-generational and intra-generational equity, precautionary principle evolved in conjunction with these agreements (Shaw 2007).⁴

The emergence of global environmental governance is attributed to the problems stemming from negative effects of economic globalisation. It is noteworthy that certain observers argue that globalisation has also led to diffusion of positive environmental policy initiatives. And also led to an interlinked process of cultural and political globalisation with emergence of 'new cultural, scientific and intellectual networks; new environmental movements with transnational organizations and concerns; and new institutions and conventions like Rio Earth Summit in Brazil' (Held 2000:16) It could be argued that contained within the disempowering tendencies of globalisation lie the seeds of empowerment (Busch et al 2005). For if 'free world trade' has rendered millions around the ever globalizing world susceptible to the vagaries of the market, a technologically more connected world has seen global movements demanding equity and justice within a fair

⁴ For the detailed reference on these principles refer to Shaw, M (2007), 'International Environmental Law' in *International Law: Fifth Edition*, Cambridge: Cambridge University Press.

trade regime. It has led to the creation and development of new global regimes, institutions and organizations dedicated to causes environmental (Jordan et al. 2003) and inclusion of environmental concerns in the revised and reformed institutional agendas of the existing institutions. Yet, there remains a high degree of policy incoherence wherein the environmental goals are yet to be mainstreamed into the economic, trade and development policy. The fact that funding from multilateral organizations such as World Bank continues to be allocated to highly controversial projects with devastating environmental consequences (Newell 2002) that it continues to fund big dams, and coal power plants undoes the funding that might sometimes get channelized into projects related to development of adaptive capacities (Sustainable Energy and Economy Network 1997).

Similar to Rosenau's definition of global governance, Global Environmental Governance (GEG) is defined by International Institute for Sustainable Development as the *as the sum of organizations, policy instruments, financing mechanisms, rules, procedures and norms that regulate the processes of global environmental protection*'. Though Rosenau points out that there are various actors involved, yet historically in a system of sovereign states, conceptually, environment problems and their solutions meant that nation-states were viewed as the appropriate agents of environmental action primarily, and international regimes as the appropriate governance mechanism (Krasnser, 1983). But a proliferation of different regimes has also led to increased incoherence and dilution of the effectiveness of the Environmental Governance. The last thirty years has also seen the research on global environmental governance and its architecture focus mostly on the formations, effectiveness and also institutional inter-linkages with a clear stress on the democratic deficit inherent in it (Nye 2001). This democratic deficit is arguably result of power dynamics that is part of the international politics with some actors having disproportionate power in terms of knowledge, resources, and the ability to impose their preferences over others (ibid). Closed door negotiation with only limited involvement and participation from non-governmental organisations along with fear of cooption also makes it worse.

Additionally, the opaque character of the negotiation process itself strengthens the perception that international regimes and negotiations within the scope of multilateral organizations are driven by the more powerful actors. (Mitchell 2003: 431). Although each institution has evolved differently but there is now a general consensus that this system is not yielding the results that were expected. Some of which has to do with the negotiation fatigue or burden of these inter-governmental negotiating forum especially for the developing countries by spreading the limited financial and human resources devoted by nations to GEG (Najam 2005). While others point out that it is the problem of ensuring participation and compliance which has not been adequately addressed that has led to ineffectiveness of the GEG in ensuring that environmental degradation is continued (Vezirgiannidou 2009, Hempel 1996). Some see strengthening of United Nations Environment Programme so as to enable it to take leadership role along with ensuring compliance of the agreements as a way to make the GEG centred around nation-state and environmental regimes more effective (Ivanova 2010). There are also proposals from scholars like Haas and Biermann for a multi-level, non-hierarchical, information rich, loose networks of institutions and actors as an alternative (Haas 2004, Biermann 2006) to deal with the problem. Arguably because of the failure of state-centred international regimes to address many of the most pressing environmental problems, slowly a change is being observed where exclusive inter-governmental negotiating forums are increasingly being replaced by more transparent, multi-stakeholder approaches to governance. These developments have also made the question of governing or managing the global commons⁵ become important (if not central) across disciplines (Bardhan and Ray 2002:3).

End of cold war and the near-pervasive spread of free market ideology have led to decline in the belief on regulatory mechanisms of the state. The failure of the international regimes to give effective solutions for the complex environmental problems (especially climate change), and the reluctance or

⁵ Here environment is referred to as global commons. Global commons are resources that are collectively held by the people on earth like environment comprising of atmosphere, oceans, biodiversity etc.

inability of states to regulate these has led to growing popularity and legitimacy of the market based mechanisms. A look at the international regimes and the dominant theoretical underpinnings reveal that there have always been attempts at somehow resolving the problem of environmental degradation without at the same time having to compromise on the ideals of growth, development and free trade. These have increasingly made the market based approaches a preferred form solution in comparison to regulatory and command-and-control policies.

GLOBAL ENVIRONMENTAL GOVERNANCE AND MARKET BASED INSTRUMENTS:

In the earlier section we have discussed the reasons for growing disenchantment from the state-centric environmental governance, here we shall discuss in detail the ideologies and theories that have marked an increase in the legitimacy of the market based mechanisms which underpinned a shift towards these. Though the instruments within the market-based approaches to environmental governance have varied, but ever since environmental problems have come to the fore on the international agenda for discussion, debate and negotiation there has been always been an underlined basis for addressing the problems of environmental degradation without compromising on the economic goal of growth and profits.

Market based environmental governance arrangements seek to exploit the market forces to achieve environmental goals. This great emphasis on harnessing the market forces for some, arguably results from the dissatisfaction with the traditional form of governance and policy instruments especially where effective government action is absent (Lemos 2006), resulting in reallocation of regulatory responsibilities from public policy to private governance. This is also due to the close cooperation between companies, business associations, a wide range of non-profit organisations and the governments (Pattberg 2004:12)

While the shift might be partly attributed to the disenchantment with the state-centric regulatory framework, a lot of it also has to do with the pervasiveness of the free-market ideology. Economic globalisation acts as a backdrop for

much environmental governance research especially on market based arrangements, so while a lot of literature in this area highlights the impact of economic globalisation on environment, there is also an increasing focus on how such forces can be used to fight global environmental problems by analyzing the effects of globalising forces on all levels of the global to local continuum as well as North-south relationships (Sonnenfeld and Mol, 2002). Initiatives that reflect the interlinking between economic and environmental action to transnational corporation, trade, global economic institutions, communication networks and global markets are an important area for market-based approaches (Mitchell 2008). In the sphere of environmental governance, the various market-based mechanisms and instruments find their theoretical justifications in the concepts of sustainable development, ecological modernization and free market environmentalism. Before we go on to discuss these it is important to see how the problem of environmental degradation in relation to the market is framed.

Framing of the Problem

The most trenchant criticism for capitalism comes from the Marxism, so the most critical environmentalist also draws their critique from it. Underlining the destructive relation of capitalism with environment and the contradictions that rest in the capitalist mode of production is the model of ‘treadmill of production.’

Alan Schnaiberg and others who developed the ‘treadmill of production’ model combined elements of ecological Marxism, theories of organized capitalism and the State and the extra-Marxist political economy. They describe an economy of ever-increasing production and associate it with ever-increasing environmental impacts, in the form of withdrawals (i.e., resource extraction) and additions (i.e., waste and pollution). Thereby the self-reinforcing mechanism of capitalist mode of production runs into conflict with environmental protection or the opportunity cost of protecting and exploiting resources, pressing the earth’s absorptive capacity (Foster 2009:48).

However, the problem of pollution is not framed similarly by the mainstream economic theory, for it tends to favour market mechanism to restore the market efficiency. According to Keohane and Olmstead, problem of market failure in the environmental arena can be framed in three ways. Firstly, pollution as a negative externality arising out of the production process. Secondly, the problem of generating public goods like pollution control. Thirdly, the tragedy of commons. Depending on the way a particular environmental problem is framed, economists have sought to address these by evolving economic policy around it. (Keohane and Olmstead: 133)

Arthur Pigou in 1920, for the first time came up with a policy prescription to solve the problem of negative externality. He called for government intervention by way of levying a tax to protect the destructible sources (later came to be known as Pigouvian tax) and lead to generation of public goods by way of control in levels of pollution. This became the basis for a host of environment tax.

Pigouvian taxes over time came to be seen as interventionist disincentivising negative externality but not clearly incentivising the positive behaviour of the corporations, producers and consumers. Ronald Coase's essay on 'Problems of Social Cost' challenged the logic for interventionist policies of the government, arguing that the problem of negative externality can be overcome by private bargaining between the polluter and the polluted, in the presence of clear allocation of property rights regardless of how they are allocated. Coase's theorem was criticised on the basis that it did not account for transaction cost involved in the bargaining. Also it was based on simple model of individual polluter and polluted, in case of increase in number of either the results of private bargaining along with the transaction cost would lead to inequitable results. That Coase's theorem did not even look at matter of equity or the how the property rights were allocated is a problem symptomatic of many a models that economists propose with presupposed given conditions that fail to account for real life complications in the application of these theories and models. The presence of transaction costs in private bargaining

costs then comes to provide for a strong justification for governmental regulation. (Keohane and Olmstead 2009: 128)

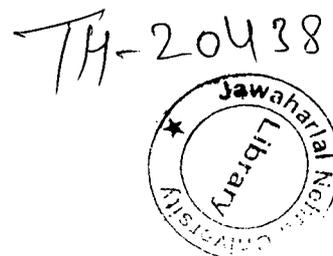
However, once the negative externality is internalized either through government regulation of taxes and subsidies (that incentivise certain actions) or private bargaining, it will be incorporated in price of goods and services making the market outcomes more efficient (Keohane and Olmstead 2009: 133).

In terms of providing for public goods, environmental policies fill in the missing demand for environmental quality. Thirdly to deal with the tragedy of commons, policies establishing clear property rights over the commons can overcome the problem of over-exploitation (Keohane and Olmstead 2009:133)

These three ways of framing the problem in economic terms and devising policies account for the broadly the spectrum of market led and market based approaches and instruments. How we reconcile the problem posed by the treadmill of production is what we will analyse next.

Sustainable Development

The most often cited and popular of these is the concept of Sustainable Development. When the United Nations Assembly established the World Commission on Environment and Development (WCED) in 1983 in response to the growing concerns about environmental degradation and the economic crisis. The commission chaired by Gro Harlem Brundtland, the Norwegian Prime Minister, consulted widely for four years, soliciting reports from expert bodies and holding public meetings in several countries. The report, Our Common Future, was produced in 1987, which popularized the concept of sustainable development worldwide. The Commission deliberately designed the term sustainable development as a bridging concept that could unite diverse and conflicting interests and policy concerns (Carter 2003: 196). It defined "Sustainable development is development that satisfies the needs of the present without compromising the needs of the future." - (WCED 1987:43)



The subsequent Agenda 21 (UNCED 1993) adopted at the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 describes sustainable development to include three dimensions: the social, economic and the environmental and a process of bringing these in balance with each other. Agenda 21 also sought to provide a blueprint for implementing sustainable development, and it did not confine itself to the traditional agenda of environmental degradation but devoted considerable attention to the political and economic aspects of sustainable development. Rio Conference covered environmental and developmental issues such as 'Changing Consumption Patterns' and 'Combating Deforestation' to 'Strengthening the Role of Farmers' and 'Children and Youth in Sustainable Development.' Thus, Sustainable Development came to combine the twin goals of environmental protection and need for development. Arguably UNCHE in 1972 had also tried to reconcile the environmental agenda of the north and the development agenda of the South (Carter 2003:196).

Jabareen (2008) identifies interwoven frameworks for sustainable development. One of the key concepts he underlines is that of 'ethical paradox' which lies at the heart of the concept of sustainable development. This paradox arises from the fact that 'development' since the time of industrial revolution and more so in present times has come to necessarily mean drawing from natural resources which lead to environmental modification. Doing so at a global scale makes the modifications larger with implications of development of one region for the other. According to the field of ecology, the term sustainability refers to an ecosystem's ability to subsist over an indefinite period of time, with no alteration. The scale as well as the speed of the modifications has become far greater than the rate at which an ecosystem is able to regenerate itself. This paradox becomes visible in the definition of sustainable development by the Brundtland Commission.

According to WCED definition, sustainable development seems to hold the promise of a way out of the economic growth versus environmental protection impasse (Carter 2003:198) and capitalism and ecology are no longer seen as

contradictory under the banner of sustainable development (Jabareen 2008). However, radical greens argue that economic growth cannot be ecologically sustainable thus making it impossible to achieve sustainable development without replacing capitalism with a more decentralized, self-sustaining social and economic system (Carter 2003). This fluid, paradoxical and dialectical relation between sustainability and development has given rise to a spectrum of ideologies and approaches ranging from 'light ecology' to 'deep ecology'⁶(Jabareen 2008) or 'very weak sustainability' to 'very strong sustainability' (Carter 2003).

Equity also becomes important framework for analysing sustainable development, Jabareen stresses. Sustainability is seen as a matter of distributional equity such that it provides for intra-generational and intergenerational fairness in allocation of resources. This notion of intra-generational equity is to address 'needs of the present' and intergenerational equity is to address needs of the future, is also evident in the Brundtland Report. The notion of equity requires that poor and disadvantaged groups can define their needs through democratic measures such as community participation, citizen's initiatives and through strengthening institutions of local democracy (Carter 2003) and encompasses different concepts such as environmental, social and economic justice, social equity, quality of life, freedom, democracy, participation and empowerment (Jabareen 2008).

Jabareen also introduces the concept of integrative management which represents the interconnectedness of social development, economic growth and environmental protection while planning and management for sustainable development (Jabareen 2008). The Brundtland Report recognizes that the integrated nature of sustainable development poses challenges for institutions

⁶ Deep Ecology is a branch of ecological philosophy that lays greater value on non-human species, ecosystems and processes in nature as compared to green and environmental movements. Deep ecology describes itself as "deep" because it persists in asking deeper questions concerning "why" and "how" and thus is concerned with the fundamental philosophical questions about the impacts of human life as one part of the ecosphere. (Source: http://en.wikipedia.org/wiki/Deep_ecology, accessed on 12 June 2011)

“...that were established on the basis of narrow preoccupations and compartmentalized concerns” (WCED 1987:9 cited by Carter 2003:208). That is to say that environmental considerations need to be integrated in policy formation in every sector. This would require as Carter says “an administrative revolution” (Carter 2003:209).

This need for integrative management becomes apparent in the phenomenon now that Sustainable Development including concerns of Climate Change and loss of Biological diversity have also now become the espoused goals of several other major institutions like World Bank, World Trade Organisation and also several other influential non-government institutions like who now claim them as part of their larger mandate. Thus, now it encompasses a wide range of actors within its fold. While on the one hand this means that the scope, scale and gravity of environmental problems especially climate change are being appreciated and made part of the main agenda on development and trade. On the other, it also has implications for ‘environmental globalism’ with existing relationship becoming more complex especially between the actors and institutions situated in different geographies of highly industrialized and rapidly industrializing countries

Ecological Modernization

Concept of sustainable development lends itself to interpretation and appropriation from a wide range actors and criticism from a similar number. But that it is used as ‘vision’ to move towards by a wide range of institutions is undoubted. Along with sustainability, another concept that ties together the goals of economic efficiency and environmental protection is the concept of Ecological Modernization. It can be considered as a variation of sustainable development which accepts that environmental problems are a structural outcome of capitalist economy but rejects the radical green demand for a fundamental restructuring of the market economy. The core thesis of the ecological modernization theory is that the design, performance and valuation of processes of production are based on ecological criteria in addition to economic criteria (Pellow et al 1999). Thus ecological modernization

promotes the goal of an environmentally friendly capitalism or greener industrialization where consumerism is replaced by 'green consumerism' and 'green products' (Carter 2003: 213-215) such as biodegradable soaps, chlorine free toilet cleaners, cosmetics that advertise beauty without animal cruelty etc. The premise is that science and technology, even though regarded to have contributed to the environmental problem, are also regarded as central to their solution, making for a 'sustainable' management of nature within capitalism (Pulver 2007:49) Market continues to play a central role but now for transmission of ecological ideas and practices. Governments change to a decentralized, flexible state but to steer production towards environmentally benign products and to increase co-operation between governments, industry, science and willing environmental groups. In its concept, ecological modernization recognizes that support of the business sector is vital for any transition to a more sustainable society (Carter 2003). Thus ecological modernization suggests a sort of a middle way that resolves the environment and development dichotomy produced by the concept of sustainable development without radically dismantling the existing underlying capitalist structures. It provides the basis for many forms of policies for it envisions an industrial restructuring based on the principles of ecology, which allows for industrial capitalism and environmental protection. This facilitates a cooperative reform of the goals, visions, values and decision making processes affecting environmental policy between business and politics.

Corporate Environmentalism finds its theoretical basis in this concept of ecological modernization. Innovations including administrative mechanisms like Corporate Social Responsibility initiatives, certification schemes and eco-labeling, producer mechanisms like best-practice environmental management, industrial ecology and environmental accounting, financial mechanisms such as eco-taxes, incentives for environmentally concerned investments like in areas of green technologies or smart grids and very importantly consumer oriented mechanisms like promoting green products and ideas of responsible green consumption (Sonnenfeld and Mol, 2002) can change the direction of global capitalist development towards environmental innovation.

Ecological Modernization has been criticised on its weak sustainability premise and has been referred to as “little more than a rhetorical rescue operation for a capitalist economy confounded by ecological crisis” (Dryzek¹² cited by Carter 2003:214). It becomes a variant of sustainable development bringing role of business into focus, but it fails to address the questions related to distribution and of equity and justice (Carter 2003:214, Pellow et al 1999). Ecological modernization assumes that consumption patterns need not change, especially in the North, because of the greening of the production process. This might actually encourage an increased consumption which is guilt-free (Carter 2003:216) and disregard the limits of growth (Carter 2003:215) and becomes the environmental face for of what has come to be regarded as the ‘market civilization’(Gill 1995).

Free Market Environmentalism

Free market environmentalism is the strongest basis for the marketization of the traditional regulatory tools of environmental regulation. As discussed above while framing the problem, this understanding is based on the assumption that if the market forces have led to negative externality, then there have to be ways found to address this externality. However, it follows the Coase’s line of thought as opposed to the regulatory approaches of eco-tax. How must though it address the problem of commons and of externality?

Anderson and Leal (2001), point out that Free Market Environmentalism is based on the classical economic assumption of individuals being self-interested, and institutions need to harness this economic maximizing behaviour to drive towards positive change. Thus

“Free market environmentalism emphasises the positive incentives associated with prices, profits and entrepreneurship, as opposed to political environmentalism, which emphasizes negative incentives associated with regulation and taxes. At the heart of free market environmentalism is a system of well-specified property rights to natural and environmental resources. Whether these rights are held by individuals, corporations, non profit environmental groups, or communal groups, a discipline is imposed on resource uses because the wealth of the property owner is at stake if bad decisions are made....In the market setting, it is the potential for gains from trade that encourages cooperation. Both the discipline of private ownership and the potential

for gains from trade stand in sharp contrast to the political setting. When resources are controlled politically, the costs of misuse are more diffused and the potential for cooperation is minimized because the rights are essentially up for grabs.” (Anderson and Leal 2001:15)

Thus, economic efficiency becomes a powerful driver for environmental protections and integration of powerful forces of the transnational corporations is a preferred to regulatory and command-and-control politics. Free market environmentalism makes a clear distinction between the economic policies of the government and the use of market forces to answer the problem of environmental degradation that economic globalisation has brought about. Even though there is clear dislike for government intervention, yet with the emphasis on private ownership and decentralised decision making the role of government becomes integral in defining and enforcing the property rights. In the ‘absence of laws the incentives inherent in private ownership disappear and with those go the potential for environmental stewardship’ (ibid: 16).

Anderson and Leal (2001), while making a case for taking the free market environmentalism global make the above mentioned arguments. They are however suspicious of the concept of sustainable development developed in 1960’s and 1970’s is holdover from the times when economists were struggling with steady-growth and zero-growth models. These models were based on the assumption that with population growth the resource crunch would increase, calling in for regulation that controlled production consumption, energy use and wastes. Thus for free-market environmentalists to operationalise the concept of sustainable development implicitly asks for greater regulatory and interventionist controls (ibid: 161-162). The seemingly simple concept of sustainable development gets considerably more complex in light of the opportunity costs arising from implementation of policies. If ecological principles and environmental ethics are to be factored into development policy, we still must ask who will do the factoring (ibid: 173).

Thus, sustainable development and free market environmentalism come together on the point that environmental problems arise when the discipline of environmental ethics is lacking, but they diverge dramatically on what form

this discipline should take. Advocates of sustainable development want political regulations to discipline markets, but free market environmentalists believe that market forces and property rights hold the key to managing the global commons (ibid: 174). Internationally, thus, to deal with questions of commons also clear set of property rights along with market incentives for a positive outcome instead of regulatory framework of international environmental regimes is called for. (ibid: 159).

Market based instruments

We have discussed above the theoretical underpinnings and logics provided for the use of market forces to solve the problem of commons and of generation of public goods. It is important to however note that, regulatory mechanisms and free market mechanisms use the market forces in two different ways though the underlying logic of framing the problems and the ultimate pursuit of economic growth within a market economy remains intact.

For the essential logic denotes that if market has produced the failure then it would be a folly to not use it a mechanism to overcome that failure. All market based instruments essentially aim to mobilize individual incentives to get at environmentally favoured outcomes through a careful evaluation of costs and benefits associated with particular environmental strategies. It is stressed that the strength of these instruments lies in their utilization of market exchanges and incentives to encourage environmental compliance. Source of legitimacy and authority comes from the wider acceptance in the processes of market in devising preferable outcomes (Cashore 2002: 23). These have come to encompass a broad range: eco taxes and subsidies based on a mix of regulation and market incentives, voluntary agreements, certification, ecolabeling and informational systems, cap and trade schemes are major examples. These instruments found on the bedrock of individual preference and self-interested behaviour by economic agents, aim to fulfil the condition of efficiency. At national levels in various countries the popularity of these instruments has increased quickly but it varies across sectors and geographies and is also dependent on the domestic systems of governance. Their popularity also relate

to a general dissatisfaction with old policy instruments, but more importantly because of the influence, transfer, and diffusion of emerging governance paradigms based in neoliberal institutionalism and free trade agreements, and the need for market innovations that keep national economies competitive in a globalizing world. (Jordan et al 2003: 21).

Energy taxes, tradeable permits, voluntary agreements, ecolabeling were first introduced in number of western countries (Jordan et al 2003). While environmental taxes of different kinds fall within a more regulatory framework aimed to alter environmental actions of agents as well as driving wedge in the negative externality. As discussed earlier these taxes, according to Pigouvian logic, were imposed in the belief that existing markets do not fully incorporate the externalities associated with the production and use of the commodities and services and that taxes are an effective mechanism to raise revenues to offset damages associated with the overexploitation of underpriced resources. Similarly tradable permits are based on the idea that some ecosystem services such as clean water, air are not priced fully by the existing market. In such a situation both taxes and tradable permits disincentivise and incentivise the conservation and economic efficiency of allocation can be improved if appropriate legal and institutional arrangements are in place, and polluter or polluted trade in permits to limit pollution. Given that these tradable permits require strong legal institutions, it can be argued that the shadow of law is crucial for them to be effective (Lemos and Agarwal 2006:306)

In developing countries too, dissatisfaction with regulatory controls by state agencies and the bureaucratization associated with their growth play an important role in the expansion of market incentive-based instruments, and in adoption of their across sectors and national boundaries (Durant et al 2004: 80). Difficulties in implementation and higher costs compliance with environmental regulations are also provided as valid opposition to regulatory mechanisms.

However, many point out that there are constraints to use of market incentive-based instruments, due to the opposition from environmental groups as also the problem of free-riding where effective mechanisms to check free-ride are not applicable. In face of opposition, questions about gaining legitimacy become significant and several studies show that it largely depends on the factors that lead to their development (Sonnenfeld and Mol, 2002) as well as levels of transparency, openness and accountability to which corporations and industries subject themselves (Kollman, 2008). Any analysis of the market based initiatives must, however, also take into account that they don't act in isolation and must be seen as deeply embedded in social structures which also shape their development, establishment and effectiveness.

Also popularity of market based mechanism doesn't not mean that the governments have been replaced by market actors in the environmental governance architecture. Its a reciprocal process where governments form important actors for 1) they are the source of credible threats of regulatory actions that would require costly compliance, and such threats encourage the adoption of voluntary agreements on environmental standards; 2) they are also the monitoring authorities to which appeals against environmental standards can be made. (Lemos and Agarwal, 2006:308); 3) they are the agency which enforces the private property law when it comes to managing the common resources.

Though governments remain important, there has been a seeping marketization of the global environmental governance. The traditional regulatory functions of state are increasingly subjected to marketization with the belief that market remains the source of efficiency, innovation and incentives necessary to combat environmental degradation. This is visible in the concepts of sustainable development, ecological modernization, and regulatory frameworks moving towards the logic of free market environmentalism.

The above shift is visible in the way discourse around environment and market is shaped. We see, environmental issues making a foray into the traditional market domain of trade and finance; article XX for the environmental exception in GATT and the inclusion of Committee on Trade and Environment in the World Trade Organisation in 1995. While the use of market based mechanisms finds ways into the international environmental regime building to effect the desired outcome on containing environmental degradation as well finding ways to managing the commons. Montreal Protocol on Ozone Layer, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Cartagena Protocol on Biosafety, Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal and most important for our analysis Kyoto Protocol on Climate Change. The market instruments within these range from use of emissions trading to limit or ban on trade in certain chemicals, species or genetically modified plants. So it is leads to reason that the implementation within different geographies vary too, as do their effectiveness.

The interface between market⁷ and environment provides an important field of study, where the interaction has come to become a reciprocal process. As mentioned above, the primacy and pervasiveness of the capitalist market ideology. The need to expand this ideology as argued by neo-liberals to increase prosperity for 'dynamic growing economies like dynamic growing ecosystems' are more resilient in dealing with not just economic shocks but also environmental problems. And market based mechanisms can provide positive incentives for change in behaviour of corporations and markets that result in negative externality.

The next chapter will discuss the history of emergence of climate change regime along with the logic for inclusion of three market based mechanisms- Emissions Trading; The Clean Development Mechanism (CDM) and Joint

⁷ With trade across borders being an important part of it. While market is a system, trade becomes a process that perpetuates the system along with other processes of production and consumption.

CHAPTER 3

CLEAN DEVELOPMENT MECHANISM : HISTORY AND LOGIC

Global climate change with its emergent repercussions for the earth system has led to it becoming one of the most important issues of our times. The media coverage of and the expectations from Copenhagen held testimony to the fact that from being a 'normal' environmental problem, it has emerged as a subject of 'high' politics. As the unprecedented levels of change in earth system are observed, the catch phrases of global governance 'finding global solutions to the global problem' take on an increasingly urgent tone. The adverse impacts of climate change are already being witnessed around the world, particularly on biodiversity, agriculture, water resources, rainfall patterns, seasons, coastal inhabitations and high altitude communities.

Intergovernmental Panel for Climate Change (IPCC), in its Fourth Assessment Report 2007, has made the strongest case for the discernible 'anthropogenic influence' in the warming of the globe leading to changes in the global climate system. It states that "Global GHG³ emissions due to human activities have grown since pre-industrial times, with an increase of 70% between 1970 and 2004" (IPCC 2007:4). Underlining the fact that 'there is high agreement and much evidence that with current climate change mitigation policies and related sustainable development practices, global GHG emissions will continue to grow over the next few decades' (ibid: 6) Thus, IPCC underlines that the business as usual scenario could set off ecological tipping points with 'abrupt or irreversible' effects depending upon the magnitude', that would have severe impacts on the ecosystems and livelihoods of billions of people¹ (ibid:13). There have been studies that claim that it would also exacerbate the inequalities by affecting vulnerable communities more severely (IUCN and IISD Report 2001: 3). The actions that are required to stabilize only the greenhouse gas concentrations (not including other effects of climate change such as flooding, food security, health

¹ IPCC's Fourth Assessment Report has also been subject of a major controversy right before the starting of Conference of Parties 15 in Copenhagen. Called 'climategate' by some, it had skeptics allege that the findings were exaggerated as some of the more conservative claims were not incorporated in to the report. While at the other end of the spectrum we have NASA scientist James Hansen contend that the IPCC report is conservative and the mitigation action should be directed towards achieving crossed threshold of 350 ppm.(Source: See, www.350.org). For the sake of this work we will not get into that debate and take IPCC AR4 results to inform our discussion.

hazards, etc) won't be costly if taken within a particular time between 445ppm and 535 ppm costing less than 3% global GDP by 2030 (ibid:21).

Against this background the efforts for finding solutions to the problem across a wide range of spectrum have intensified including governments, international organisations, transnational corporations, civil society organisations and networks, grassroots movements, and communities affected by the climate change. Though the hopes for negotiating a successor of the Kyoto Protocol, with even more ambitious binding targets, seems to be dwindling given the much discussed entrenched north-south politics at the negotiations. However, its important that we assess the solutions that have been crafted, and the theoretical and conceptual framework that those are embedded therein. Central to any discussion on environmental governance, the discussion on politics will also find its rightful place in this work.

This chapter is divided into three sections. In the first section, history of emergence of international environmental agreements on climate change is looked at. In the second section we look at the motivations to include market-based mechanisms specifically clean development mechanism in the Kyoto Protocol. In the third and the final section, we look at the criticism and support for the now fledging carbon market.

1. Brief History of Emergence of Multilateral Environmental Agreements

Much of the analysis around the trans-national environmental problems gets centred around the multi-lateral environmental agreements, however this was not the case always. The level of scientific knowledge as well as the space that environmental concerns find in mainstream discussions is unprecedented, and can be attributed to both the 'urgency of the problem' as well as framing as such by the media.?

Environmental concerns were beginning to find their place in popular discourse in 1960's and 1970's. For global warming and resultant climate change, S.R. Weart (2004:43) traces the beginning of arguments when the linkages between emission of CO₂ by burning of oil and gas, and warming of the atmosphere were made. While it was first made by Swedish scientist Svante Arrhenius in 1896, by 1963 the theory found more support with the results from Charles Keeling laboratory measurements in

Hawaii. The measurements clearly showed that with each successive year the amount of CO₂ in the atmosphere was rising. However, the link between increase of CO₂ due to burning of fossil fuels, warming, and climate change needed to be established further. Around the same time scientific knowledge was slowly but steadily developing on several environmental issues. Rachel Carson's seminal work 'Silent Spring' on the detrimental effects of fertilizers and pesticides was making news in 1962. At the time the work was dismissed as alarmist when 'green revolution' was making even bigger and better news worldwide. However, it did make a very significant connection about the unintended but systematic changes and effect that human activity were beginning to have on the environment (Reynolds, 2009:1). The adverse effects of anthropogenic activities (pertaining to developments in agriculture and industry) on the natural environment was brought to light time and again through the innumerable scientific studies. While the critics questioned the scientific validity of establishing a direct connection between increasing development activities and environmental erosion, at the Rio Summit, it was agreed that lack of scientific evidence in this regard could not be resorted in order to delay corrective measures. This realization formed the basis for 'precautionary principle' that became enshrined as the Principle 15 in the Rio Declaration (1992) stating that:

'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.'

While this would have encountered opposition, if not criticism in 1960's, by 1980's it had become the guiding principle for both Vienna Convention for the Protection of the Ozone Layer, 1985 and the 1987 Montreal Protocol and were included in their preamble. (Shaw, 2003: 776-77)

Pollution problems both trans-national and within the boundary of nation states were beginning to find prominence, but by 1970's they started featuring on the international political agenda. In 1972 United Nations Conference on the Human Environment (UNCHE), more popularly known as Stockholm Conference was held, leading to formation of United Nations Environment Programme (UNEP). UNEP was constituted to serve as the international entity to advance cooperation on shared

environmental concerns (Speth and Hass, 2006:60). Negotiations and ratifications for international environmental agreements were set in motion over a span of three decades. These agreements are what form one of the most important areas of global environmental governance.

Stockholm Conference was followed by what was to become one of the most successful environmental agreements, Montreal Protocol 1987 which had been negotiated under the Vienna Convention of the Ozone Layer 1985, aimed at limiting depletion of ozone layer. In 1988, World Meteorological Organisation (WMO) and United Nations Environment Programme (UNEP) commissioned the Intergovernmental Panel on Climate Change (IPCC). The aim was to firm up the knowledge on the issue and its functions “to provide an authoritative international statement of scientific understanding of climate change” (Parry et al, 2007:976). A critical nerve centre of climate change discourse and regime, the IPCC assessment reports have ‘marked key stages in the consolidation of both scientific and political consensus on climate change’(Newell and Matthew, 2010:17-18). Importantly around the same time UNEP also laid the groundwork for World Commission on Environment and Development (WCED). WCED, later through the Brundtland Report, popularised the concept of ‘Sustainable Development’ published in *Our Common Future*, which has become an ‘umbrella concept’ with a wide range of solutions for various environmental problems proposed under. Defined as:

“Sustainable development is development that satisfies the needs of the present without compromising the needs of the future.” - (WCED 1987:43)

The notion has come to encompass a wide array of meanings, and there exists no general agreement on how to translate it into practice (Carter 2003, Jaboreen 2006, Giddens 2009) This ambiguity can itself be interpreted as an advantage for by being open to interpretations; and generally accepted as the guiding philosophy, actions and policies can be made context specific thus opening space for more local initiatives, and uniting a wide range of actors, stakeholders and organisations under its purview (Carter, 2003). The formulation became popular because it had for the first time bridged the concerns of both the developed and the developing world, bringing together the environmental and development agenda of the north and south.

The second most important development in this arena was the 1992 at the Rio Earth Summit which gave birth to Convention on Biological Diversity, Climate Change and Desertification and also Commission on Sustainable Development. Agenda 21 that also emerged from Rio Earth Summit, furthered the case for sustainable development by providing a blueprint for 'implementing' sustainable development. It also made explicit the connection between the words 'sustainable' and 'development' by linking the social, economic and environmental aspects together. Agenda 21 and Principle 15 together have now come to be part of conventional international norm and environmental politics takes form with these as the backdrop.

The phenomenon of global warming gained prominence in the late 80's and early 90's. It started with adoption of 1985 Vienna Convention for the Protection of the Ozone layer and the 1987 Montreal Protocol and the 1992 Convention on Biodiversity. The two-year period from 1988 to 1990 marked the shift of the global warming issue from primarily scientific arenas to international political forums. The U.N. General Assembly first addressed the issue of global warming in its Resolution 43/53 in 1988 stating that global climate change is 'the common concern of mankind'. This was followed by the formation of the Framework Convention on Climate Change in 1989. (Shaw, 2005: 786). Concurrently, the governing boards of United Nations Environment Program and the World Meteorological Organization (WMO) established the Intergovernmental Panel on Climate Change (IPCC) as the scientific advisory panel to the international community. The IPCC produced its first Scientific Assessment Report in time for the Second World Climate Conference held in Geneva in November 1990. A month later, the United Nations established the Intergovernmental Negotiating Committee (INC) as the organizational vehicle for international deliberations on climate change in its Resolution 45/212 (Mintzer and Leonard, 1994). The INC negotiations in 1991 and 1992 produced the U.N. FCCC, which was opened for signature at the 1992 U.N. Conference on Environment and Development, better known as the Rio Earth Summit. The overarching principle of the FCCC is to [stabilize] greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic (man-made) interference with the climate system. Such a level should be achieved within a timeframe to allow ecosystems to adapt naturally to climate change, to ensure that food production is not

threatened, and to enable economic development to proceed in a sustainable manner (FCCC, 1992). It was the conclusion of work done by the Meteorological Organization and that of the Intergovernmental Panel on Climate Change (IPCC), which developed the scientific consensus on climate change (See IPCC 1009a-c). One important feature of IPCC reports is the quantified assessment of the likelihood of each major conclusion, and the explicit assignment of the authors' confidence in the underlying science to back up each conclusion. This practice clearly separates out aspects that are well established from those that are better described by competing explanations, and from those best labelled as speculative.

The adoption of the Framework Convention on Climate Change (UNFCCC) in 1992 was a major step forward in tackling the problem of global warming but this treaty did not mandate binding reductions in greenhouse gas emissions on the part of signatory states. Yet as greenhouse gas (GHG) emission levels continued to rise around the world, it became increasingly evident that only a firm and binding commitment by developed countries to reduce emissions could send a signal strong enough to convince businesses, communities and individuals to act on climate change. Member countries of the UNFCCC therefore began negotiations on a Protocol – an international agreement linked to the existing Treaty, but standing on its own. After 1992, the international climate negotiations focused on drafting a protocol to the FCCC that would mandate binding green house gas emissions reductions.

After two and a half years of intense negotiations, the Kyoto Protocol was adopted at the third Conference of the Parties to the UNFCCC (COP 3) in Kyoto, Japan, on 11 December 1997. The protocol commits its industrialized country signatories to reducing their greenhouse gas emissions by an average of 5% below the 1990 levels by 2010 (calculated as a 5-year average of emissions from 2008 to 2012). It shares the objective and institutions of the Convention. The major distinction between the two, however, is that while the Convention encouraged developed countries to stabilize GHG emissions, the Protocol committed them to do so. The detailed rules for its implementation were adopted at COP 7 in Marrakesh in 2001, and are called the Marrakesh Accords. It is now the principal regulatory tool enshrining the principle of 'to protect the climate system...on the basis of equity and in accordance with their *common but differentiated responsibilities and respective capabilities.*'

As it was and is widely believed, the protocol will affect virtually all major sectors of the economy and is thus considered to be the most far-reaching agreement on environment and sustainable development ever adopted. This facet of the treaty also makes it contentious in various ways discussed during the course of this chapter.

IPCC in its Fourth Assessment Report 2007 marks increase in anthropogenic emission as the 'very likely' reason for climate change. The report does so through impact quantification of the causes and effects, and also discusses the policy measure needed for the adaptation to and mitigation of the impacts of climate change. While the science clearly establishes that the climate change is caused by anthropogenic activities, it also highlights the urgency to take action. This *urgency* is used to frame the problem of climate change as an environmental problem; a problem revealing the biospheric limits. Also, the *urgency* requires that the main polluters be identified and made to carry out their responsibility (historical and current). This is exactly the point where questions such as who should be made responsible to cut emissions and to what extent come to fore thus leading to the emergence of the competing perspective also as a climate change problem; and shaping it as a problem of equity between the developed and the developing (and underdeveloped) world. In international negotiations the debate gained greater steam when in March 2001, US, the world's largest polluter pulled out of the protocol. The main line of argument given by the US officials was that the protocol was fatally flawed in fundamental ways because it did not include China and India who, it argued, were also major emitters. This construction of the 'major emitters' including large rapidly industrializing countries as also the primary drivers of the problem then leads to displacement of responsibility of taking action on climate mitigation on to the developing world. The move by US also jeopardized the coming into force of protocol as it required not only 55 nations to ratify it but also include industrialised countries that amount for 55% of the emissions. Following ratification by Russia, the Kyoto Protocol entered into force on 16 February 2005.

COP 15 in 2009, meant to be the deadline for negotiation of the successor of Kyoto resulted in merely an 'Accord' which outlined the goal to limit emissions so as not to the average temperature does not exceed the two degrees Celsius over the pre-industrial levels.

Looking at the evolution and proliferation of the multilateral environmental negotiations few patterns become visible. Firstly, to deal with challenge of environmental degradation and more specifically climate change, the world community continues to look to international regimes for responses and solutions. Saurin (2001:80) notes, “International political analysis continues to be conducted as if environmental goods and bads are produced, accumulated and therefore regulated by public organizations. They are not.”

Secondly, existence of an environmental regime with a regulatory tool in the form of a multilateral agreement addressing issues of trans-boundary pollution is merely the starting point of the problem-solving process, and also merely, one of the political measures. It alone does not guarantee that the problem will be resolved. If that were the case, then the proliferation of multi-lateral environmental agreements would seem like sure sign of success in dealing with the issue, whence it should be seen as a mere start (Newell, 2008:77).

Then what accounts for the ineffectiveness of policy in dealing with the global environmental change. As there has been a proliferation of treaties, so has there been an increase in the number of secretariats. Need to host several of these institutions led to situate several small and under-funded secretariats in geographically diverse location with most of them situated in the developed countries of the north like Bonn, Montreal and Rome. Although each institution has evolved differently but there is now a general consensus that this system is not yielding the results that were expected. Some of this has to do with the negotiation fatigue or burden of negotiating at these inter-governmental forums, especially for the developing world for it taxes the limited financial and human resources available with the countries. (Munoz et al, 2005: 4). Inadequately addressed problem of ensuring participation and compliance has also led to ineffectiveness of the global environmental governance in ensuring that environmental degradation is continued (Vezirgiannidou, 2009: 41). To strengthen the legitimacy of UNEP through institutional reforms in order to enable it to take leadership role is imperative to get out of this precarious situation (Ivanova, 2010:54).

The answers can also be sought from two different points of reference. Firstly, by analysing the nature of the international law in contemporary international politics;

and secondly, by looking at the nature of the persuasions of the policy making within the present neo-liberal economic framework.

Classic international law approach is founded on the state responsibility approach, thus making the state as it's first and foremost subject (Shaw, 2003:1). In issues related to trade and human rights, it is easier to use 'State' as the subject of reference, but in case of environmental law, 'the need to demonstrate that particular damage has been caused to one state by the actions of another state means that this model can at best be applied to more than a small proportion of environmental problems' **such as?** (ibid: 771). Thus, with regards to environmental law, the approach has moved from 'bilateral state responsibility paradigm'; to one of 'establishment and strengthening of international cooperation.' Stockholm declaration 1972 explicitly stated this in Principle 24 that issues of environment 'international matters... be handled in a cooperative spirit.' (ibid: 771-72). Rio Declaration 1992 strengthened the case with its Principle 7, 27 and 13. Principle 13 states that:

'states shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.'

The problem of ensuring compliance towards a treaty obligation and more generally towards following the emerging conventions is a difficult, if not altogether impossible, thing to assess. This becomes more acute in cases of environmental law involving multiple states and actors. However, several principles like that of precaution, common but differentiated responsibility, polluter pays have clearly emerged over the course of three decades of evolution of multilateral environmental law. While norms of state responsibility, the appropriate standard of strict liability, ascertain of damage caused, liability for damage caused by private persons, prevention of transboundary harm from hazardous activities are the more generally accepted principles of international environmental law (Shaw, 2003).

With regards to economics, Newell (2008:76) argues that the debate around the issue of environmental crisis and the necessary form of policy action needed is mostly

conducted ‘in the shadow or is either trumped by parallel concerns with trade and global market integration.’ And ‘this narrowing of the terms of debate to political solutions that can comfortably be accommodated within the business-as-usual model of contemporary neo-liberalism serves to marginalize, delegitimize or renders invisible alternative solutions that may be more effective.’ Thus, apart from the proposed solutions to make the GEG more effective, there has been a discernable trend towards use of market forces to manage environment in the last decade. The emphasis on harnessing the market forces arguably results from the dissatisfaction with the traditional form of governance and policy instruments especially where effective government action is absent (Lemos, 2006: 313). But primarily and more importantly, it also reflects that there is large consensus around the neo-liberal frame. Famously, The Stern Review of 2008, which had described ‘climate change’ as the biggest market failure, concluded that a ‘broadly similar global carbon price is an essential element of international collective action to reduce greenhouse gas emissions (Stern, 2008: 487) making central the role of market in dealing with the problems of climate change.

And in this light is that we will analyse the evolution that led to inclusion of ‘flexibility mechanism’ or market-based mechanism within the Kyoto Protocol.

2. History and logic for bringing in market-based ‘flexibility mechanism.’

Though flexibility mechanisms under the Kyoto Protocol were not the first instance of use of market-based mechanisms, they followed the logic of their predecessors that came in slightly different form under the Montreal Protocol. In this section, first I will trace the history of bringing in the Market Based Mechanism to deal with the problem of climate change under Kyoto Protocol.

To provide countries with certain degree of ‘flexibility’ in meeting their emission reduction targets given the belief that these would be difficult, the protocol provided the countries with three market-based mechanisms of Joint Implementation (JI) in Article 6, Clean Development Mechanism (CDM) in Article 12, and Emissions Trading (ET) in Article 17. Annex I countries may use these mechanisms to meet a part of their carbon-emissions commitments by reducing or removing atmospheric

CO₂ in accordance with Articles 3(3) and 3(4). Two mechanisms, Joint Implementation and the Clean Development Mechanism are similar in concept where in an Annex I legal (public or private) entity finances emissions reduction or removals in another Annex I country (JI), or non-Annex I country (CDM). Consequently it acquires emissions-reduction units (ERUs) for JI or certified emissions reductions (CERs) for CDM projects that count towards fulfilling the financing country's national emission-reduction commitment.

CDM's were included along with the other two mechanisms to ensure 'meaningful participation' by the large developing economies like China and India at the behest of USA, which continues to hold out from taking binding emission reduction targets. The muscle flexing by the world's largest emitter of GHG's, USA, resulted in the legitimacy of the market based mechanism as the most widely accepted and popular instruments for emission reductions and mitigation.

A UNFCCC brief describes Clean Development Mechanism as 'an innovative financial mechanism that promotes sustainable development in developing countries by channelling private-sector investment into emissions reduction projects, while offering industrialized governments credits against their Kyoto Protocol targets.' (CDM, UNFCCC) Defined under the Article 12 of the Kyoto Protocol, it 'allows a country with an emission reduction or emission limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission reduction project in developing countries.' The projects under the protocol can earn CER (Certified Emission Reduction) credits with each credit being equivalent to one tonne of CO₂ which are then used towards meeting the target.

In the UNFCCC website itself, CER is described as 'trailblazer', seen as the 'first global, environmental investment and credit scheme' providing for 'a standardized emissions offset instrument.' The mechanism purportedly aims to promote 'sustainable development' along with the 'emission reductions' in the country where the project is being implemented. The reductions achieved through the CDM projects should, however, be *additional* to what would have otherwise occurred. The need for getting additional financial resources is also clearly established through this clause. However, CER resulting from CDM's are meant to be *supplemental* and should not

constitute principal source of emission reduction. It is further clarified that the funding coming for CDM should be in excess of the Official Development Assistance, and not lead to diversion of funds.

To make sure that the 'additionality' clause is fulfilled, the projects are made to go through a 'rigorous and public registration and issuance process.' Designated National Authorities are established by the relevant ministries in the countries. At the secretariat, CDM executive board overlooks the entire implementation of the mechanism in the countries that have ratified the Kyoto Protocol. A 'trailblazer', ever since it became operational, the mechanism registered 3211 projects till date and has produced around 6.4 billion tonnes of CO₂ equivalent in the first commitment period (2008-2012) of the KP (See CDM, UNFCCC).

Popular though it became, CDM was a very latecomer at the UNFCCC negotiation table. Its form and substance were very different than what was negotiated for at the Kyoto and how it evolved later. Described as the 'Kyoto Surprise' by the Chairman of COP 3, Ambassador Raul Estraday Oyuela, it was originally proposed to be 'Clean Development Fund.' When the negotiators met for the Third Conference of Parties (COP-3) to the UNFCCC, the most important work that lay before them was to get a treaty that fulfilled the requirement of the Berlin Mandate which had emerged from the COP-1 (Earth Negotiations Bulletin, 1997:1). The original form and matter for what later became CDM was proposed by the Brazilian Delegation, and chiefly its negotiator Dr. Luis Gylvan Meira Filho, president of Brazilian Space Agency and also an IPCC lead author. Originally intended to be a Clean Development Fund, fund was to be based on the fines collected from the Annex-1 countries for non-compliance to support adaptation and mitigation in LDC's. Then came the 'Kyoto Surprise' with the CDM becoming a flexibility Mechanism. A late arrival on the negotiating scene, CDM did become a central article in brokering a deal at the Kyoto. Much of the negotiation that took place for CDM was in informal bilateral and group discussions lead by the powerful like the US, Brazil, European Union.

At the negotiations, Annex-I countries were under tremendous pressure to reduce their emissions. The pressure came not only from the developing countries and domestic constituencies but more importantly from the realization that historically the

responsibility for the 'stock' of GHG emissions lied with the industrialized countries. However, the actions needed to limit emissions, to a negotiated level if not at the prescribed limit by the scientists, seemed difficult to undertake given their economic costs.

Norway was also in a difficult dilemma. It had the reputation of being an environmental leader especially given the role that its one time Prime Minister Gro Harlem Brundtland played in the World Commission on Environment and Development report (WCED). The popularity of the idea of 'sustainable development' also greatly owed it to the 'Brundtland Report.' However, being an oil producer and exporter with plans of expansion for its oil production, Norway had to find novel ways to work towards achieving its emission limitation targets. (Newell and Matthew, 2010: 78) Ted Hanisch, director-general at the Centre for International and Environmental Research (CICERO), a think-tank in Oslo, in a paper in 1991, proposed the idea of enabling countries to meet their targets jointly, through investment in projects in a different country offsetting the emissions in the other. During negotiations in 1992, when the idea was introduced at UNFCCC, US negotiators lapped it up and the idea became the basis for Joint Implementation (JI) and CDM fulfilling the need for 'flexibility.' (Newell and Matthew, 2010: 79).

CDM combined the elements both from the Brazilian Proposal's Clean Development Fund and the proposed JI. Brazilian proposal contained a mechanism whereby a global fund would be raised from penalties imposed on industrialized countries for non-compliance with the agreed quantitative targets. The fund raised could be then utilized for both mitigation and adaptation in the developing countries. This would advance the implementation of the Convention in these countries while at the same time letting countries follow their charted development path sustainably. To this proposal changes were made. On one hand, the non-compliance penalty to the industrialised countries was done away with. On the other hand, features of Joint Implementation were included whereby the funds came from the country investing in the place with the lowest possible mitigation cost in order to earn credits. (Newell and Matthew, 2010: 81, Werksman, 2000: 221)

As noted earlier, CDM was a latecomer into the negotiation process, but the negotiations for Joint Implementation as detailed in Article 6 were already underway since the First Conference of Parties for UNFCCC. Thus, conceptually the debate around the idea of JI was part of the negotiations from the very outset (Werksman, 2000: 227). Though not defined in the UNFCCC, JI was used to refer to two similar but distinct concepts- 1) Project based implementation, allowing Annex-I countries to obtain carbon offsets or credits towards their emission reduction targets for investment in mitigation projects abroad either in Annex I or non-Annex I parties where the cost of such investments were lower. 2) A system of tradable emissions allowances that, once allocated between parties or group of parties, can be traded to prescribed rules. Both were conceived to enable annex-I achieve their reduce greenhouse gas emissions in a cost effective manner, and to encourage transfers of financial resources and/or technology between parties (Werksman, 2000: 220).

While proponents of JI saw such investments ‘win-win opportunity for all parties’ whereby industrialized countries can achieve their commitments in the most cost-effective and flexible means, and developing countries would attract additional investment or finances along with clean energy technology. However, both forms provoked concerns from parties and observers, who argue that this shifts the responsibility if not the cost of emission reductions, from developed to developing countries. It also made it difficult to ensure compliance with emission reduction obligations (Werksman, 2000: 220). To understand how the idea would pan out upon implementation, at COP-1 it was decided to establish a pilot-phase for Activities Implemented Jointly (AIJ) (See FCCC/CP/1995/7/Add.1, April 1995, Decision 5/CP.1.) The purpose of the pilot phase was to provide a more transparent and coherent basis for testing the feasibility of JI- This is what was termed as ‘learning by doing’ phase.

Pilot phase during 1997-2000 did help to clear out ambiguities in and ‘elaborate a number of issues of principles and practicality’ which also went on to later both shape and inform the discussions and negotiations for CDM. Even with the unavailability of credit in the AIJ pilot phase, there were 122 projects till COP3. AIJ report showed a good geographical spread of the projects with 29 in Latin America, five in Africa, and nine

(See FCCC/SB/1995/5). These were mostly invested in bilaterally by United States Initiative on Joint Implementation (USIJI) program, and the Norwegian/World Bank AIJ program. However, only US, Norway and Netherlands had developed AIJ projects in partnership with non-Annex I countries (See FCCC/SBSTA/1997/INF.3.) The COP and its Subsidiary Body on Scientific and Technological Advice (SBSTA) were developing a uniform report format for AIJ, taking care to analyse a lot of political and methodological issues to emerge. These fleshing out of details did inform discussions on CDM development. It was also a means to develop 'rigorous reporting standard' to ensure effective implementation towards achieving real net reductions in emissions. The supporters from both the North and South saw it as absolutely essential to ensure its efficacy towards mitigation efforts. But, this doesn't mean that there were no hesitations from developing countries who saw rigorous reporting standards as a step towards shifting the responsibility of significant emission reduction on to the developing countries under the guise of cost-effective reductions. For developed countries, increase in transaction costs due to rigorous reporting method was a concern for it decreases/dilutes the intended cost-effectiveness, thereby making it a less attractive option. The clauses on additionality and baseline also emerged from the pilot-phase of AIJ (See Annexure for details).

At the UNFCCC, negotiating stance of G-77 plus China, the text submitted to the Chairman and included in the Negotiating Text, stressed that each party in Annex I group meet its Quantified Emission Limitation and Reductions through domestic actions. The position for G-77 plus China and the European Union held out that the project based Joint Implementation be limited to Annex-I countries. G-77 position derived its logic from the clear reasoning that Joint Implementation would transfer the responsibility on to the developing countries. This would be discussed in later section on the supporters and critics.

After introduction of the Clean Development Fund by the Brazilian Delegation, the US negotiators took the idea forward and made sure that it became a flexibility mechanism with the possibility for developed countries to earn credits from the projects in developing countries to offset their own emissions. Thus, while everything that was part of the CDF proposal was not accepted, there were features in the proposal that did prove attractive to a lot of parties. US' interest in the mechanism can

be gathered from the fact that the negotiations for CDM were mostly led by either US or Brazil in the informal bilateral meetings chaired by Dr. Luiz Gylvan Meira Filho (Earth Negotiations Bulletin, 1997: 11). G-77 plus China that was opposed to inclusion of non-Annex I countries in the project based Joint Implementation, however, gave thumbs up to the CDF proposal to ensure compliance with emission reduction targets. CDF proposal had the added attraction of generating a fresh source of funding for development projects (FCCC/AGBM/1997/MISC.1/Add.6, p.16).

At the Kyoto Negotiations, work on the CDF proposal started immediately under the Committee of the Whole (COW) under Chairmanship of Brazil (Earth Negotiations Bulletin 12(68), 1997: 1) .While USA backed proposals for project-based JI, G-77 was lobbying for compliance based penalties feeding in to the fund. As for EU, it was not in favour of a JI where one of the parties did not have commitments. Thus it was suspicious of the emerging CDM. Also creation of CDF would also make the Global Environment Fund (GEF) lose viability (Earth Negotiation Bulletin 12(71:2). GEF is the facility under the convention which serves as its financial mechanism, and overlooks the allocation of funds for the projects in the developing countries. In the process of negotiation, the link between compliance and the fund was successively broken, making the focus increasingly shifted to use it for facilitating a JI mechanism between Annex-I and non-Annex-I. As the negotiations neared the end, the basic principles for CDM were agreed upon (Earth Negotiation Bulletin 12(76),1997:2) The discussions and debates on how to make it operational came only after Kyoto was signed in 1997 and it was made operational after the adoption of the Marrakesh Accords in 2001.

CDM became the 'deal-broker' clause and was a compromise reached between the North and the South (Newell and Matthew, 2010: 82). For the north, it was a source of flexibility. The north could involve non-Annex I countries, including the rapidly developing economies of India, China, Brazil and South Africa, in its mitigation endeavours that accrued the credits to Annex-I. And for South it was an added source of finance with the promise of transfer of green technologies. Thus, it is the only mechanism which includes both the developing and the developed world and became the 'focus of biggest trade-off in the negotiation' (Earth Negotiations Bulletin 12, No. 76, 1997:15). The final text that emerged defined the CDM with its stated purpose

being to assist non-Annex I Parties in achieving sustainable development and contributing to the FCCC objective, and assist Annex 1 parties in achieving Quantified Emission Reductions as contained the Kyoto commitments under Article 3 (Earth Negotiations Bulletin 12(7) 1997:11).

It was also decided that the CDM would be subjected to the authority and guidance of the Conference of Parties serving as the Meeting of Parties (MOP), and would be supervised by an Executive board of the CDM. The first MOP was intended to 'elaborate modalities and procedures to ensure transparency, efficiency and accountability through independent project auditing and verification.' Participation in the projects could involve both private and/or public entities, subjected to the guidance provided by the CDM executive board.

Thus, it is very important to note that the proposal to ensure compliance of Annex I countries towards their targets metamorphosed into becoming a process that would ensure flexibility in taking mitigation action on Annex I's own terms. Although protocol dictated that the flexibility mechanism were to be supplemental, it did so in very weak terms in Article 12(3) listing that CER's may only "contribute to compliance with a part of commitments made in the Article 3. The mention was qualitative and no definite quantitative limit was set for use of flexibility mechanism in meeting the commitments. This is one of the major gaps in the CDM.

3. Critics and proponents

The Kyoto Protocol called for global emissions to be reduced by 5.2% below 1990 levels but they have actually increased world wide by 38% between 1992 and 2007 (Citation). And if IPCC's projections are to be believed then the actions that are required to stabilize greenhouse gas concentrations between 445ppm and 535 ppm would cost less than 3% global GDP by 2030 (IPCC 2007:21). As Kyoto works on the principle of 'historical responsibility', it follows the logic that the major burden of this mitigation cost needs to borne by the industrialized developed countries. However the use of market-based mechanisms by the industrialized on their own terms and the continuing rise in emissions put the efficacy of such mechanisms to question.

In this debate, the supporters of emission trading see this simply as a cost effective instrument for achieving the emission reduction, stressing on the efficiency of market mechanism (Grubb 1989; Barrett,1990). On the other end of the spectrum critics characterise it as ‘fraud’ and term it as ‘climate colonialism’ (Bachram 2004; Bond 2008) even though on the surface the logic does seem simple and quite effective for argues that it ‘presents the possibility of stabilizing global GHG emissions with a minimal societal cost. (Bluemel 2007:1995)

The emission markets for carbon outside the regulatory framework was first thought of as a solution by Richard Sandor, called by some as the ‘father of carbon markets’, in the 1980’s. This is what led to the emergence of Chicago Carbon Exchange (CCX) in 2003 and also became the basis for the acceptance of this ideology. It led to the establishment of Emissions Trading Scheme of EU (EU ETS), Emissions Trading Group of UK, and similar organizations in Netherlands and Germany (Newell and Matthew, 2010:110).

Emission Trading is an effective way to deal with the ‘problem of global commons’ arguing that the convergence of environmental and financial market in the form of ‘commoditization’ of natural resources leads to treatment of environment as a truly scarce resource by establishing limits on its use (Sandor et al, 2002: 1608). The intellectual roots of this reasoning lie in the Coase’s ‘problem of social cost’ theory.

Coase argued that assigning property rights to public goods will yield a socially efficient use of resources, even when externalities are present. Once rights are assigned, parties can negotiate *given perfect information and low transaction costs* through the market to achieve an optimal usage of common property resources (Sandor et al, 2002: 1609).

By the same logic cap-and-trade emissions trading approach exploits the differences in pollution-mitigation costs faced by different emission sources. This understanding of assigning social costs to public goods then leads to the understanding that cap-and-trade are efficient and successful, from both environmental and economic view point, as they offer low cost method for managing environmental risk by harnessing the entrepreneurial skills of industry and providing it with flexibility in method, location

and timing of emission reductions. All these characteristics of a successful emissions trading may be applied to GHG's (Sandor et al, 2002:1621).

Along with the Ted Hanisch's case for flexibility, Grubb and Barrett's case for efficiency and Sandor's theoretical support provided the core logic for the 'Global Carbon Market.' Going by the efficiency logic of the market, the clause for it to be 'supplemental' in KP is also seen as rather an impediment than incentive to reducing emission cost-effectively. Barrett terms it as a 'twisted logic' that 'cannot be good for the environment' as it will magnify the leakage problem due to the arising differences in the marginal costs between countries. Thus the lack of a clear quantitative figure is a good sign for then, according to Barrett, 'even with unconstrained trading, Annex I will undertake *some* abatement at home' (Barrett 1998:31). However, initially the problems of 'hot air' in Emission Trading and of 'low hanging fruits' in CDM did abound, and now there are efforts at reforming the institutions and mechanisms to deal with these problems (Liverman, 2010: 134-135).

The effectiveness of different carbon markets and the mechanisms therein also depends on the nature of the markets. The EU ETS and CDM constitute the bulk of the global carbon market with Chicago Climate Exchange (CCX). But while the trading in the former two is government run with UNFCCC at the helm of affairs, the CCX is a voluntary market. This difference also goes on to show the differences in the scale of operations. EU ETS, setup by European Union to help meet the countries their emission reduction commitments, covering roughly twelve thousand facilities in twenty five countries, and accounts for nearly half of the EU total CO₂ emissions. CCX constitutes of the twenty-four companies, municipalities, and universities (nearly all of these are US-based. Here, Keohane and Olmstead contend that the difference in the amount of trading under the two markets (one voluntary and other government regulated) for 'cap-and-trade' is more effective than just 'cap.' They add further that 'without the regulatory power of the government, one cannot expect voluntary program to expect much', thus making a clear case for some form of government regulation. (Keohane and Olmstead 2009:141-142)

By 2008, CDM, the 'jewel in the crown of flexibility mechanism', that combines the twin goals of emission reductions as well as sustainable development, had already

expanded well above the expectation of its architects. The EU ETS continues to drive the demand for CER's (Capoor and Ambrosi 2008:23). Though the initial years of the operation yielded fewer CDM credits than supporters has hoped for, yet by 2006 rapidly maturing carbon market was giving clear price signal for GHG emission reductions that needed to be achieved in the first commitment period of the Kyoto Protocol (2008–2012) (Karmali, 2006:1). This makes it amply clear that the mitigation action is cheaper to achieve in developing countries than in the developed countries, yielding greater investment benefits per unit. Even for the supporters of the market based mechanisms it becomes imperative to analyse whether the market is going in a positive direction. Karmali argues that according to the so-called 'wedges theory' introduced by 'Pacala and Socolow', the most rational way to change the business-as-usual (in policy and technology development) scenario as cited by IPCC is by employing a portfolio of measures and policies. Karmali notes that technologies already exist for mitigation but each technology needs to be scaled up to be able to achieve the desired levels of emission reductions.

Till now the price signals from the carbon market has not been able to steer the investment towards technologies that already exist and can be scaled up. *'Thus, humanity can solve the problem of climate change in the first half of this century simply by scaling up what we already know how to do.'* However, he also concedes that though CDM is succeeding in engaging developing countries on GHG emissions reduction opportunities, "it is having minimal impact in shifting long-term investment patterns in energy systems" (Karmali, 2006: 6). Thus, the problem of low-hanging fruits emerges as CDM pipeline projects are dominated by the projects having lowest marginal abatement costs. This provides for one of the strongest arguments against the CDM's in terms of it not leading to the desired change in moving towards a low carbon economy by attracting investment only in the 'low hanging fruit' like the removal of reductions of HFC-23 emissions from chemical plants or of CH₄ from landfill gas projects and not contributing to the lofty goals of sustainable development (Newell and Matthew, 2010:130).

This leads us to the other technical problems with CDM's.² The two crucial elements of a CDM project are *additionality* and *baseline*. 'Additionality' means establishing a hypothetical scenario exhibiting that the planned reductions are additional and would not occur without the additional financial incentive provided by the CDM project. The construction of this 'counter factual' hypothetical scenario is known as the baseline of the project where it is determined the emissions that would have taken place without the project.

Operationally it suffers due to bureaucratic bottlenecks. , Both these create the problems of false credits in the market, proving

In all models, the CDM is hampered by significant potential problems. Additionality is problematic due to various 'bureaucratic bottlenecks.' Operationally, the process is long; methodologically, still evolving. The CERs are tentative and lead to false credits in the markets. The long investment cycle gives rise to a fundamental flaw where over-stating the benefits from the CDM project lead to higher number of CER's. The focus of the deal ends up being 'getting the CER's' from the project. Neither the seller nor the buyer of the credit has a private interest in the actual delivery of the service, and the motive of emission reduction for the sake of it often takes a backseat. In the case of the CDM, as long as the buyer receives title to the emissions reductions in the form a certified credit for use or sale, he has no private interest in whether or not the actual emissions reduction takk place. Similarly, as long as the seller receives payment, he has no interest either, and could very likely save money by skimping on implementation. This underlines the need for regulations and their strengthening further.

If this is the nature of global externality, most of the costs of non-compliance accrue to the rest of the world (Liverman: 2010, Repetto: 2001). Another important concern for a lot of environmental NGO's as well as several governments' remains the inclusion of carbon sinks into the mechanism with a view to sustain long-term efforts to cut emissions. Such a requirement holds water as in their current shape and nature,

² For the operational and details of the procedure, refer to UNFCCC, CDM project activity cycle at <http://cdm.unfccc.int/CommonImages/ProjectsCycleSlide>. Alternatively refer to, Chapter 3 on 'Kyoto Protocol' in Brohe et al (2009), *Carbon Markets: An International Business Guide*, London: Earthscan.

most CDM projects only focus on short-term methods of emissions reduction, and not on sustainable methods (one of them being creating carbon sinks.)

With regards to emissions trading, the critics point out that the market will choose the easiest means to save a given quantity of carbon in the short term, which may be different to obtain sustained and sizable reductions over a longer period, and so a market-led approach is likely to reinforce technological lock-in. For instance, small cuts may often be achieved cheaply through investment in making a technology more efficient whereas larger cuts would require scrapping the technology and using a different one. They also argue that emissions' trading is undermining alternative approaches to pollution control with which it does not combine well, and so the overall effect it is having is to actually stall significant change to less polluting technologies.

The critique of these market mechanisms also points to the efficacy of the carbon trading mechanism within the framework of the Kyoto Protocol in reducing the levels of GHG since the heaviest emitters of greenhouse gases, namely industrialized countries, can continue polluting through an accounting system which allows them to meet their promised emissions reductions targets without actually reducing emissions (Stiglitz, 2006). A more severe critique of carbon markets likens it to the uncertainty or the derivatives market. Analysed from the Polanyian lens, it problematises the commodification and trading in carbon like Polanyi had done to land and labour. It thus notes that construction and invention of carbon markets was done with an assumption that it can be somehow separated from the historical pathways and political and social movements that might be involved in a transition away from the fossil fuels (Lohmann, 2010).

From the view point of developing countries 'flexibility mechanism' have been criticized on the grounds that it neglects the long-term interest of the current and future generations of developing countries. Agarwal and Narain of the Centre for Science and Environment argue that Kyoto has become more of a trade negotiation than an environmental negotiation. In name of meaningful participation developed countries included CDM in the Kyoto to ostensibly promote North-South cooperation in order to ensure that North has the cheapest array of projects to choose from in the

South. Thus it is argued that the policy recommendation of this nature institutions emerging tend to be based on the principles of “business transactions” rather than on the principles of “good governance” (2000:3). Institutionalization of carbon accounting, they argue, would lead to shifting of clean development mechanism to areas with low operational cost through project-based investments made in the South for which the North would get credits in its carbon accounts. Also the monetization of these credits can lead to the accumulation of these emissions credits for future commitments. In this way, a rich country can siphon off the advantages of the current cheap emissions reduction possibilities in developing countries for its own benefit for a long time to come. Also when the South has reached high levels of energy efficiency and has to incur a high cost for curtailing emissions, they won’t have these cheaper means to fall back upon (Agarwal and Narain, 2000:4).

Notwithstanding the problems of ‘low hanging fruits’, inadequate levels of technological transfer and the criticism of cheap means of emission reduction; the growth of CDM in advanced developing economies like India, China and Brazil has been huge. These countries together account for nearly 60% of total registered projects and over 70% of all Certified Emissions Reductions (CERs) issued (See CDM:UNFCCC). In India a host of actors are working towards capacity building including the Ministry of Environment and Forests (MoEF), The Energy and Resources Institute to enhance the technical know-how of businesses in the field through partnerships with international institutes.(See MoEF and TERI website). There is move towards a ‘more structured governance approach as the initial phase of learning by doing is over and there is a need to maintain a competitive edge over countries entering late in the field (Upadhyaya, 2008:4).

While in the ‘north of the south’ like India, China, Brazil etc , the funding from the CDM sources is flowing in, the African countries seem to following behind in this competitive market. Despite the criticism and reluctance in the negotiations, the ‘stakeholders’ of carbon markets in India and China see it as an added opportunity for growth and investment. It is slowly creating a class of people that are interested in trading in the new commodity –carbon, also ‘changing the dynamics of North-South relations in the global negotiations’ (Newell and Matthew, 2010:92). Thus, the extent to which CDM fulfils the objective of sustainable development is questionable and the

reach of its benefits also remains limited to the fast emerging economies like China, Brazil and India, and that too to only a few sections (Schneider, 2007: 61). Barrett, an advocate for market based mechanisms, stated that:

“although Kyoto seeks to promote cost-effectiveness, it may yet prove very costly. Moreover, the agreement may not even achieve the reductions that it promises, either because emissions will relocate to the countries that are not required to stay within Kyoto-prescribed ceilings or because ‘paper’ trades will be promoted by the protocol’s mechanisms. More fundamentally, Kyoto does not deter non-compliance, and it only weakly deters non-participation. These flaws need to be mended, but the nature of the problem makes that an especially difficult task.” (Barrett 1998:20)

Deriving from the observations made above the need for reform of the CDM at UNFCCC level and the parallel need for capacity building in the Africa, it emerges quite clearly that the global carbon market will expand bringing in new countries, new players and creating new stakeholders. This in turn will in itself alone provide for enough incentive and motivation in the leaders across the political spectrum to include it in next agreement whatever form and shape it may take. In the next chapter on CDM and India, we will see the development of the carbon market and also get some voices from the actors involved in this market in various capacities.

CHAPTER 4

CLEAN DEVELOPMENT MECHANISM AND INDIA

India as a rich state and poor nation embodies certain paradoxical characteristics, poor and rich, strong and weak, that also define its location in the international order (Rudolph and Rudolph, 1987). Home to a very large percentage of world's poor population, India boasted of enviable GDP of 7.2% in fiscal year 2009-2010 and 8.7% in 2010-2011 (Economic Survey of India 2009-10, 2010-2011) at the time of recession. In May, PM Manmohan Singh announced an aid to the tune of \$5 billion to the African countries to help meet their development goals. Ironically on the other hand, Planning Commission Data reflects that a sizeable number of its own masses remains 'desperately poor' while a limited though rapidly growing number is getting 'fantastically rich' (French 2011:1). A part of the G20, a major economies forum, its ranking on Human Development Index remains dismally low at 122 in 2010 (UNDP-Human Development Index 2010). The numbers of its millionaires are many but the number of its poor people are more overwhelming. It is this characterisation that not only defines its location in international politics, and also informs its negotiating position in the field of climate change.

India is a signatory to the UNFCCC and has acceded to the Kyoto Protocol. Under the current climate change regime it does not have binding reduction commitments. It needed to sign the Kyoto for it to be able to become part of the CDM mechanism. Presently at the negotiations for the successor to Kyoto Protocol, the pressure to take binding reductions along with the developed countries is increasing on India. This is part of the entrenched polarised politics that has come to become a characteristic feature at the negotiations. Kyoto Protocol enshrines the 'common but differentiated responsibility..according to respective capabilities' principle. As discussed in the second chapter, during the negotiation of the UNFCCC itself, it was established that the responsibility for what IPCC termed as the 'anthropogenic' reasons for change in the climate was the responsibility of the industrialised western countries. The industrial development of these nations in the past had produced great amounts of carbon dioxide into the atmosphere which has significantly contributed to the problem

of climate change. Therein lies the historical responsibility of industrialised developed countries of the north to mitigate the problem of climate change.

However, ever since the USA pulled out from signing the protocol and demanded that the 'major emitters' like China and India are brought on board, the negotiations have become one big battleground. Developing countries organised under the negotiating group of G-77 with China have repeatedly stressed the conceptualisation of emissions around the per-capita principle (See chapter three for details). Inclusion of India and China as major emitters by USA is owing to the fact the absolute emissions of both India and China have been on rise ever since the two countries undertook restructuring of their economies and expanded industrial production based on export led growth. This was also coupled with a large scale relocation of production to the East, which benefitted the countries in the east but also amounted to an increase in their emissions even though the products were meant for consumption of the richer countries. The energy used in manufacturing a product in the developing countries but aimed for developed countries, with its resultant emission is counted as part of the developing country consumption of energy and its emissions. China is a good example of this phenomenon. A study put the export related emissions to 33% of the national total in China's case (Carbon Positive 2005 as cited in Newell and Paterson 2010: 15)

Indian economy has also seen rapid rise from 1991 when it undertook the economic reforms of 'liberalisation, privatisation and globalisation.' It recorded annual growth rate of 6.7% in the Eight Plan 1992-97 against 5.6% projected growth. It is interesting to note that the negotiations for the United Nations Framework Convention on Climate Change were taking place when the internal changes in India's economy were underway. With growth in India's economy, emissions of -----also saw a spike. Presently, India's absolute emissions are third in the world, and with its economy predicted to overtake China by 2015 as fastest growing (Businessweek, 2011), it is only logical to surmise that the energy consumption would increase, thereby increasing its absolute emissions. To power the engines of its economic development and to lift its massive numbers from the state of poverty, its energy production and consumption needs to increase many fold. Limiting its emissions while 1.6 billion

people still do not have access to electricity and 2.4 billion people rely on traditional biomass for cooking fuel poses a great development challenge for India (UN 2007). This development is directly related to its pressing need for access to energy. It cannot be denied that the world's energy consumption will have to expand making the current total primary energy supply of approximately 12,029 Mtoe (million tons of oil equivalent) increase to between 14,000 to 17,000 Mtoe (Hood 2009). This implies that if the developing countries were to have a larger share of the pie, then the energy consumption in the developed world would need to be drastically reduced to make space. This in turn means that developed countries will have to take on deeper emission reductions than what they are willing to commit to - a plan which is most ambitious, to say the least. This may also imply that energy mix across the world would need to be changed with gradual increase in the use of renewable energy across the board (Singh 2011: 3477). This would need big investment push as well as some form of transfer of technology, both contentious issues in the negotiations.

The accord that came out of Copenhagen strives to limit the global increase in temperature to 2 degree Celsius above pre-industrial levels and also lists steps to cut the global greenhouse emissions by 2020. Though no cap was decided, and no binding commitments were made by any parties, there was also no consensus on how the burden to cut the emissions would be shared between the developed and developing countries, in particular China and India, in the latter category. The "2 °C guard rail"¹ poses a challenge for its development trajectory and the way it plans to achieve its development goals (WBGU 2009). India at the Major Economies Forum on Energy and Climate in July 2009, was a part of the declaration agreed to prepare 'low carbon growth plans.' It made a unilateral announcement at Copenhagen for a 25-30% cut in its energy intensity² so that even as its economy grows along with its energy

¹ In 1995 the German Advisory Council on Global Change (WBGU) proposed "the introduction of an upper limit for a tolerable rise in global mean temperature, the so-called "2°C guard rail," and, working on this basis, calculated the necessary emission reductions. The WBGU budget approach develops this method further and makes it adaptable to international climate policies." See German Development Institute website at [http://www.die-gdi.de/CMS-Homepage/openwebcms3_e.nsf/\(ynDK_contentByKey\)/MRUR-7VGF22?Open](http://www.die-gdi.de/CMS-Homepage/openwebcms3_e.nsf/(ynDK_contentByKey)/MRUR-7VGF22?Open)

² Cut in Carbon intensity means decrease in emission of carbon dioxide per unit of energy generated. Coal power plants of India are inefficient and increasing the efficiency of the power plants to generate more power per unit of coal through improved technology is the underlined motivation. Check for a general understanding on emission intensity. (Online:Web) Accessed on 19 June 2011 http://en.wikipedia.org/wiki/Carbon_intensity#Intensity_targets

consumption, the per unit emission of carbon dioxide emissions decreases. How India undertakes to do that, and to what extent it will remain a negotiating strategy to get Annex-I to take on more ambitious binding commitments remains to be seen. A very important need for India (as it argues at the negotiations) remains finance and technology transfer for it to make a move towards 'low carbon growth path.' These issues though agreed to in principle at the Bali Road Map prepared in 2007³, provided for a comprehensive blueprint for negotiation of the successor of the Kyoto Protocol. It laid down the pillars of enhanced action on climate change mitigation and adaptation, and also clearly laid emphasis on technology transfer and finance.

In this chapter we shall discuss India's role in the environmental negotiation alongwith a closer analysis of its share in the carbon market and how it has been operationalised in India.

Under the Kyoto Protocol, CDM was designed to provide flexibility to Annex I and was meant to bring in investment in form of finance and also resulted in technology transfer to a very limited extent. Defined in Article 12 of the Protocol, CDM "allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries. Such projects can earn saleable certified emission reduction (CER) credits, each equivalent to one tonne of CO₂, which can be counted towards meeting Kyoto targets." (UNFCCC website)⁴

³ After the 2007 United Nations Climate Change Conference on the island Bali in Indonesia in December, 2007 the participating nations adopted the Bali Road Map as a two-year process to finalizing a binding agreement in 2009 in Copenhagen. The conference encompassed meetings of several bodies, including the 13th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 13) and the 3rd Meeting of the Parties to the Kyoto Protocol (MOP 3 or CMP 3).The Bali Road Map includes the Bali Action Plan (BAP) that was adopted by Decision 1/CP.13 of the COP-13. It also includes the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP) negotiations and their 2009 deadline, the launch of the Adaptation Fund, the scope and content of the Article 9 review of the Kyoto Protocol, as well as decisions on technology transfer and on reducing emissions from deforestation. Source (Online: Web) Accessed on 19 June 2011 http://en.wikipedia.org/wiki/Bali_Road_Map .

⁴ Online web
http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php

INDIA'S ROLE IN THE MULTILATERAL ENVIRONMENTAL NEGOTIATIONS

India has maintained a very strong and visible position at many multilateral negotiations. It had assumed a leadership role ever since it formulated the concept of Non-alignment during the time of cold war. Though seen as a USSR sympathiser, non-aligned movement gave the newly independent countries a forum through which a stronger claim for sovereignty and autonomy could be made. It also granted a greater legitimacy to 'India's voice' in the international arena.

At the first UN Conference on Human Environment in Stockholm in 1972, then Prime Minister of India, Indira Gandhi, famously stated that

“Are not poverty and need the greatest polluters?... How can we speak to those who live in villages and slums about keeping the oceans, rivers and the air clean when their own lives are contaminated at the source? The environment cannot be improved in conditions of poverty.”
(Quoted in Speth and Hass 2006: 58).

India came together with the rest of the developing world to form the Group of 77 and played a significant role in formulating international environmental agenda. At Stockholm they asserted priority of developmental objectives, as they sought to 'catch up' with the richer nations of the west. Also, they argued that responsibility for protecting the environment rested primarily with the developed countries on account of two things. Firstly, because developed countries were the biggest polluters. Secondly, they had the necessary wherewithal to address pollution (Speth and Hass 2006: 58). This formulation set the stage for the entrenched politics that came to mark all the environmental negotiations to come. The bargain came to reflect in the concept of Sustainable development. As argued in first chapter, Sustainable development does not venture far from the prevalent growth and development paradigm that privileges economic growth. The Stockholm Conference 1972 produced a list of 26 principles. Of these, Principle 1 stated that “there was a fundamental right to freedom, dignity and adequate conditions of life, in an environment of quality” and that all had a “solemn responsibility to protect the environment for present and future

generations.”⁵ Principle 21 affirmed the “sovereign rights of the states to exploit resources pursuant to their own environmental policies” but being in line with the “responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states.” (ibid: 60)

India’s role in getting the Multilateral Fund to aid the transition of companies and industries producing and consuming ozone depleting substances operationalised under the Montreal Protocol was also significant. It was part of the Steering Group constituted by the Governing Council for the preparation of the negotiations of the Montreal Protocol of 1987, and consisted of representatives from the UNEP, the UK, the USA, Norway, Japan, the Soviet Union, Egypt, Brazil and India (Anderson and Sharma 2002: 65), and attended the negotiations as an observer along with six other countries (ibid: 84). Six developing countries had ratified the protocol but India and China had not, and had reservations against it. China submitted a paper to Vienna Convention notifying its objections, saying that the technologies needed to make the necessary transition from Ozone Depleting Substances to its alternatives would require considerable amount of investment and it would not be in a position to do without financial and technological assistance. India’s country paper termed the Montreal Protocol ‘iniquitous’ because under its Article 5, both developing and developed countries had similar commitments of 50 percent reduction. The consumption and production of CFC’s by developing countries was though increasing, it did not amount to the same for two reasons. Firstly, cause the consumption of CFC’s produced in India was more in the developed world, and secondly, it was the historical emissions of developed countries which had led to the problem in the first place. Also the technology needed for the industry to make transition was ‘monopoly’ of few corporations in the developed countries. The provision of technology transfer was not sufficient enough and hence it called for establishment of a fund to compensate the developing countries for transfer of technology to be funded by the developed world (ibid: 100). Minister of Environment and Forests of India, stated that the fund ‘lest someone think of this as charity’ should be reminded ‘of the excellent principle of “polluter pays”, adopted in the developed world.’ (ibid: 101). Thus for India and China, the problem of Ozone depletion was the

⁵ Emphasis added.

result of 30 years of developmental abuse by the industrialised countries (ibid) and the primary reason why they agreed to sign the protocol was because of the establishment of Multilateral Fund.

At the UNFCCC also, India also stressed the need for developing countries to grow emphatically, and latter came to form the BASIC group consisting of other major developing economies of Brazil, South Africa, India and China. It had before the start of the UNFCCC negotiation hosted a 'Conference of Select Developing Countries on Global Environmental Issues' in 1990 to evolve a consensual position of the global south which explicitly stated that the responsibilities of emission reduction rests with the industrialised and that south could not be expected to share the burden. Thus, policy of 'no targets' for the south and transfer for technology and funds to help south take the challenge of climate change (Rajan 1997).

India's stated position on climate change that every human being has equal right to the global atmospheric resource is summarised by Ambassador Chandra Shekhar Dasgupta as:

"The problem of global warming is caused not by emissions of greenhouse gases as such but by excessive levels of per capita emissions of these gases. If per capita emissions of all countries had been on the same levels as those of the developing countries, the world would not today have faced the threat of global warming. It follows, therefore, that developed countries with high per capita emission levels of greenhouse gases are responsible for incremental global warming.

'In these negotiations, the principle of equity should be the touchstone for judging any proposal. Those responsible for environmental degradation should also be responsible for taking corrective measures. Since developed countries with high per capita emissions of greenhouse gases are responsible for incremental global warming, it follows that they have a corresponding obligation to take corrective action. Moreover, these are also the countries which have the greatest capacity to bear the burden. It is they who possess the financial resources and the technology needed for corrective action. This further reinforces their

obligations regarding corrective action.” (INC document A/AC.237/Misc.1/Add.3, Paper No. 15: 2)

This stand was also encapsulated in the Indian non-paper submitted to the convention (ibid) stating clearly that the responsibility for limiting emissions of green house gases lied with the developed countries. It sets out the long-term objective of ‘stabilising the concentration of greenhouse gases in the atmosphere...on the basis of an equitable formula requiring, inter alia, that anthropogenic emissions of carbon dioxide from states should converge at a common per capita level, and which would take into account net carbon dioxide emissions during the century’ (ibid: 12). Thus the only equitable solution was for developed countries to decrease until their per capita emissions converged at an equal level with the developing countries. Stressing that economic development is needed to lift its vast masses above poverty, its emissions would inevitably increase, but it had “no legal responsibility” on this issue. But, it was willing to consider taking feasible measures if the North provided ‘new and additional financial resources’ together with ‘access to technology on preferential terms. India also emphasized that the mechanism to transfer technology and financial resources needed to be ‘democratically administered by the parties to the convention’ than by the institutions where donors have disproportionate influence.⁶

G-77 plus China were able to finally get the Article 4, paragraph 7 included in the framework convention stating:

“The extent to which developing country parties will effectively implement their commitments under the Convention will depend upon the effective implementation by developed country parties of their commitments under the Convention related to financial resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.”

Also later at the Kyoto Negotiations at COP-3, India vehemently opposed its construction as the ‘major emitter’ and the warded off the ‘binding commitments’ for

⁶ *Statement by the Leader of the Indian Delegation at the Second Session of the INC, Geneva, 19 June 1991.*

developing countries in the treaty. At the Kyoto negotiations, India was also deeply suspicious of the flexibility mechanisms and opposed them. But over the course of the negotiation nuanced its stand and repeatedly stressed that the emission reduction achieved through these should be 'supplemental' and the technology transfer and finance that comes by way of these mechanisms be made separate from the Overseas Development Assistance. However, by the time of the Marrakesh Accords, when it realised that it potentially stood to gain from especially the CDM, India played a more active role in constructing the rules and procedures (Rajamani 2008:430)

Much later it also asked for decoupling of itself from China in various other forums, on grounds that there exists a huge gap between the per capita and absolute emissions of the two countries.⁷ Bali Action Plan 2007 created a track for "long term cooperative action" which was meant to include developing countries in a process where they would be required to take action few years down the line. 2007 to 2009 was period of intense political activity around climate change with the north-south politics becoming more entrenched. Though there were attempts at both the UNFCCC and at other forums like G-20 to find middle grounds and build some form of consensus.

In the lead upto COP 15 at Copenhagen, a change of guards with Minister of State, Jairam Ramesh, heading the Ministry of Environment and Forests (MoEF) brought a slight change in India's stance. Although it continued to stress on its principled argument of per-capita emissions and historical responsibility, in order to be seen as 'treaty maker', and 'to play a constructive, facilitative, leadership role to ensure an effective and equitable agreement' without crossing the red lines, it unilaterally announced to reduce its carbon intensity by 25-30% from 2005 level by 2020, while

⁷ Surya Sethi, retd. IFS officer formerly part of India's negotiating team, in an informal discussion stressed on this 'decoupling' at the planning weekend of the Indian Youth Climate Network on February 2, 2009. According to the release 'The Road to Copenhagen: India's position on Climate Change Issues, 2009' by Ministry of External Affairs, India's per capita CO2 emissions are currently only 1.1 tonnes, when compared to over 20 tonnes for the US and in excess of 10 tonnes for most OECD countries. Furthermore, even if we are No. 3 in terms of total volume of emissions, the gap with the first and second-ranking countries is very large. The US and China account for over 16% each of the total global emissions, while India trails with just 4%, despite its very large population and its rapidly growing economy (3-4).

at the same time refusing to take on binding commitments or ‘peaking year’⁸ for its emissions (Minister’s Statement at the Copenhagen Conference, *The Hindu*, 2009). Presently, at the negotiations there is a consensus among some Annex I countries that they do not want a second commitment period for Kyoto Protocol, while non-Annex I countries do not want to abandon the treaty for it recognizes their right to develop.

India’s negotiating positions on climate change works on the premise that equity considerations should form the cornerstone of UNFCCC process and the binding agreements negotiated within it. This premise also helps to insulate itself from international mitigation commitments, even though the pressures might be building increasingly for it to do so. However, it needs to be emphasised here that though there exists a widespread support for its international position domestically, yet the actions of the government on climate change and other environmental issues are coming under greater scrutiny and criticism. In the next section we shall discuss these contestations which are emerging in the light of the implementation of Clean Development Mechanism.

INDIA AND THE CLEAN DEVELOPMENT MECHANISM

As discussed in Chapter 3, India though was initially reluctant to the inclusion of project based joint implementation mechanism incorporating the participation of the developing country. It feared that this would involve developing countries without any binding commitments on emission reduction in to a mechanism with disproportionate burden on them of mitigation action. But with the change in the form of the Joint Implementation mechanism and its transformation into Clean Development Mechanism with the promise of additional finance and some form of technology transfer, India’s reluctance gave way.

⁸ Peaking year refers to the idea that all the countries need to start peaking their emissions sooner, and adopt a specific year from whence onwards the emissions would start to progressively decrease. Thus, peaking year as a clause incorporated in the first official draft which mandated developing nations to cap their emissions although it did not mention any time frame for that.

In a release titled 'The Road to Copenhagen: India's Position on Climate Change Issues', Special Envoy to the Prime Minister, Shyam Saran on the flexibility mechanism stated :

'India has not taken a negative stand on the financial mechanisms... in terms of the UNFCCC itself; these can only be considered supplemental flows. It must also be recognised that the market mechanism has its own limitations. They cannot be considered as a substitute for the multilateral financing mechanism, both for Adaptation and Mitigation, envisaged under the UNFCCC. The flow of funds under such a mechanism, would be in the nature of net transfer of funds i.e. grants, whose disbursement would be governed by a multilateral structure constituted by Parties to the Convention itself...Financing for Climate Change must also not be seen as another form of Overseas Development Assistance (ODA) but rather payments for entitlements of developing countries under an equitable regime. The financial contributions for addressing Climate Change are net and additional. These can neither be treated under the paradigm of aid, nor driven by markets which are, in any case, dependent on the level of emission reduction obligations taken up by the Annex I Parties.' (Ministry of External Affairs, Government of India 2009: 8-9)

At Climate Change Conference organised by the Confederation of Indian Industries (CII) in 2008, Shyam Saran⁹ was noted as saying that 'the Indian industries had a large scope for development especially in Clean Development Mechanism (CDM) and the government was also working towards transfer of technology to be made available to the industries to reduce carbon emissions' (News.oneindia.in 2008). Thus, Government of India's rationale behind supporting Clean Development Mechanism lies in the qualifications that the 'flexibility mechanisms' be 'supplemental' to the actions taken at home by the Annex -I, as well as the finance pouring in from these into developing countries be net and additional to the funding and finance that was

⁹ As Special Envoy of the Prime Minister on Climate Change, Shyam Saran, was the public face of the Government of India as articulated the position of Indian government on the issue of climate change and negotiation until 2010. Here, by seeking to interpret his statement, I am trying to understand the motivations behind support of CDM as a mechanism other than those articulated at the negotiation.

needed for adaptation process. The qualified position of India also states that the growth and size of this market is contingent on the level of emission reductions industrialised countries take, and thus, it cannot be seen as a reliable and stable form of mechanism to fund adaptation or to aid developing countries towards a low carbon growth trajectory. However, it clearly emerges that the support for the mechanism stems from the belief that it will aid industries in adopting low carbon technologies by getting the necessary finance into the developing countries.

There are several problems with this position. Firstly from the point of view of calculation, it is extremely difficult to calculate the supplementarity of the action on part of Annex-I given that there is no clear quantitative limit set against each countries baseline to determine this. Secondly, Overseas Development Assistance tends to vary from year to year depending on the state of global economy. The pledges made under different development projects and different regimes by the donor countries to different institutions meant to channelled towards competing issues are not added up together to be able to determine, if the flow coming through the Multilateral fund for adaptation is 'net and additional.' Given the complexity of the issue of climate change and the range of impacts that it has on every sector of economy, it is more than possible that the funding and finances channelled for 'adaptation' are clubbed together with the other issues that are environmental.

While these problems weigh on the nuanced negotiating position, the implementation of CDM in India throws up other issues too.

INDIA AND THE CDM MARKET

India is a major player not only at the climate negotiations, but has come to become a principal participant in the carbon trade market by way of its involvement in the Clean Development Mechanism. Though reluctant in the AIJ (Activities Implemented Jointly) phase till 2000 it hosted only three projects. Its cautious approach changed when India acceded to the protocol in 2002. At COP 8, that it hosted, there were a number of side events organised by the Indian NGO's and representative from industries around CDM. Initial period also saw CII, ASSOCHAM and FICCI hosting workshops on CDMs (Michealowa 2003: 212- 214) and certain NGO's undertaking

capacity building activities. The Energy and Resources Institute (TERI) emerged as an important consultants on CDM while the Development Alternatives (DA) (ibid: 215) focussed on small-scale projects. NGO's like Centre for Science and Environment, however, saw this as an iniquitous system, arguing that equitable allocation of emissions budget was necessary precondition for the mechanism to be fair (ibid: 215). National CDM Authority of India (NCDMAI) was setup in 2003 by the Ministry of Environment and Forests established under Section 3 of the 1986 Environmental Protection Act. The NCDMAI constitutes an inter ministerial committee (Benecke 2009: 354) and till 2009 was also responsible for developing the highest number of methodologies for CDM projects (ibid: 349).

As of July 2011, the share of India in the total carbon market was 21.18%, next to China's which stood at 44.8% of market share with 683 registered projects. Certified Emission Reduction (CER'S) certificates issued by India were to the tune of 97, 758, 431 amounting to 15.06% ¹⁰ of the total CER's issues (Host country statistics CDM, UNFCCC). The share that the India, China and Brazil enjoy amounts to nearly 70% market with Africa trailing far behind with only 2%. Registered project for Africa only exist for South Africa and Maghreb countries. The share of India in the market clearly reveals that with the operationalisation of mechanism, India has generated enough interest for itself and cornered a major share of carbon market at the cost of other countries, especially those in Africa. This disproportionality stems from the fact that unlike India and China, Africa does not have a larger share because the mega-projects yielding greater carbon credits have distorted the market since in the beginning itself (Newell and Paterson 2010: 130). These projects are the same of what are considered 'low hanging fruits' like the ones that target the emission of Hydrofluorocarbons (HFC-23). The problems that plague the Indian scenario with regards to CDM are the same as the ones that plague the market which means that market forces may not lead to the desirable outcomes as stipulated in the theory. These have been discussed in detail in chapter 2.

¹⁰See for more detailed information on the composition of the market check <http://cdm.unfccc.int/Statistics/index.html>

As CDM mechanism provides for private-public partnership that brings together the government and private actors of countries, in India, the actors span across the private entities (both industry and non-governmental organisations) and the public sector.¹¹ National CDM Authority of India (NCDMAI) appointed by the Government of India is the nodal authority for clearing the projects in India by checking for sustainable development benefits emerging from a project.¹² According to COP 7 'it is the prerogative of the host Party to confirm whether a clean development mechanism project activity assists it in achieving sustainable development.' Projects along with establishing emission and financial additionality should also cater to the sustainable development criteria of the host country. As listed by the NCDMAI, thus, the aspects that should be considered during designing a project activity are (i) Social well being: The CDM project activity should lead to alleviation of poverty by generating additional employment, removal of social disparities and contribution to provision of basic amenities to people leading to improvement in quality of life of people. (ii) Economic well being: the CDM project activity should bring in additional investment consistent with the needs of the people; (ii) Environmental well being: This should include a discussion of impact of the project activity on resource sustainability and resource degradation, if any, due to proposed activity; bio-diversity friendliness; impact on human health; reduction of levels of pollution in general; (iv) Technological well being: The CDM project activity should lead to transfer of environmentally safe and sound technologies that are comparable to best practices in order to assist in upgradation of the technological base. The transfer of technology can be within the country as well from other developing countries also (NCDMAI guidelines).

While the definition seems comprehensive, its implementation or lack thereof that brings into question the sustainable development benefits arising from these projects (Schneider 2007). However as the market in India mature, it did display a few key

¹¹ For a complete project cycle refer to UNFCCC website, 'CDM Project activity cycle' available at <http://cdm.unfccc.int/CommonImages/ProjectCycleSlide>. And for the detailed explanation refer to the attached memo in Annexure 2.

¹² For a detailed account of the operation of the National CDM Authority of India (2011). http://cdmindia.nic.in/cdm_india.htm. Accessed on 5 July 2011

characteristics as shown by Gudrun Benecke's stocktaking of CDMs worldwide? (2009). Firstly, nearly 40% of the projects that were rejected worldwide came from India, which raises questions about the quality for projects as well as about the effectiveness of NCDMAI. Secondly, about 46% of its projects by 2009 had credit buyers. Unilateral projects developed to generate CER's often raise questions regarding the foregone technology transfer and the financial investment, and the fact that about half of India's projects were unilaterally developed for the market, according to Benecke, was due to the fact that Indian entrepreneurs feel that they can demand a higher price in the market rather than conservative price given by the buyer when the project starts. Thirdly, a lot of project activity is undertaken in the renewable energy small scale sector, and the presence of HFC-23 projects are not as great as China, with 26.4% of total 1,243 projects in biomass energy sector, followed by wind sector (23.2%), by activities related to energy efficiency measures in industries (13.4%) and by projects in the hydro sector (9.4%) and only 0.6% in the controversial HFC projects (Fenhann 2007 as cited in Benecke 2009: 351). The presence of large number of renewable energy projects and energy efficiency projects is a good sign but within these numbers lie individual cases where the sustainable development benefits are suspect.

Sutter and Parreno's (2007) analysis of 16 registered CDM projects worldwide found that though 72% of the total expected that the CER were likely to be 'real and measurable', the sustainable development benefit of many of these was suspect with only less than 1% project contributing to sustainable development. They point out that while it is tricky to establish hypothetical baselines to ascribe additionality to a project, it was even more difficult to assess the sustainability criteria. This they attribute to the fact that CDM was designed as a market mechanism, and the CER's only reflect the price of emission reduction per carbon equivalent tonne (Sutter and Parreno 2007: 89). In case of India, in the beginning, the criteria for sustainable development was all encompassing, which was geared to allow many project activities to qualify for CDM. But rejections of projects and criticism stemming from international community steered the shift towards a more strict criteria to determine sustainability of projects (Benecke 2009: 361).

In the following section, we shall analyse some the views of the consultants as well as those who are critical of the mechanisms which has been done with the help of few case studies that have been reported in the media and undertaken by the watchdogs like CDM Watch internationally and Toxic Watch Alliance of India.

SUSTAINABLE OR JUST PROFITABLE

Despite the maturing of the carbon market, reports about serious flaws with the projects abound. A BBC documentary titled “The great carbon bazaar’ in 2008, highlighted through three cases the problems that beseted the ‘carbon bazaar’ in India (Gregory, BBC 2008). Of these, the documentary points out that establishing additionality are the main problem. One specific case in Uttar Pradesh of a biomass generator shows that the project would have been implemented even without the funding from the mechanism. The project replaced diesel run system to run the generator on rice husks. The company not only saved the money that it would have spent on diesel but also registered itself for CDM and was set to receive several hundred thousand dollars through sale of CERs. This means that carbon credits generated by the projects are not genuine emission cuts, though a useful project from an environmental stand. Another quintessential flawed project that it investigated was of elimination of HFC-23 by an Indian chemical company SRF in Rajasthan, where the company was set to earn \$ 500 million in a period of ten years by generating 3.8 millions credit a year. The problem with an HFC eliminating project is that the HFC-23 greenhouse potential is 12000 times that of carbon dioxide, so for each tonner of HFC-23 eliminated, the project proportionally earns large amount of credits. Here the documentary pointed out that the actual cost of eliminating the gas is not taken into account. For both the buyer and the seller of CER generated from the HFC-23 projects, the incentives are small to calculate and project the real cost involved. It provides a perverse incentive to increase the production and then eliminate the gas to make windfall gains for seller. The third project in the documentary was a hydro scheme in the state of Himachal Pradesh. The benefits and cost of calculating the hydro projects are difficult and make it difficult to assess whether the project is really delivering environmental benefits.

While the documentary only listed three instances where the additionality of the projects can be brought into question, but the problem with establishing additionality that have been the subject of much criticism by the watchdogs like CDM watch too. Climate Action International in its submission to the Ad-hoc Working Group on Long Term Cooperative Action (AWG-LCA) of the UNFCCC to negotiate for the successor of Kyoto articulates what it sees as problematic areas in the implementation of the flexibility mechanism. It makes a strong case for 'avoiding crediting business as usual reductions', clearly implying stricter methodologies for establishing additionalities for these jeopardize the overall legitimacy of the mechanisms (CAN 2011:1).

Another case that has invited criticism is that of Waste to energy project of the Jindal Ecopolis in the Okhla municipality area in New Delhi. It recently came up for hearing in the Delhi High Court on 23 May 2011. The case has invited severe criticism not only from the critics of Clean Development Mechanism, but has faced great opposition from the residents of the municipality. A press release by the company in 2010 stated that the project was India's first commercial waste-to-power plant to generate 16MW of power. It aimed at utilizing one third of the daily municipal solid waste produced, and sought to address two critical issues faced by Delhi- that of municipal waste disposal and secondly of power scarcity. Jindal Ecopolis Timarpur-Okhla Municipal solid waste management project also had applied to get registered as a Clean Development Project. Its Managing Director was quoted as saying that it was 'step towards creating environment friendly and state-of-the art solution for waste management, scarcity of land and power problems faced by the city' (Jindal Ecopolis Press Release 2010) Far from being the environment friendly project that it claimed to be, it flouted several environmental norms. It violated the Municipal Solid Waste (Management and Handling) Rules 2000 which requires that any incinerator be integral to an existing landfill site. This project was located 12kms away from the nearest landfill at Tughalakabad area. Its Waste to Energy technology needed to get approval by the Central Pollution Control Board (CPCB), but it was not applied for. There was overwhelming evidence that such projects produced toxic gases, residues and respirable particles, and this project was hardly located 100meters away from the nearest residential areas. That the project was inaugurated by Chief Minister Shiela

Dixit, and hailed by the Chief Secretary of Delhi as a ‘sunrise project’ helping the cause of ‘long term sustainability of the mega city of Delhi’s energy security by way of treatment of municipal waste’, is a clear indication that the sustainability parameters of the government are weak. Only much later Ministry of Environment and Forest came into picture and said that its permission was not sought at the time of the setting up of the project (Toxicwatch Release 2011). However, the fact that the development concerns trump the environmental concerns is clearly visible in the Jindal Ecopolis Waste-to energy incinerator project.

The above case exhibits that while a project like Jindal Ecopolis can be registered as clean development project. It also demonstrates that project without proper evaluation and assessment can be passed off as a renewable energy project with sustainable benefits. In the above case, only after a sustained opposition, the harmful and not-so-great environmental benefits of the projects had come to light. That it was located near a residential area also helped the case for the residents who could be mobilised to launch a protest against it.

This case also exhibits the clear lack of will on the part of the government to check if the ‘revolutionary’ projects that are proposed match the criteria of environmental protection and sustainability. That the flood plains, considered sacrosanct by the people with understanding of the river systems, can be used to construct games village displays a clear lack of understanding of natural processes by both the governmental officials and general public at large. State of unsatisfactory policy implementation is well recorded in many studies and reflects a poor state of governance (MoEF, 2001)

Despite the obvious limitations, many observers conclude that market-based incentives might guarantee a better environmental protection albeit with better carbon governance. Such a belief clearly stems from the reasoning that we discussed in chapter 2 with regards to shift towards a more market based governance away from the regulatory governmental framework.

However, in light of the various shortcomings several changes are being proposed by organisations like Climate Action Network International, CDM Watch and

academicians to the flexibility mechanisms (CAN Submission to AWG-LCA 2011, CDM Watch Newsletter May 2011). These mechanisms with various accounting loopholes many point out are resulting in increase in greenhouse gas emissions than their alleged decrease (Down to Earth, 2011). This has led UN to announce that it will review the CDM mechanism to address the accounting loopholes and other concerns (Guardian 2010) like that of capacity building in African Countries to implement and operationalise projects.

However, the scene for CDM market has started to look bleak given the uncertainty over second-commitment period of Kyoto Protocol. The future of CDM in India is contingent not only on the second commitment period of the protocol but also on the emerging architecture of the market based mechanisms that will be subjected to revision to address the criticism it faces and close the loopholes. There is increasing shift in the EU to buy CER's from African markets than the fast developing countries like India and China, and many initiatives are geared towards these (Perspective Series 2011, UNEP: 7). This uncertainty has led to a general decrease in the business in carbon market and also of a few consultant groups like Cantor in India to close its operations.

The case studies and the peculiar position of India in the carbon market demonstrates that, though it has gained from the Clean Development Mechanism, yet in 1960's when the environmental policy making internationally was gaining ground, India was making a case for right to develop. Though there is a large body of domestic legislation on environmental issues, with the implementation in the hand of the state governments, the state of implementation remains dismal (Benecke 2009: 348). The recent cases of POSCO, Vedanta, Lavasa and the debate that it generated around the issue of development and environment shows that there is some degree of awareness, if not consensus, around the issues of environment and the connected issue of much needed paradigm change in the country. The issue of implementation along with devising novel ways to improve governance in the country remains. The experience of operationalisation and implementation of CDM provides important lessons to chart the road to the future.

CHAPTER 5

CONCLUSION

“All this is happening before our eyes and yet we act as if we have all the time and all the solution...In my anger, I am not blind. In my fear, I am not afraid of telling the world how I feel.”

- Severn Suzuki at the Rio Earth Summit, 1992.
(12 year old girl from Canada)

The quote above highlights the predicament that we are confronted with today. In 2012 it will be 20 years to the historic United Nations Conference on Environment and Development at Rio to halt the environmental degradation of the planet, yet the problems of unprecedented environmental degradation continues apace. Search for solutions on the issue of global climate change has led to emergence of an architecture which has further led to a consolidation in the entrenched positions of the global north and the south. Going by the result of the climate change negotiations at Copenhagen (COP-15 in 2009), Cancun (COP-16 in 2010) and the recent meeting of parties at Bonn, arguably the progress on the successor of Kyoto will be slow, if at all. Japan, Australia and Canada have refused to be bound legally after the end of Kyoto's first commitment period and United States, world's biggest emitter with highest per capita emissions, a non-signatory of Kyoto Protocol is not giving any signs of coming on board. Developing countries wanted a second commitment period with deeper pledges for cuts in the emissions from the developed countries. The major issue of contention remains that the fast emerging developing economies with absolute emissions rivalling those of developed countries, (with China and India surpassing those of USA and Japan respectively), take on some form of legally binding reduction targets even with commitment for lowering the trajectory of their emissions. (Max 2011)

The basic principles that came to govern the climate change regime were agreed at the United Nations Framework Convention on Climate Change 1992. These acknowledged the historical role of industrialised nations in the emergence of the climate change issue. The absolute as well as the per capita emissions of these countries continue to be high. Even if the emissions of developing countries are

rising, their per capita emissions remain low but their share in total emissions will keep growing in order to meet their development needs. Thus the principle of 'common but differentiated responsibility according to respective capabilities' was enshrined, stating clearly that industrialised countries had to take on the burden of emission reductions. The debate around the inclusion of major emitters comprising of rapidly developing economies like India, China, Brazil and South Africa to be brought on board to reduce emissions and take legally binding commitments became intense during the negotiation of the Kyoto Protocol of 1997. The very clear reason for getting a treaty that was binding on the industrialised countries was because UNFCCC though mandated decrease in emissions, it failed to clearly set out who will undertake those emission cuts and under what time frame. Kyoto mandated emission cuts, setting clear time lines and making these legally binding.

The issue of commitments and the extent of commitment by developed and developing countries have become the centre point around which much debate gets conducted. However, it is important to note that, the questions of how these emission cuts will be undertaken are very important too. The 'how' of the problem also dictates an important question of efficacy of the policies, instruments and mechanism used to address the problem. The very recent report by the International Energy Agency shows that the absolute emissions of all the countries have risen significantly in the first commitment period of Kyoto. While the global emission had dropped between 2007- 2009 owing to the global economic recession, it rocketed to a new high in 2010 corresponding with the global economic recovery. Though the absolute emissions of developing countries were higher than some of their developed counterparts, yet the per capita emissions remained low with developed countries collectively emitting 10 tonnes, while China contributed with 5.8 tonnes and India with 1.5 tonnes (IEA: 2011). The link between increased economic activity globally and the increase in emissions again clearly established that the present economic growth and development had a direct bearing on the carbon dioxide emissions. Secondly, it points to a more significant problem of the inefficacy of the policies, instruments and mechanisms that are being used to curb pollution. That the emissions of developing countries will rise was taken as a given in the UNFCCC framework, the fact that

overall emissions despite the Kyoto Protocol, have also risen in the meanwhile also indicates that the means employed are not yielding result.

Market based mechanisms designed to give flexibility under the Kyoto Protocol have generated considerable interest from the various actors within the constellation of global environmental governance. The creation of emission trading markets such as EU-ETS has propelled the trading in carbon credits to the amount of 370 metric tonnes of carbon dioxide equivalent by 2005 (World Bank Report 2006). The recent report titled ' State and Trends of the Carbon Market' shows that the total market was estimated to be US\$142 billion, with EU-ETS accounting for the bulk share of the market along with secondary transactions from CDM market amounting to 97%. The report clearly shows that there was a downturn in the CDM market to the degree of 46%. It owed the general down turn in the market to the 'lingering effects of recession' as well as the uncertainty of the future of the protocol (Press Release, World Bank 2011).

Notwithstanding the downturn in the market, through our discussion we have seen that there has been a general trend towards the use of market based mechanisms to generate the global public goods of environmental preservation. Whole new governance architecture has emerged around these mechanisms involving actors and stakeholders across the entire spectrum - governments representing national interests and implementing the treaty obligations; multinational corporations whose operations and interests span across different countries and are affected both positively and negatively by the domestic regulations; international non-governmental organisations that represent, advocate and lobby for the interests of different communities which are affected by impacts of environmental degradation; watchdog organisations that assess the efficacy of these market based mechanisms; and the new actors that spring up due to new regulations and markets acting as financiers and consultants.

There still is much disagreement between the advocates of the market instruments on the type of instruments to be used, these being regulatory mechanisms such as pollution taxes and the market based mechanisms such as emission trading schemes. The proponents of regulatory mechanism advocate taxes to address the negative externality arising out of an economic activity and argue that the tax internalises the

environmental or social cost of any economic activity which then begins to reflect in the real price of the commodity produced, which leads to a more efficient market outcome. This was started in 1960's with the regime of Pigovian taxes in developed countries like UK, Norway, Sweden and Netherlands. Carbon Tax existed/still exists? In different forms in India, South Korea, Australia, Sweden, Norway, Netherlands, with proposals for implementation of such tax in China and Japan too. The opposite way of addressing such externality is by way of providing subsidies to the technologies or commodities that enhance the generation of positive externality of environmental welfare like the contemporary arguments for providing subsidies to the renewable energy technologies.

The critics of such regulatory framework argue that taxation on any form of pollutant merely disincentives the behaviour and does not lead to a paradigm shift in the managing of the commons. These regulations are difficult and costly. This problem, they argue, can be solved by allocation of clear property rights of the common resource, rather than setting a cap on the level of pollution or extraction and trade in the commodity. The case for markets for pollution rights is mostly strongly argued for by the free market environmentalists. The alternative for the Pigovian tax suggested by the free market environmentalists is creating markets for emissions trading by establishing rights over the pollutant and setting a cap on it. According to them, it allows polluters to gain from selling the excess credits or stand to lose by not limiting emissions. Hence, they claim that the market allowed to function under conditions of clear property rights will work itself to reach an effective outcome.

Inclusion of market based mechanisms designed to provide flexibility work with the same logic. That if the cap on emissions is set (which is in terms of emission reduction commitments of Annex- I countries), then the investment in the emission reduction projects where it is most efficient and profitable to do will result in effective outcome i.e. in economic terms where the marginal cost of abatement is low. Given that cost of emission reduction is different in different industries across regions, the functioning of these mechanisms was expected to result in efficient investment. The project based clean development mechanism sought to combine the goal of emission reduction with that of the sustainable development.

Under the global climate regime, there is a clear shift towards using market based instruments such as emissions trading mechanism, of which CDM is one example. There are around 32 countries with emissions trading market in different stages of development. EU, UK, US, Norway, Canada, Switzerland, New Zealand have evolved market, while Australia, China and India have announced that they will set up emissions trading schemes (IEA 2010:6).

There is a proposal in India towards setting up emissions trading market for air pollutants. An MoEF Discussion paper titled *Towards an Emissions Trading Scheme for Air Pollutants in India* (August, 2010) acknowledges the superiority of an emissions trading scheme over “traditional command and control regulations” as they allow for differences across industries and would provide a more efficient and largely self-regulating apparatus, besides reducing the compliance costs, which in turn would facilitate easy introduction of newer regulations to better environmental quality (MoEF 2010: 7). The paper cites the example of experiences of other developed and developing countries with their emissions trading programs. As part of the project, the Maharashtra Pollution Control Board (MPCB) has already started mapping emissions of industrial units via online monitoring and will put a cap on emissions within a cluster, and on individual units (Times of India 2011).

Few clear trends emerge from analysis of these developments. Firstly, whether it is a tax or emission trading scheme (in various forms), the role of government cannot be done away with. Governments are the entities that either through negotiations internationally or through regulations domestically set the cap on the level of pollutant. They are the agency that impose the private property law and evolve mechanisms (however faulty) to ensure compliance within the regime. Secondly, both forms of market solutions are being implemented in majority of the countries, carbon tax and emission trading. Though it clearly emerges that tax based regulatory frameworks are not popular in many countries including the biggest carbon emitter, US. Thirdly, it does not matter whether the economy is more centralised or market oriented, the lure of profits that emerge from these markets for both the developed and developing countries is enough to get the governments to find ways to promote them with different qualifications – like that of ‘supplementarity’ in case of flexibility

mechanisms like Emissions trading, Joint Implementation and Clean Development Mechanisms.

In case of CDM, developed countries benefit from buying Certified Emissions Trading Certificates (CER's) and using those to meet their legal commitments, while developing countries gain from additional finance and transfer of efficient technologies. There are several cases and reports to suggest that a lot of projects do not either satisfy the additionality criteria or else are too low on meeting the sustainability criteria. There are reports and submissions making suggestions and strong criticisms on the methodology of implementation- from various non-governmental organisations to the UNFCCC-to make these mechanisms more effective and to cover the accounting loopholes that are present. Notwithstanding the criticism that it encounters, CDM and other emission trading schemes have resulted in the emergence of markets alongside which have also emerged various stakeholders including companies, consultants, NGOs, etc. In the eventuality of abandonment of the Kyoto's market based framework for limiting emissions to counter climate change, the interests of these stakeholders are bound to come under strain. At present however, given the context that the negotiations are set within, there is a larger consensus around the neo-liberal frame wherein the primacy of market in promoting sustainable development is agreed upon. It is within the same context that the solutions are searched for and arrived at in the field of climate change, even though lasting solutions lie in moving away from the market and bringing the state back in.

REFERENCES

(Sources marked * are primary sources)

Agarwal, A and Narain, S (2003), *Global warming in an unequal world – A case of Environmental Colonialism*, New Delhi: Centre for Science and Environment.

Agarwal, A (2001), 'Pact Politics' in *Down to Earth*, 10(200101731): 5-7. (Online: web) Accessed on 20 November 2010. URL: <http://www.indiaenvironmentportal.org.in/node/44292>.

Agarwal, A and Narain, S (2000), *Green House Gas Trade*, New Delhi: Centre for Science and Environment.

Anderson, T.L. and Leal, D.R. (2001), *Free Market Environmentalism: Revised Edition*, New York: Palgrave Macmillan.

Bardhan, P and Ray, I (2000), 'Methodological Approaches to the Questions of the Commons' (Online:Web) Accessed on 10 May 2011. URL: <http://areweb.berkeley.edu/~antinori/prclass/BardhanRay.pdf>

Barkin, J.S. (2003), "The counterintuitive relationship between globalization and climate change" in *Global Environmental Politics*, 3: 8-13.

Berger, P. and Huntington, S. (2003), *Many Globalizations: Cultural Diversity in the Contemporary World*, New York: Oxford University Press.

Bettelheim, E.C. and D'Origny, G (2002), "Carbon Sinks and Emissions Trading under the Kyoto Protocol: A Legal Analysis" in *Philosophical Transactions: Mathematical, Physical and Engineering Sciences, Carbon, Biodiversity, Conservation and Income: An Analysis of a Free-Market Approach to Land-Use Change and Forestry in Developing and Developed Countries*, 360(1797): 1827-1851.

Breaking News Online, "Economic Survey 2009-10 puts India's GDP Growth at 7.2%", [Online: web] Accessed on 20 July 2011, URL: <http://www.breakingnewsonline.net/regional/968-economic-survey-2009-10-puts-indias-gdp-growth-at-72-.html>

Brundtland Commission, 1987, "Our Common Future", Oxford University Press.

Busch, P.O. et al. (2005), "The global diffusion of regulatory instruments: the making of a new international environmental regime" in *Annual American Political Social Science*, 598: 146-67.

Capoor, K and Ambrosi, P (2008), *State and Trends of the Carbon Market 2008*, Washington D.C.: World Bank.

Carson, R. (1962), *The Silent Spring*, Boston: Houghton Mifflin (Published 1994). Extracts in Martin Reynolds, Chris Blackmore and Mark J. Smith (eds.) (2009), *The Environmental Responsibility Reader*, London: Zed Books

Carter, N(2003), 'Sustainable Development and Ecological Modernization' in *The Politics of the Environment: Ideas, Activism and Policy*, Cambridge: Cambridge University Press.

Cashore, B (2002), "Legitimacy and the privatization of environmental governance: How non-state market driven (NSMD) governance systems gain rule-making authority" in *Governance* 15: 503-29.

Chichilinsky, G. (2000), 'Equity and Efficiency in Emission Markets: The Case for an International Bank for Environmental Settlements' in Graciela Chichilinsky and Geoffrey Heal (eds.) *Environmental Markets: Equity and Efficiency*, New York: Columbia University Press.

Clapp, B.W. (1994), *An Environmental History of Britain since the Industrial Revolution*, London: Longman.

Coase, R(1960), "The problem of Social Cost" in *J. Law Economy* 3:1-44

Dupont, A (2008), "The Strategic Implications of Climate Change" in *Survival*, June-July 2008: 20-41.

Durant, R.F. et al (2004), "Towards a new governance paradigm for environmental and natural resource management in the 21st Century?" in *Adm. Sociology* 35:643-82.

Foster, J.B. (2009), *The Ecological Revolution: Making Peace with the Planet*, New York: Monthly Press Review.

French, P (2011), 'How do you categorize India, a nation that is at once fantastically wealthy and desperately poor? In *The Foreign Policy*, (Online:Web) Accessed at 1 July 2011. URL: http://www.foreignpolicy.com/articles/2011/06/24/poor_little_rich_country, Poor Little Rich Country

Gregory, Mark (2008), "The great carbon bazaar", [Online: web] Accessed on 5 June 2011. URL:<http://news.bbc.co.uk/2/hi/business/7436263.stm>

Grubb, M (1989), *The Greenhouse Effect: Negotiating Targets*, London: Royal Institute of International Affairs.

Hass, P(2004), "Addressing the global governance deficit" in *Global Environmental Politics* 4:1-15.

Haya, B. (2007) “Failed Mechanisms: Hundreds of Hydros Expose Serious Flaws in the CDM”, [Online: web] Accessed on 15 July 2011. URL:<http://www.internationalrivers.org/en/node/2326>.

Heijden HA (2006), “Globalization, environmental movements, and international political opportunity structures” in *Organisational Environment* 19:28-45.

Held, D. and McGrew, A. (2002), *Globalization/Anti-Globalization*, London: Polity.

Hood, Christina (2006), ‘Information Paper on Reviewing Existing and Proposed Emissions Trading System’, International Energy Agency: OECD. [Online: web] Accessed at 1 July 2011. URL: http://www.iea.org/papers/2010/ets_paper2010.pdf

Human Development Reports (2010), “Human Development Index 2010”, [Online: web] Accessed at 1 July 2011. URL:http://hdr.undp.org/en/media/Lets-Talk-HD-HDI_2010.pdf

*Intergovernmental Panel for Climate Change(2001), ‘Climate Change 2001 Synthesis report: Summary for Policy Makers.’ (Online:Web) Accessed on 10 November 2010.

<http://www.ipcc.ch/pdf/climate-changes-2001/synthesis-spm/synthesis-spm-en.pdf>

*Intergovernmental Panel for Climate Change(2007), ‘AR4: Summary for Policy Makers.’ (Online:Web) Accessed on 10 November 2010. URL:http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf

International Institute for Sustainable Development (1997), ‘Report of the Third Conference of the Parties to the United Nations Framework Convention on Climate Change: 1-11 December’, *Earth Negotiations Bulletin*, 12(76), IISD: Canada.

International Institute for Sustainable Development (1997), ‘Highlights from the Third Conference of the Parties to the United Nations Framework Convention on Climate Change: 1-11 December 4’, *Earth Negotiations Bulletin*, 12(71), IISD: Canada.

International Institute for Sustainable Development (1997), ‘Report of the Third Conference of the Parties to the United Nations Framework Convention on Climate Change: 1-11 December 1’, *Earth Negotiations Bulletin*, 12(68), IISD: Canada.

Ivanova, M (2010), “UNEP in Global Environmental Governance: Design, Leadership, Location’ in *Global Environmental Politics* 10(1): 30-59.

Jabreen, Y (2008), ‘A New Conceptual Framework for Sustainable Development’ in *Environment, Development and Sustainability*, 10(2): 179-192.

Jordan A. et al (2003), ““New” environmental policy instruments: an evolution or a revolution in environmental policy?” in *Environmental Politics* 12:201-24.

Karmali, A (2006), "The Kyoto Protocol and its Market Mechanisms: Evaluating their Contribution to Cleaner Energy", in *Accountability Forum 9*: 16-24. (Online:Web) Accessed at 15 November 2010. URL: http://www.icfi.com/Markets/Energy/doc_files/cleaner-energy-karmali.pdf.

Koehane, N.O and Olmstead, S (2007), *Markets and the Environment*, Washington: The Island Press.

Koselleck, R (translated by Keith Tribe) (1979), *Futures Past : On the Semantics of Historical Time*, New York: Columbia University Press, 2004.

Krasner, SD (1983) (eds), *International Regimes*, Ithaca, NY: Cornell University Press.

*Kyoto Protocol To The United Nations Framework Convention On Climate Change (1998). (Online: Web) Accessed at 2 December 2010, URL: <http://unfccc.int/resource/docs/convkp/kpeng.pdf>

Lieten, C. (2004), *Views on Development:Faltering Development and Post Modernist Discourse*, New Delhi: Three Essays Collective.

Lemos, M.C. and Agarwal, A (2006) 'Environmental Governance' in *Annual Review of Environment & Resources*, 31: 297-325.

Liverman, D. M. (2010), "Carbon offsets, the CDM, and sustainable development" in Schellnhuber, Mario Molina, Nicholas Stern, Veronika A Huber, Sussane Kadner (eds.) *Global Sustainability: A Nobel Cause*, Cambridge: Cambridge University Press.

Lohmann, L(2010) 'Uncertainty Markets and Carbon Markets: Variations on Polanyian Themes' in *New Political Economy*, 15(2): 225-254.

Max, Arthur(2011), "Bonn Climate Change Talks: Developing Countries Fight With Rich Nations In Stalled Negotiations" , [Online: web] Accessed on 21 July 2011. URL: http://www.huffingtonpost.com/2011/06/10/bonn-climate-talks-negotiations-2011_n_874828.html

*Ministry of Environment and Forests (2011), The National CDM Authority, [Online: web] Accessed on 15 July 2011. URL:http://envfor.nic.in/cdm/cdm_india.htm

Mintzer, I. M. and Leonard, J. A. (eds.) (1994), *Negotiating climate change: The inside story of the Rio Convention*, Cambridge: Cambridge University Press and Stockholm Environment Institute, 1994.

Mitchell,R.B. (2008), *International Environmental Politics*, California: SAGE Publications.

Munoz, M et al. (2009), "Measuring the Negotiation Burden of Multilateral Environmental Agreements" in *Global Environmental Politics* 9(4):1-13.

Najam, A. et al.(2006), *Global Environmental Governance: A Reform Agenda*, Winnipeg :International Institute for Sustainable Development.

Najam, A.(eds) (2005), "Why Environmental Politics Looks Different from the South" in Peter Dauvergne (eds.) *Handbook of Global Environmental Politics*, Cheltenham: Edward Elgar Publishing Ltd.

Najam, A et al (2003), "Integrating sustainable development into the Fourth Assessment report of the Intergovernmental Panel on Climate Change" in *Climate Policy* 3SI: s9–S17.

Newell, P (2008), 'The Marketization of Global Environmental Governance: Manifestations and Implications' in Jacob Park, Ken Conca and Matthias Finger (eds.) *The Crisis of Global Environmental Governance: Towards a new Political Economy of Sustainability*, Routledge: Oxon.

Newell, P and Matthew, P (2010), *Climate Capitalism: Global Warming and the Transformation of the Global Economy*, Cambridge: Cambridge University Press.

Nye, JS(2001), "Globalization's democratic deficit: how to make international institutions more accountable" in *Foreign Affairs* 80: 2-6.

One India News (2008), "Climate change will impact industries: Shyam Saran", [Online: web] Accessed on 21 July 2011. URL:<http://news.oneindia.in/2008/04/21/climate-change-will-impact-industries-shyam-saran-1208768852.html>

Prime Ministers Office (2009), "The Road to Copenhagen: India's Position on Climate Change Issues", Public Diplomacy Division, Ministry of External Affairs, Government of India. 2009, feb, 2009, [Online: web] Accessed on 21 July 2011. URL http://pmindia.nic.in/Climate%20Change_16.03.09.pdf

Pattberg, P (2004), "The Institutionalisation of Private Governance: Conceptualising an Emerging Trend in Global Environmental Politics" in *Global Governance Working Paper No 9. The Global Governance Project, Potsdam*, Amsterdam, Berlin, Oldenburg.

Pellow, D.N. et al (1999), "Putting the Ecological Modernization thesis to test: The promises and Performance of Urban Recycling" in *Ecological Modernization Around the World: Perspectives and Debates*, OR: Frank Cass & Co.

Polanyi, K. (2001 [1944]), 'The Great Transformation', Boston: Beacon Press.

Pulver, S. (2007), "Making Sense of Corporate Environmentalism: An environmental Contestation Approach to Analyzing the Causes and Consequences of the Climate Change Policy Split in the Oil Industry" in *Organization & Environment*, 20(1):44-83.

Parry, M.L. et al (2007), 'Climate Change 2007: Impacts, Adaptation and Vulnerability- Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change', Cambridge: Cambridge University Press.

Polanyi, K. (2001 [1944]), 'The Great Transformation', Boston: Beacon Press.

Rajan, M.G. (1997), *Global Environmental Politics: India and the North-South Politics of Global Environmental Issues*, Delhi: Oxford University Press

*Report of the Conference of Parties on its First Session, FCCC/CP/1995/7/Add.1, April 1995, Decision 5/CP.1

Repetto, R. (2001), "The Clean Development Mechanism: Institutional Breakthrough or Nightmare?" in *Policy Sciences*, 34(¾): 304-327.

Robinson, J and Herbert, D. (2001), "Integrating climate change and sustainable development" in *International Journal of Global Environmental Issues*, 1(2), pages: 130-148.

Rodrigues, J et al. (2010), *Carbon Responsibility and Embodied Emissions: Theory and measurement*, Oxon: Routledge.

Rosenau, J.N. (1997), "Global Environmental Governance: Delicate Balances, Subtle Nuances, and Multiple Challenges" in Mats Rolén, Helen Sjöberg, Uno Svedin (eds.) *International Governance on Environmental Issues*, Dordrecht: Kluwer Academic Publishing.

Rudolph, L.I and Rudolph, S.H (1987), *In Pursuit of Lakshmi: The Political Economy of the Indian State*, Chicago: University of Chicago Press.

Sandor, Richard L. et al (2002), "An overview of a Free-Market Approach to Climate Change and Conservation" in *Carbon, Biodiversity, Conservation and Income: An Analysis of a Free-Market Approach to Land-Use Change and Forestry in Developing and Developed Countries*, (*Philosophical Transactions: Mathematical, Physical and Engineering Sciences*), 360(1797): 1607-1620.

Saurin, Julian (2001), "Global environmental crisis as 'disaster triumphant': The private capture of public good," *Environmental Politics* 10(4):63-84. Quoted in Newell, P (2008), 'The Marketization of Global Environmental Governance: Manifestations and Implications' in Jacob Park, Ken Conca and Matthias Finger (eds.) *The Crisis of Global Environmental Governance: Towards a new Political Economy of Sustainability*, Routledge: Oxon.

Schnaiberg, Allan. (2005), "The Economy and the Environment" in N. J. Smelser and Richard Swedberg (eds.) *The Handbook of Economic Sociology*, Princeton: Princeton University Press.

Schneider, L. (2007), 'Is the CDM Fulfilling its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement', Oeko-Institut (for WorldWide Fund for Nature). (Online:Web) Accessed at 20 November 2010. URL: <http://www.oeko.de/oekodoc/622/2007-162-en.pdf>

Singh, K (2011), "India's emissions in a climate constrained world" in *Energy Policy* 39: 3476-3482.

Shaw, M.N. (2003), *International Law (fifth edition)*, Cambridge: Cambridge University Press, reprinted 2007.

Sonnenfeld, D.A, and Mol, A. P. J. (2002), "Globalization and the Transformation of Environmental Governance: An Introduction." In *American Behavioral Scientist* 45 (9): 1318-1339.

Speth, J.G. and Hass, P.M (2006), 'From Stockholm to Johannesburg: First Attempt at Global Environmental Governance' in *Foundations of Contemporary Environmental Studies Series: Global Environmental Governance*, Washington: Island Press.

Stern, N. (2007), *The Economics of Climate Change: The Stern Review*, Cambridge: Cambridge University Press.

Stiglitz, J (2006), "A New Agenda for Global Warming" in *The Economists'*3(7), Article3.(Online:Web)Accessed at 15November 2010.URL: <http://www.bepress.com/ev/vol3/iss7/art3/>

Sutter, C., and Parreño, J. C. (2007). "Does the current Clean Development Mechanism (CDM) deliver its sustainable development claim? An analysis of officially registered CDM projects.", [Online: web] Accessed on 20 July. URL: http://cleanairinitiative.org/portal/system/files/articles-72508_resource_1.pdf

*The Energy and Resources Institute, Clean Development Mechanism. (Online: Web) Accessed at 1 December 2010. URL: <http://www.teriin.org/ee/cdm/cdm.htm>

The Business Week (2010), "India to Top China as Fastest Growing Economy by 2015", [Online: web] Accessed on 20 July 2011 5 July 2011. URL:<http://www.businessweek.com/news/2010-08-16/india-to-top-china-as-fastest-growing-economy-by-2015.html>

The Guardian (2011), "Jairam Ramesh's legacy is an Indian environment ministry with an identity", [Online: web] Accessed on 15 July 2011 URL:

<http://www.guardian.co.uk/environment/blog/2011/jul/13/jairam-ramesh-india-environment-ministry>

The Hindu (2009), “We are not Peaking Years Concept”, [Online: web] Accessed on 21 July 2011. URL: <http://www.hindu.com/2009/12/13/stories/2009121358010100.htm>.

*United Nations, 1992, United Nations Framework Convention on Climate Change, Rio de Janeiro, Brazil (Online: Web) Accessed at 2 December 2010. URL: www.unfccc.int/text/resource

* United Nations, 1997, Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto, Japan (Online:Web) Accessed at 2 December 2010. URL: www.unfccc.int/text/resource

*United Nations Framework Convention on Climate Change (2008), *Clean Development Mechanism in Brief*, UNFCCC: Germany.

*United Nations Environment Programme (Online:Web) Accessed at 1 December 2010. URL: <http://www.unep.org/climatechange/>

*UNFCCC: INC document A/AC.237/Misc.1/Add.3, Paper No. 15: 2

UNCED (1993), *Agenda 21: Program of Action for Sustainable Development*, New York: United Nations Department for Public Information.

Upadhyaya, P (2008), “Strengthening the CDM: A bird’s eye view”, *TERI Viewpoint Paper 4*, New Delhi: The Energy and Resources Institute.(Online:Web) Accessed at 2 December 2010. URL: <http://www.teriin.org/events/docs/Cop14/CDM.pdf>

Veziroglou, S. (2009), “The Climate Change Regime Post-Kyoto: Why Compliance is Important and How to Achieve it” in *Global Environmental Politics*, 9(4): 41-63.

Wallerstein, I(1996), *After Liberalism*, New York: The New Press

Weart, S.R. (2004), *The Discovery of Global Warming*, Harvard University Press: Cambridge MA. Quoted in Peter Newell and Paterson Matthew (2010) *Climate Capitalism: Global Warming and the Transformation of the Global Economy*, Cambridge: Cambridge University Press.

Werksman, J (2000), ‘The Clean Development Mechanism: Unwrapping the “Kyoto Surprise”’ in Graciela Chichilinsky and Geoffrey Heal (eds.) *Environmental Markets: Equity and Efficiency*, New York: Columbia University Press.

World Commission for Environment and Development (1987), *Our Common Future: The Brundtland Report*, Oxford: Oxford University Press.

The World Bank (2006), “Carbon Finance at the World Bank” , [Online: web] Accessed on 20 July 2011. URL:<http://carbonfinance.org/docs/StateoftheCarbonMarket2006.pdf>

*World Bank (2009), “2009 Annual Report on Carbon Finance for Sustainable Development”, Carbon Finance. (Online: Web) Accessed at 1 December 2010. URL: http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/11804Final_LR.pdf.

*World Resources Institute and Underlying data source: U.S. DOE, Energy Information Administration, International Energy Annual 1999.

Annexure 1

MEMO ON THE PROJECT CYCLE OF THE CLEAN DEVELOPMENT MECHANISM

THIS MEMO HAS BEEN TAKEN FROM THE MASTERS PROJECT REPORT SUBMITTED AT THE ENERGY AND RESOURCES INSTITUTE, NEW DELHI BY JAI KUMAR GAURAV IN 2009.

The excessive use of fossil fuels and several other anthropogenic activities has resulted in rising concentration of green house gases (mainly carbon-di-oxide, methane, nitrous oxide, hydro fluorocarbons, per fluorocarbons, sulphur hexafluoride). The higher concentration of these green house gases lead to global rise in temperatures also known as global warming. According to Intergovernmental Panel on Climate Change (IPCC) has predicted that the earth's temperature will rise by 1.4 ° C to 5.8 ° C by 2100. There will be a rise of 50 cm in the sea level along with other harmful climatic events due to global warming. To prevent such situation Kyoto protocol was adopted at the 3rd session of the Conference of the Parties (COP 3) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Kyoto Japan in December 1999. Kyoto protocol defines quantified green house gas (GHG) emission reduction targets for Annex I parties which include the developed countries that have ratified the Kyoto protocol. Kyoto protocol provides three market mechanisms to help Annex I parties achieve their emission reduction targets cost effectively. Clean Development Mechanism is one of the three market-based “flexible mechanisms” other than Joint Implementation (JI) and Emissions Trading (ET). Clean Development Mechanism involves project activities in Non – Annex I countries that include the developing and less developed countries that have ratified the Kyoto protocol. The projects in Non – Annex I countries will reduce GHG emissions (or remove by sinks) for which credits are issued in the form of CERs (Certified Emission Reductions). CERs can be used by Annex I parties to contribute to compliance of their quantified GHG emission reduction targets of the Kyoto protocol.

1. Various bodies involved in a CDM project and their activities:

Project participant (PP) and Consultant

A Project Participant (PP) is a private and/or public entity involved in a CDM project activity. The PP manages all the economic risks and cost of CDM project activity. PP

is also the owner of the CERs generated. Government entity of non Annex I countries can also be a PP. Consultant is the private or public party contracted for the job of writing the Project Design Document (PDD). PDD contains an explanation of the project and other requirements like baseline, identified alternatives, sustainable development contribution and monitoring plan is documented in the PDD. Justification about how a project fulfils requirements for consideration as a CDM project activity is put in a PDD.

Designated National Authority (DNA)

Countries participating in the CDM and are signatory to the Kyoto protocol set up Designated National Authority (DNA). DNA gives written approvals known as Letter of Approval (LOA) or Host country approval (HCA) in which it is stated that the project activity assists in achieving sustainable development on the basis of the PDD and other documents submitted and presentation made by the consultant and project proponent. The details of the approval procedure are up to each party. DNA can raise a query if it is not clear that the project fulfils the sustainable development criteria during its review for host country approval. DNA if satisfied after getting replies to the queries rose regarding the assistance to sustainable development that the project is doing issues LOA or HCA. Without HCA or LOA a project is not eligible to get registered. DNA can object to a project getting registered if it has not got approval for the project submitted or if there are other irregularities in sustainable development or any other stipulated criteria like the Brazilian DNA checks all requirements to be checked later by the executive board of UNFCCC.

Designated Operational Entity (DOE)

A DOE is a legal entity or an international organization which is accredited and designated by the EB (Executive Board of UNFCCC). A DOE is contracted by the PP to review the PDD, to check whether the parties in the project have ratified the Kyoto protocol, to check whether PP has submitted Environmental Impact Assessment required by the laws of the host country. The DOE confirms that project activity is causing emission reductions that are additional to any that would occur in absence of the project activity. The DOE checks whether baseline and monitoring methodologies used in the project activity is from the list of methodologies approved by the executive board of UNFCCC.

Major functions of DOE are validation and verification. Validation is required to get a project registered as CDM project activity by EB of UNFCCC and verification is done for issuance of CERs. Verification is done to check whether the monitoring plan has been followed and the project has carried out the emission reductions against which the CERs are requested to be issued. The DOEs carry procedures for submission of new methodologies. The DOEs seeks clarification and deviation from various decisions given by the EB and deviation from the monitoring plan followed by a project proponent. The detailed validation and verification process is explained in the project report under the heading steps in CDM project activity.

CDM Executive Board (EB)

The EB supervises the CDM process under the authority of the COP/MOP. EB comprises of ten members from parties to the Kyoto Protocol. The executive board makes recommendations to the COP/MOP for further modalities and procedures for CDM, suggests any amendments, approves new methodologies, accredits operational entities and recommends COP/MOP for designation of DOEs. Registration of CDM projects after it fulfils all criteria put up by the CDM modalities and procedures is done by the EB. Executive board issues CERs when project satisfies the emission reduction criteria.

2. Basic criteria to be met for CDM eligibility of a project:

Baseline (scenario and emission) is determined in a way that reasonably represents the technology, GHG emissions and other situation arising in absence of the CDM project activity. Baseline emissions are calculated according to an approved methodology that is most appropriate to the project activity in consideration. The justification of the appropriateness of the choice is done by existing actual or historical emissions as applicable. Emissions from a technology that represents an economically attractive course of action, taking into account barriers to investment or even the average emission of similar project activity in previous 5 years in similar circumstances can also be considered as baseline.

Additionality is satisfied if GHG emissions are reduced as compared to those that would have occurred in the absence of the registered CDM activity and the project is

not viable without CDM benefits. PDDs of large scale CDM project activity PDDs are supposed to follow the Tool of additionality version 3 provided by UNFCCC to demonstrate and assess additionality following a step wise check of various criteria put forward for additionality .

The steps in version 3 of the Tool of additionality are:

Step 1: Identification of alternative to the project activity consistent with current laws and regulation

Identify realistic and credible alternatives available to the project participants, or similar project developers that provide outputs or services comparable with the proposed CDM project activity.

Step 2: Investment Analysis

The project activity is economically and financially less attractive than other alternatives is to be checked. Simple cost analysis followed if the project activity generates no financial or economic benefits other than the CDM related incomes. Investment comparison analysis used in case there are other benefits except CDM benefits that includes identification of the financial indicators, such as IRR, NPV, cost benefit ratio, or unit cost of service, that is most suitable for the project type and decision-making context. Benchmark analysis that requires identification of financial indicators, such as IRR, NPV, cost benefit ratio, or unit cost of service, which is most suitable for the project type and decision-making context may also be used. Identification of relevant benchmark values like required rate of return (RRR) on equity. Benchmarks derived from government bond rates, estimate cost of financing and required return on capital etc can be used.

Step 3: Barrier Analysis

The proposed project activity if faces barriers that prevent the implementation of the project and do not prevent implementation of at least one other alternatives. The barriers can be in the form of investment, technological and barriers due to prevailing practices.

Step 4: Common Practice Analysis

To check if the proposed project activity is already penetrated into the sector as a common practice which does not need any CDM benefits as it is already profitable for the organization or is required under some regulatory provision.

On the other hand the small scale projects can follow only the Attachment A to Appendix B which asks PP to provide explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

Investment Barrier: A financially more viable alternative to the project activity would have led to higher additions. Technological Barriers: A less technologically advanced alternative to the project activity involves lower risks due to performance uncertainties or low market share of the new technology adopted for the project activity and so would have led to higher emissions. Barriers due to prevailing practice: Prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions. Other barriers: Without the project activity, for another specific reason identified by the PP, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technology would have been higher.

Monitoring is the collection and archiving of all the relevant data necessary for determining the baseline, measuring GHG emission and leakage.

3. Steps in CDM project activity: project development, DNA approval, validation, registration, monitoring, verification and issuance of CERs

PP submits the PDD along with the supporting documents as per the methodology applicable to the project to a DOE selected by PP for validation. The DNA approval is sought by the PP on the basis of sustainable development being carried out by the project. DOE reviews the PDD to check if the participation requirements like local stakeholder comments, environmental impact assessment, additionality and other requirements for CDM project activities according to the CDM Modalities and Procedure document are satisfied. The PDD is web hosted for 30 days and DOE replies to the questions raised by international stakeholders. A site visit is carried out

to check the required documents and findings in the PDD are sent to PP. The findings are closed as the PP replies to them.

A request for registration in the form of a validation report according to the “CDM project activity registration and validation request form” after approval by the technical reviewer and receipt of the approval of voluntary participation and sustainable development criteria fulfilment is submitted to the EB.

A reference number is allotted at this stage that is also used to identify the bank transfer of the registration fee which is zero for projects causing emission reductions less or equal to 15000 t carbon di oxide equivalent per year while above 15000 t the fee is decided by UNFCCC. EB after determining the completeness of the submission by DOE makes it available on UNFCCC website for 60 days in large scale and 30 days in small scale and register it subsequently. If a party involved in the project activity or at least three members of the EB request a review of the proposed CDM project activity the PP and the DOE have to reply to the request for review after which the project can get registered or can be sent to correction requested category or under review category. The projects under correction requested category can get registered after appropriate corrections while the under review projects along with the scope provided by the EB depending on the replies can go under correction requested or can get rejected or registered. Figure 1 shows all the steps that a project activity after preparation of PDD can go thorough in the form of a flow chart before it gets rejected or registered. The issues related to review and rejections are becoming more and more important with EB becoming stricter and more and more projects getting rejected.

Once a project gets registered the process of verification is carried out by the DOEs that involve acquiring monitoring report from the project proponent, conducting site visit, sending their findings to the project proponent and submitting a verification report to UNFCCC for issuance of CERs. The monitoring report is uploaded to the UNFCCC website by the PP and it remains there throughout. The final monitoring report that is submitted along with the verification report by the DOE is published for fifteen days before issuance. The verification report and monitoring report submitted for issuance of CERs can also undergo request for review, correction requested, under

review stages or may get rejected. A flowchart showing the steps a registered project activity undergoes before it gets CERs is given as Figure 2.

4. Problem associated with CDM projects: review and rejection

The registration by the executive board is an automatic step after request for registration. If a review is requested it is finalized no later than at the second meeting following the request for review with the reason for the decision being communicated to the PP and the public. The delay caused due to review and the costs involved in the processes of review and replies or revision of PDD is significant therefore every project proponent and DOE would like to minimize or eliminate these. In case of Afforestation and reforestation projects (Eric D. Vance, Karen Risse, 2005) found primary reasons for rejection to be inadequate documentation and quantification of baseline scenario and additionality this is directly related to the complexity and the requirements of the CDM methodology. Additionality requirement limit business interest and participation in CDM (Karen Risse, 2005).

The major reason for review and rejection of CDM projects have been non compliance to the guidelines provided by the executive board. Incentives to set higher baselines will act on both investor and host country side but special care should be taken to avoid loss of all CERs in case of rejection than to set a lower realistic baseline.

Additionality is a complicated issue it is closely related to the judgment upon what basis the emissions reduction is additional and where one should set the baseline. If additionality criterion is lax, the supply of credits will be greater and their prices will decrease but if the criteria are strict this will lead to private sector opting for use of other flexible mechanism than CDM, due to unacceptably higher risk, rendering the CDM dysfunctional. The fewer the CDM projects less of direct benefits eg. new technology, investment in non annex I parties would be reduced, fewer funds will be available for adaptation activities in the developing countries and imposing a ceiling on CDM project activity would create implementation problem for individual annex I parties.

Potential barriers to CDM investments are associated with the instability of the incompletely-defined CDM mechanism itself and fundamental risk of project in developing countries. The investment environment would depend largely on definition of additionality, establishment of baseline, and choice of respective domestic policy measures. In addition to these barriers arising from incompletely defined mechanisms certain precautions on the side of PP and DOE while preparing PDDs, validation, verification reports and other technicalities can avoid reviews and rejections to a very large extent.

The minor project identifies major issues related to review and rejection of CDM projects and suggests possible ways to avoid reviews and rejections of CDM projects. Lesser number of reviews and rejections will lead to significant reduction in time taken to materialize CDM benefits and will lead to proper utilization of resources. The number of projects which have got issuances are 308 (31/7/07) with 63,569,768 CERs issued out of 751 registered projects so it becomes all the more important to avoid reviews and rejections at the issuance stage. The risks associated with a CDM project increases if it is more likely to get rejected. The rejection rate is increasing with number of rejected projects increasing from three till EB 25 to 26 till EB 33.

The rejected projects and projects getting review are indicative of the areas where the PP and the DOE is not concentrating much while working on the project on the other hand EB is very concerned about these issues. The executive board if rejects a project gives a reason for rejection if we could get an idea of the major reasons for rejection we can plan our project in such a way that there should be no reason for rejecting the proposed project activity.

**KYOTO PROTOCOL TO THE UNITED NATIONS FRAMEWORK
CONVENTION ON CLIMATE CHANGE**



UNITED NATIONS

1998

KYOTO PROTOCOL TO THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

The Parties to this Protocol,

Being Parties to the United Nations Framework Convention on Climate Change, hereinafter referred to as “the Convention”,

In pursuit of the ultimate objective of the Convention as stated in its Article 2,

Recalling the provisions of the Convention,

Being guided by Article 3 of the Convention,

Pursuant to the Berlin Mandate adopted by decision 1/CP.1 of the Conference of the Parties to the Convention at its first session,

Have agreed as follows:

Article 1

For the purposes of this Protocol, the definitions contained in Article 1 of the Convention shall apply. In addition:

1. “Conference of the Parties” means the Conference of the Parties to the Convention.
2. “Convention” means the United Nations Framework Convention on Climate Change, adopted in New York on 9 May 1992.
3. “Intergovernmental Panel on Climate Change” means the Intergovernmental Panel on Climate Change established in 1988 jointly by the World Meteorological Organization and the United Nations Environment Programme.
4. “Montreal Protocol” means the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted in Montreal on 16 September 1987 and as subsequently adjusted and amended.
5. “Parties present and voting” means Parties present and casting an affirmative or negative vote.
6. “Party” means, unless the context otherwise indicates, a Party to this Protocol.
7. “Party included in Annex I” means a Party included in Annex I to the Convention, as may be amended, or a Party which has made a notification under Article 4, paragraph 2 (g), of the Convention.

Article 2

1. Each Party included in Annex I, in achieving its quantified emission limitation and reduction commitments under Article 3, in order to promote sustainable development, shall:

(a) Implement and/or further elaborate policies and measures in accordance with its national circumstances, such as:

- (i) Enhancement of energy efficiency in relevant sectors of the national economy;
- (ii) Protection and enhancement of sinks and reservoirs of greenhouse gases not controlled by the Montreal Protocol, taking into account its commitments under relevant international environmental agreements; promotion of sustainable forest management practices, afforestation and reforestation;
- (iii) Promotion of sustainable forms of agriculture in light of climate change considerations;
- (iv) Research on, and promotion, development and increased use of, new and renewable forms of energy, of carbon dioxide sequestration technologies and of advanced and innovative environmentally sound technologies;
- (v) Progressive reduction or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all greenhouse gas emitting sectors that run counter to the objective of the Convention and application of market instruments;
- (vi) Encouragement of appropriate reforms in relevant sectors aimed at promoting policies and measures which limit or reduce emissions of greenhouse gases not controlled by the Montreal Protocol;
- (vii) Measures to limit and/or reduce emissions of greenhouse gases not controlled by the Montreal Protocol in the transport sector;
- (viii) Limitation and/or reduction of methane emissions through recovery and use in waste management, as well as in the production, transport and distribution of energy;

(b) Cooperate with other such Parties to enhance the individual and combined effectiveness of their policies and measures adopted under this Article, pursuant to Article 4, paragraph 2 (e) (i), of the Convention. To this end, these Parties shall take steps to share their experience and exchange information on such policies and measures, including developing ways of improving their comparability, transparency and effectiveness. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, at its first session or as soon as practicable thereafter, consider ways to facilitate such cooperation, taking into account all relevant information.

2. The Parties included in Annex I shall pursue limitation or reduction of emissions of greenhouse gases not controlled by the Montreal Protocol from aviation and marine bunker fuels, working through the International Civil Aviation Organization and the International Maritime Organization, respectively.

3. The Parties included in Annex I shall strive to implement policies and measures under this Article in such a way as to minimize adverse effects, including the adverse effects of climate change, effects on international trade, and social, environmental and economic impacts on other Parties, especially developing country Parties and in particular those identified in Article 4, paragraphs 8 and 9, of the Convention, taking into account Article 3 of the Convention. The Conference of the Parties serving as the meeting of the Parties to this Protocol may take further action, as appropriate, to promote the implementation of the provisions of this paragraph.

4. The Conference of the Parties serving as the meeting of the Parties to this Protocol, if it decides that it would be beneficial to coordinate any of the policies and measures in paragraph 1 (a) above, taking into account different national circumstances and potential effects, shall consider ways and means to elaborate the coordination of such policies and measures.

Article 3

1. The Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012.

2. Each Party included in Annex I shall, by 2005, have made demonstrable progress in achieving its commitments under this Protocol.

3. The net changes in greenhouse gas emissions by sources and removals by sinks resulting from direct human-induced land-use change and forestry activities, limited to afforestation, reforestation and deforestation since 1990, measured as verifiable changes in carbon stocks in each commitment period, shall be used to meet the commitments under this Article of each Party included in Annex I. The greenhouse gas emissions by sources and removals by sinks associated with those activities shall be reported in a transparent and verifiable manner and reviewed in accordance with Articles 7 and 8.

4. Prior to the first session of the Conference of the Parties serving as the meeting of the Parties to this Protocol, each Party included in Annex I shall provide, for consideration by the Subsidiary Body for Scientific and Technological Advice, data to establish its level of carbon stocks in 1990 and to enable an estimate to be made of its changes in carbon stocks in subsequent years. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, at its first session or as soon as practicable thereafter, decide upon modalities, rules and guidelines as to how, and which, additional human-induced activities related to changes in greenhouse gas emissions by sources and removals by sinks in the agricultural soils and the land-use change and forestry categories shall be added to, or subtracted from, the assigned amounts for Parties included in Annex I, taking into account uncertainties, transparency in reporting, verifiability, the methodological work of the Intergovernmental Panel on Climate Change, the advice provided by the Subsidiary Body for Scientific and Technological Advice in accordance with Article 5 and the decisions of the Conference of the Parties. Such a decision shall apply in the second and subsequent commitment periods. A Party may choose to apply such a decision on these additional human-induced activities for its first commitment period, provided that these activities have taken place since 1990.

5. The Parties included in Annex I undergoing the process of transition to a market economy whose base year or period was established pursuant to decision 9/CP.2 of the Conference of the Parties at its second session shall use that base year or period for the implementation of their commitments under this Article. Any other Party included in Annex I undergoing the process of transition to a market economy which has not yet submitted its first national communication under Article 12 of the Convention may also notify the Conference of the Parties serving as the meeting of the Parties to this Protocol that it intends to use an historical base year or period other than 1990 for the implementation of its commitments under this Article. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall decide on the acceptance of such notification.
6. Taking into account Article 4, paragraph 6, of the Convention, in the implementation of their commitments under this Protocol other than those under this Article, a certain degree of flexibility shall be allowed by the Conference of the Parties serving as the meeting of the Parties to this Protocol to the Parties included in Annex I undergoing the process of transition to a market economy.
7. In the first quantified emission limitation and reduction commitment period, from 2008 to 2012, the assigned amount for each Party included in Annex I shall be equal to the percentage inscribed for it in Annex B of its aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A in 1990, or the base year or period determined in accordance with paragraph 5 above, multiplied by five. Those Parties included in Annex I for whom land-use change and forestry constituted a net source of greenhouse gas emissions in 1990 shall include in their 1990 emissions base year or period the aggregate anthropogenic carbon dioxide equivalent emissions by sources minus removals by sinks in 1990 from land-use change for the purposes of calculating their assigned amount.
8. Any Party included in Annex I may use 1995 as its base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride, for the purposes of the calculation referred to in paragraph 7 above.
9. Commitments for subsequent periods for Parties included in Annex I shall be established in amendments to Annex B to this Protocol, which shall be adopted in accordance with the provisions of Article 21, paragraph 7. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall initiate the consideration of such commitments at least seven years before the end of the first commitment period referred to in paragraph 1 above.
10. Any emission reduction units, or any part of an assigned amount, which a Party acquires from another Party in accordance with the provisions of Article 6 or of Article 17 shall be added to the assigned amount for the acquiring Party.
11. Any emission reduction units, or any part of an assigned amount, which a Party transfers to another Party in accordance with the provisions of Article 6 or of Article 17 shall be subtracted from the assigned amount for the transferring Party.
12. Any certified emission reductions which a Party acquires from another Party in accordance with the provisions of Article 12 shall be added to the assigned amount for the acquiring Party.

13. If the emissions of a Party included in Annex I in a commitment period are less than its assigned amount under this Article, this difference shall, on request of that Party, be added to the assigned amount for that Party for subsequent commitment periods.

14. Each Party included in Annex I shall strive to implement the commitments mentioned in paragraph 1 above in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention. In line with relevant decisions of the Conference of the Parties on the implementation of those paragraphs, the Conference of the Parties serving as the meeting of the Parties to this Protocol shall, at its first session, consider what actions are necessary to minimize the adverse effects of climate change and/or the impacts of response measures on Parties referred to in those paragraphs. Among the issues to be considered shall be the establishment of funding, insurance and transfer of technology.

Article 4

1. Any Parties included in Annex I that have reached an agreement to fulfil their commitments under Article 3 jointly, shall be deemed to have met those commitments provided that their total combined aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B and in accordance with the provisions of Article 3. The respective emission level allocated to each of the Parties to the agreement shall be set out in that agreement.

2. The Parties to any such agreement shall notify the secretariat of the terms of the agreement on the date of deposit of their instruments of ratification, acceptance or approval of this Protocol, or accession thereto. The secretariat shall in turn inform the Parties and signatories to the Convention of the terms of the agreement.

3. Any such agreement shall remain in operation for the duration of the commitment period specified in Article 3, paragraph 7.

4. If Parties acting jointly do so in the framework of, and together with, a regional economic integration organization, any alteration in the composition of the organization after adoption of this Protocol shall not affect existing commitments under this Protocol. Any alteration in the composition of the organization shall only apply for the purposes of those commitments under Article 3 that are adopted subsequent to that alteration.

5. In the event of failure by the Parties to such an agreement to achieve their total combined level of emission reductions, each Party to that agreement shall be responsible for its own level of emissions set out in the agreement.

6. If Parties acting jointly do so in the framework of, and together with, a regional economic integration organization which is itself a Party to this Protocol, each member State of that regional economic integration organization individually, and together with the regional economic integration organization acting in accordance with Article 24, shall, in the event of failure to achieve the total combined level of emission reductions, be responsible for its level of emissions as notified in accordance with this Article.

Article 5

1. Each Party included in Annex I shall have in place, no later than one year prior to the start of the first commitment period, a national system for the estimation of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol. Guidelines for such national systems, which shall incorporate the methodologies specified in paragraph 2 below, shall be decided upon by the Conference of the Parties serving as the meeting of the Parties to this Protocol at its first session.
2. Methodologies for estimating anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol shall be those accepted by the Intergovernmental Panel on Climate Change and agreed upon by the Conference of the Parties at its third session. Where such methodologies are not used, appropriate adjustments shall be applied according to methodologies agreed upon by the Conference of the Parties serving as the meeting of the Parties to this Protocol at its first session. Based on the work of, *inter alia*, the Intergovernmental Panel on Climate Change and advice provided by the Subsidiary Body for Scientific and Technological Advice, the Conference of the Parties serving as the meeting of the Parties to this Protocol shall regularly review and, as appropriate, revise such methodologies and adjustments, taking fully into account any relevant decisions by the Conference of the Parties. Any revision to methodologies or adjustments shall be used only for the purposes of ascertaining compliance with commitments under Article 3 in respect of any commitment period adopted subsequent to that revision.
3. The global warming potentials used to calculate the carbon dioxide equivalence of anthropogenic emissions by sources and removals by sinks of greenhouse gases listed in Annex A shall be those accepted by the Intergovernmental Panel on Climate Change and agreed upon by the Conference of the Parties at its third session. Based on the work of, *inter alia*, the Intergovernmental Panel on Climate Change and advice provided by the Subsidiary Body for Scientific and Technological Advice, the Conference of the Parties serving as the meeting of the Parties to this Protocol shall regularly review and, as appropriate, revise the global warming potential of each such greenhouse gas, taking fully into account any relevant decisions by the Conference of the Parties. Any revision to a global warming potential shall apply only to commitments under Article 3 in respect of any commitment period adopted subsequent to that revision.

Article 6

1. For the purpose of meeting its commitments under Article 3, any Party included in Annex I may transfer to, or acquire from, any other such Party emission reduction units resulting from projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in any sector of the economy, provided that:
 - (a) Any such project has the approval of the Parties involved;
 - (b) Any such project provides a reduction in emissions by sources, or an enhancement of removals by sinks, that is additional to any that would otherwise occur;

(c) It does not acquire any emission reduction units if it is not in compliance with its obligations under Articles 5 and 7; and

(d) The acquisition of emission reduction units shall be supplemental to domestic actions for the purposes of meeting commitments under Article 3.

2. The Conference of the Parties serving as the meeting of the Parties to this Protocol may, at its first session or as soon as practicable thereafter, further elaborate guidelines for the implementation of this Article, including for verification and reporting.

3. A Party included in Annex I may authorize legal entities to participate, under its responsibility, in actions leading to the generation, transfer or acquisition under this Article of emission reduction units.

4. If a question of implementation by a Party included in Annex I of the requirements referred to in this Article is identified in accordance with the relevant provisions of Article 8, transfers and acquisitions of emission reduction units may continue to be made after the question has been identified, provided that any such units may not be used by a Party to meet its commitments under Article 3 until any issue of compliance is resolved.

Article 7

1. Each Party included in Annex I shall incorporate in its annual inventory of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol, submitted in accordance with the relevant decisions of the Conference of the Parties, the necessary supplementary information for the purposes of ensuring compliance with Article 3, to be determined in accordance with paragraph 4 below.

2. Each Party included in Annex I shall incorporate in its national communication, submitted under Article 12 of the Convention, the supplementary information necessary to demonstrate compliance with its commitments under this Protocol, to be determined in accordance with paragraph 4 below.

3. Each Party included in Annex I shall submit the information required under paragraph 1 above annually, beginning with the first inventory due under the Convention for the first year of the commitment period after this Protocol has entered into force for that Party. Each such Party shall submit the information required under paragraph 2 above as part of the first national communication due under the Convention after this Protocol has entered into force for it and after the adoption of guidelines as provided for in paragraph 4 below. The frequency of subsequent submission of information required under this Article shall be determined by the Conference of the Parties serving as the meeting of the Parties to this Protocol, taking into account any timetable for the submission of national communications decided upon by the Conference of the Parties.

4. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall adopt at its first session, and review periodically thereafter, guidelines for the preparation of the information required under this Article, taking into account guidelines for the preparation of

national communications by Parties included in Annex I adopted by the Conference of the Parties. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall also, prior to the first commitment period, decide upon modalities for the accounting of assigned amounts.

Article 8

1. The information submitted under Article 7 by each Party included in Annex I shall be reviewed by expert review teams pursuant to the relevant decisions of the Conference of the Parties and in accordance with guidelines adopted for this purpose by the Conference of the Parties serving as the meeting of the Parties to this Protocol under paragraph 4 below. The information submitted under Article 7, paragraph 1, by each Party included in Annex I shall be reviewed as part of the annual compilation and accounting of emissions inventories and assigned amounts. Additionally, the information submitted under Article 7, paragraph 2, by each Party included in Annex I shall be reviewed as part of the review of communications.
2. Expert review teams shall be coordinated by the secretariat and shall be composed of experts selected from those nominated by Parties to the Convention and, as appropriate, by intergovernmental organizations, in accordance with guidance provided for this purpose by the Conference of the Parties.
3. The review process shall provide a thorough and comprehensive technical assessment of all aspects of the implementation by a Party of this Protocol. The expert review teams shall prepare a report to the Conference of the Parties serving as the meeting of the Parties to this Protocol, assessing the implementation of the commitments of the Party and identifying any potential problems in, and factors influencing, the fulfilment of commitments. Such reports shall be circulated by the secretariat to all Parties to the Convention. The secretariat shall list those questions of implementation indicated in such reports for further consideration by the Conference of the Parties serving as the meeting of the Parties to this Protocol.
4. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall adopt at its first session, and review periodically thereafter, guidelines for the review of implementation of this Protocol by expert review teams taking into account the relevant decisions of the Conference of the Parties.
5. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, with the assistance of the Subsidiary Body for Implementation and, as appropriate, the Subsidiary Body for Scientific and Technological Advice, consider:
 - (a) The information submitted by Parties under Article 7 and the reports of the expert reviews thereon conducted under this Article; and
 - (b) Those questions of implementation listed by the secretariat under paragraph 3 above, as well as any questions raised by Parties.
6. Pursuant to its consideration of the information referred to in paragraph 5 above, the Conference of the Parties serving as the meeting of the Parties to this Protocol shall take decisions on any matter required for the implementation of this Protocol.

Article 9

1. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall periodically review this Protocol in the light of the best available scientific information and assessments on climate change and its impacts, as well as relevant technical, social and economic information. Such reviews shall be coordinated with pertinent reviews under the Convention, in particular those required by Article 4, paragraph 2 (d), and Article 7, paragraph 2 (a), of the Convention. Based on these reviews, the Conference of the Parties serving as the meeting of the Parties to this Protocol shall take appropriate action.
2. The first review shall take place at the second session of the Conference of the Parties serving as the meeting of the Parties to this Protocol. Further reviews shall take place at regular intervals and in a timely manner.

Article 10

All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, without introducing any new commitments for Parties not included in Annex I, but reaffirming existing commitments under Article 4, paragraph 1, of the Convention, and continuing to advance the implementation of these commitments in order to achieve sustainable development, taking into account Article 4, paragraphs 3, 5 and 7, of the Convention, shall:

(a) Formulate, where relevant and to the extent possible, cost-effective national and, where appropriate, regional programmes to improve the quality of local emission factors, activity data and/or models which reflect the socio-economic conditions of each Party for the preparation and periodic updating of national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties, and consistent with the guidelines for the preparation of national communications adopted by the Conference of the Parties;

(b) Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change and measures to facilitate adequate adaptation to climate change:

- (i) Such programmes would, *inter alia*, concern the energy, transport and industry sectors as well as agriculture, forestry and waste management. Furthermore, adaptation technologies and methods for improving spatial planning would improve adaptation to climate change; and
- (ii) Parties included in Annex I shall submit information on action under this Protocol, including national programmes, in accordance with Article 7; and other Parties shall seek to include in their national communications, as appropriate, information on programmes which contain measures that the Party believes contribute to addressing climate change and its adverse impacts, including the abatement of increases in greenhouse gas emissions, and enhancement of and removals by sinks, capacity building and adaptation measures;

(c) Cooperate in the promotion of effective modalities for the development, application and diffusion of, and take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies, know-how, practices and processes pertinent to climate change, in particular to developing countries, including the formulation of policies and programmes for the effective transfer of environmentally sound technologies that are publicly owned or in the public domain and the creation of an enabling environment for the private sector, to promote and enhance the transfer of, and access to, environmentally sound technologies;

(d) Cooperate in scientific and technical research and promote the maintenance and the development of systematic observation systems and development of data archives to reduce uncertainties related to the climate system, the adverse impacts of climate change and the economic and social consequences of various response strategies, and promote the development and strengthening of endogenous capacities and capabilities to participate in international and intergovernmental efforts, programmes and networks on research and systematic observation, taking into account Article 5 of the Convention;

(e) Cooperate in and promote at the international level, and, where appropriate, using existing bodies, the development and implementation of education and training programmes, including the strengthening of national capacity building, in particular human and institutional capacities and the exchange or secondment of personnel to train experts in this field, in particular for developing countries, and facilitate at the national level public awareness of, and public access to information on, climate change. Suitable modalities should be developed to implement these activities through the relevant bodies of the Convention, taking into account Article 6 of the Convention;

(f) Include in their national communications information on programmes and activities undertaken pursuant to this Article in accordance with relevant decisions of the Conference of the Parties; and

(g) Give full consideration, in implementing the commitments under this Article, to Article 4, paragraph 8, of the Convention.

Article 11

1. In the implementation of Article 10, Parties shall take into account the provisions of Article 4, paragraphs 4, 5, 7, 8 and 9, of the Convention.

2. In the context of the implementation of Article 4, paragraph 1, of the Convention, in accordance with the provisions of Article 4, paragraph 3, and Article 11 of the Convention, and through the entity or entities entrusted with the operation of the financial mechanism of the Convention, the developed country Parties and other developed Parties included in Annex II to the Convention shall:

(a) Provide new and additional financial resources to meet the agreed full costs incurred by developing country Parties in advancing the implementation of existing commitments under Article 4, paragraph 1 (a), of the Convention that are covered in Article 10, subparagraph (a); and

(b) Also provide such financial resources, including for the transfer of technology, needed by the developing country Parties to meet the agreed full incremental costs of advancing the implementation of existing commitments under Article 4, paragraph 1, of the Convention that are covered by Article 10 and that are agreed between a developing country Party and the international entity or entities referred to in Article 11 of the Convention, in accordance with that Article.

The implementation of these existing commitments shall take into account the need for adequacy and predictability in the flow of funds and the importance of appropriate burden sharing among developed country Parties. The guidance to the entity or entities entrusted with the operation of the financial mechanism of the Convention in relevant decisions of the Conference of the Parties, including those agreed before the adoption of this Protocol, shall apply *mutatis mutandis* to the provisions of this paragraph.

3. The developed country Parties and other developed Parties in Annex II to the Convention may also provide, and developing country Parties avail themselves of, financial resources for the implementation of Article 10, through bilateral, regional and other multilateral channels.

Article 12

1. A clean development mechanism is hereby defined.

2. The purpose of the clean development mechanism shall be to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3.

3. Under the clean development mechanism:

(a) Parties not included in Annex I will benefit from project activities resulting in certified emission reductions; and

(b) Parties included in Annex I may use the certified emission reductions accruing from such project activities to contribute to compliance with part of their quantified emission limitation and reduction commitments under Article 3, as determined by the Conference of the Parties serving as the meeting of the Parties to this Protocol.

4. The clean development mechanism shall be subject to the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to this Protocol and be supervised by an executive board of the clean development mechanism.

5. Emission reductions resulting from each project activity shall be certified by operational entities to be designated by the Conference of the Parties serving as the meeting of the Parties to this Protocol, on the basis of:

(a) Voluntary participation approved by each Party involved;

(b) Real, measurable, and long-term benefits related to the mitigation of climate change; and

(c) Reductions in emissions that are additional to any that would occur in the absence of the certified project activity.

6. The clean development mechanism shall assist in arranging funding of certified project activities as necessary.

7. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, at its first session, elaborate modalities and procedures with the objective of ensuring transparency, efficiency and accountability through independent auditing and verification of project activities.

8. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall ensure that a share of the proceeds from certified project activities is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.

9. Participation under the clean development mechanism, including in activities mentioned in paragraph 3 (a) above and in the acquisition of certified emission reductions, may involve private and/or public entities, and is to be subject to whatever guidance may be provided by the executive board of the clean development mechanism.

10. Certified emission reductions obtained during the period from the year 2000 up to the beginning of the first commitment period can be used to assist in achieving compliance in the first commitment period.

Article 13

1. The Conference of the Parties, the supreme body of the Convention, shall serve as the meeting of the Parties to this Protocol.

2. Parties to the Convention that are not Parties to this Protocol may participate as observers in the proceedings of any session of the Conference of the Parties serving as the meeting of the Parties to this Protocol. When the Conference of the Parties serves as the meeting of the Parties to this Protocol, decisions under this Protocol shall be taken only by those that are Parties to this Protocol.

3. When the Conference of the Parties serves as the meeting of the Parties to this Protocol, any member of the Bureau of the Conference of the Parties representing a Party to the Convention but, at that time, not a Party to this Protocol, shall be replaced by an additional member to be elected by and from amongst the Parties to this Protocol.

4. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall keep under regular review the implementation of this Protocol and shall make, within its mandate, the decisions necessary to promote its effective implementation. It shall perform the functions assigned to it by this Protocol and shall:

(a) Assess, on the basis of all information made available to it in accordance with the provisions of this Protocol, the implementation of this Protocol by the Parties, the overall effects of the measures taken pursuant to this Protocol, in particular environmental, economic and social effects as well as their cumulative impacts and the extent to which progress towards the objective of the Convention is being achieved;

(b) Periodically examine the obligations of the Parties under this Protocol, giving due consideration to any reviews required by Article 4, paragraph 2 (d), and Article 7, paragraph 2, of the Convention, in the light of the objective of the Convention, the experience gained in its implementation and the evolution of scientific and technological knowledge, and in this respect consider and adopt regular reports on the implementation of this Protocol;

(c) Promote and facilitate the exchange of information on measures adopted by the Parties to address climate change and its effects, taking into account the differing circumstances, responsibilities and capabilities of the Parties and their respective commitments under this Protocol;

(d) Facilitate, at the request of two or more Parties, the coordination of measures adopted by them to address climate change and its effects, taking into account the differing circumstances, responsibilities and capabilities of the Parties and their respective commitments under this Protocol;

(e) Promote and guide, in accordance with the objective of the Convention and the provisions of this Protocol, and taking fully into account the relevant decisions by the Conference of the Parties, the development and periodic refinement of comparable methodologies for the effective implementation of this Protocol, to be agreed on by the Conference of the Parties serving as the meeting of the Parties to this Protocol;

(f) Make recommendations on any matters necessary for the implementation of this Protocol;

(g) Seek to mobilize additional financial resources in accordance with Article 11, paragraph 2;

(h) Establish such subsidiary bodies as are deemed necessary for the implementation of this Protocol;

(i) Seek and utilize, where appropriate, the services and cooperation of, and information provided by, competent international organizations and intergovernmental and non-governmental bodies; and

(j) Exercise such other functions as may be required for the implementation of this Protocol, and consider any assignment resulting from a decision by the Conference of the Parties.

5. The rules of procedure of the Conference of the Parties and financial procedures applied under the Convention shall be applied *mutatis mutandis* under this Protocol, except as may be otherwise decided by consensus by the Conference of the Parties serving as the meeting of the Parties to this Protocol.

6. The first session of the Conference of the Parties serving as the meeting of the Parties to this Protocol shall be convened by the secretariat in conjunction with the first session of the Conference of the Parties that is scheduled after the date of the entry into force of this Protocol. Subsequent ordinary sessions of the Conference of the Parties serving as the meeting of the Parties to this Protocol shall be held every year and in conjunction with ordinary sessions of the Conference of the Parties, unless otherwise decided by the Conference of the Parties serving as the meeting of the Parties to this Protocol.

7. Extraordinary sessions of the Conference of the Parties serving as the meeting of the Parties to this Protocol shall be held at such other times as may be deemed necessary by the Conference of the Parties serving as the meeting of the Parties to this Protocol, or at the written request of any Party, provided that, within six months of the request being communicated to the Parties by the secretariat, it is supported by at least one third of the Parties.

8. The United Nations, its specialized agencies and the International Atomic Energy Agency, as well as any State member thereof or observers thereto not party to the Convention, may be represented at sessions of the Conference of the Parties serving as the meeting of the Parties to this Protocol as observers. Any body or agency, whether national or international, governmental or non-governmental, which is qualified in matters covered by this Protocol and which has informed the secretariat of its wish to be represented at a session of the Conference of the Parties serving as the meeting of the Parties to this Protocol as an observer, may be so admitted unless at least one third of the Parties present object. The admission and participation of observers shall be subject to the rules of procedure, as referred to in paragraph 5 above.

Article 14

1. The secretariat established by Article 8 of the Convention shall serve as the secretariat of this Protocol.

2. Article 8, paragraph 2, of the Convention on the functions of the secretariat, and Article 8, paragraph 3, of the Convention on arrangements made for the functioning of the secretariat, shall apply *mutatis mutandis* to this Protocol. The secretariat shall, in addition, exercise the functions assigned to it under this Protocol.

Article 15

1. The Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation established by Articles 9 and 10 of the Convention shall serve as, respectively, the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation of this Protocol. The provisions relating to the functioning of these two bodies under the Convention shall apply *mutatis mutandis* to this Protocol. Sessions of the meetings of the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation of this Protocol shall be held in conjunction with the meetings of, respectively, the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation of the Convention.

2. Parties to the Convention that are not Parties to this Protocol may participate as observers in the proceedings of any session of the subsidiary bodies. When the subsidiary bodies serve as the subsidiary bodies of this Protocol, decisions under this Protocol shall be taken only by those that are Parties to this Protocol.

3. When the subsidiary bodies established by Articles 9 and 10 of the Convention exercise their functions with regard to matters concerning this Protocol, any member of the Bureaux of those subsidiary bodies representing a Party to the Convention but, at that time, not a party to this Protocol, shall be replaced by an additional member to be elected by and from amongst the Parties to this Protocol.

Article 16

The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, as soon as practicable, consider the application to this Protocol of, and modify as appropriate, the multilateral consultative process referred to in Article 13 of the Convention, in the light of any relevant decisions that may be taken by the Conference of the Parties. Any multilateral consultative process that may be applied to this Protocol shall operate without prejudice to the procedures and mechanisms established in accordance with Article 18.

Article 17

The Conference of the Parties shall define the relevant principles, modalities, rules and guidelines, in particular for verification, reporting and accountability for emissions trading. The Parties included in Annex B may participate in emissions trading for the purposes of fulfilling their commitments under Article 3. Any such trading shall be supplemental to domestic actions for the purpose of meeting quantified emission limitation and reduction commitments under that Article.

Article 18

The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, at its first session, approve appropriate and effective procedures and mechanisms to determine and to address cases of non-compliance with the provisions of this Protocol, including through the development of an indicative list of consequences, taking into account the cause, type, degree and frequency of non-compliance. Any procedures and mechanisms under this Article entailing binding consequences shall be adopted by means of an amendment to this Protocol.

Article 19

The provisions of Article 14 of the Convention on settlement of disputes shall apply *mutatis mutandis* to this Protocol.

Article 20

1. Any Party may propose amendments to this Protocol.
2. Amendments to this Protocol shall be adopted at an ordinary session of the Conference of the Parties serving as the meeting of the Parties to this Protocol. The text of any proposed amendment to this Protocol shall be communicated to the Parties by the secretariat at least

six months before the meeting at which it is proposed for adoption. The secretariat shall also communicate the text of any proposed amendments to the Parties and signatories to the Convention and, for information, to the Depositary.

3. The Parties shall make every effort to reach agreement on any proposed amendment to this Protocol by consensus. If all efforts at consensus have been exhausted, and no agreement reached, the amendment shall as a last resort be adopted by a three-fourths majority vote of the Parties present and voting at the meeting. The adopted amendment shall be communicated by the secretariat to the Depositary, who shall circulate it to all Parties for their acceptance.

4. Instruments of acceptance in respect of an amendment shall be deposited with the Depositary. An amendment adopted in accordance with paragraph 3 above shall enter into force for those Parties having accepted it on the ninetieth day after the date of receipt by the Depositary of an instrument of acceptance by at least three fourths of the Parties to this Protocol.

5. The amendment shall enter into force for any other Party on the ninetieth day after the date on which that Party deposits with the Depositary its instrument of acceptance of the said amendment.

Article 21

1. Annexes to this Protocol shall form an integral part thereof and, unless otherwise expressly provided, a reference to this Protocol constitutes at the same time a reference to any annexes thereto. Any annexes adopted after the entry into force of this Protocol shall be restricted to lists, forms and any other material of a descriptive nature that is of a scientific, technical, procedural or administrative character.

2. Any Party may make proposals for an annex to this Protocol and may propose amendments to annexes to this Protocol.

3. Annexes to this Protocol and amendments to annexes to this Protocol shall be adopted at an ordinary session of the Conference of the Parties serving as the meeting of the Parties to this Protocol. The text of any proposed annex or amendment to an annex shall be communicated to the Parties by the secretariat at least six months before the meeting at which it is proposed for adoption. The secretariat shall also communicate the text of any proposed annex or amendment to an annex to the Parties and signatories to the Convention and, for information, to the Depositary.

4. The Parties shall make every effort to reach agreement on any proposed annex or amendment to an annex by consensus. If all efforts at consensus have been exhausted, and no agreement reached, the annex or amendment to an annex shall as a last resort be adopted by a three-fourths majority vote of the Parties present and voting at the meeting. The adopted annex or amendment to an annex shall be communicated by the secretariat to the Depositary, who shall circulate it to all Parties for their acceptance.

5. An annex, or amendment to an annex other than Annex A or B, that has been adopted in accordance with paragraphs 3 and 4 above shall enter into force for all Parties to this Protocol six months after the date of the communication by the Depositary to such Parties of the adoption of the annex or adoption of the amendment to the annex, except for those Parties that have

notified the Depositary, in writing, within that period of their non-acceptance of the annex or amendment to the annex. The annex or amendment to an annex shall enter into force for Parties which withdraw their notification of non-acceptance on the ninetieth day after the date on which withdrawal of such notification has been received by the Depositary.

6. If the adoption of an annex or an amendment to an annex involves an amendment to this Protocol, that annex or amendment to an annex shall not enter into force until such time as the amendment to this Protocol enters into force.

7. Amendments to Annexes A and B to this Protocol shall be adopted and enter into force in accordance with the procedure set out in Article 20, provided that any amendment to Annex B shall be adopted only with the written consent of the Party concerned.

Article 22

1. Each Party shall have one vote, except as provided for in paragraph 2 below.

2. Regional economic integration organizations, in matters within their competence, shall exercise their right to vote with a number of votes equal to the number of their member States that are Parties to this Protocol. Such an organization shall not exercise its right to vote if any of its member States exercises its right, and vice versa.

Article 23

The Secretary-General of the United Nations shall be the Depositary of this Protocol.

Article 24

1. This Protocol shall be open for signature and subject to ratification, acceptance or approval by States and regional economic integration organizations which are Parties to the Convention. It shall be open for signature at United Nations Headquarters in New York from 16 March 1998 to 15 March 1999. This Protocol shall be open for accession from the day after the date on which it is closed for signature. Instruments of ratification, acceptance, approval or accession shall be deposited with the Depositary.

2. Any regional economic integration organization which becomes a Party to this Protocol without any of its member States being a Party shall be bound by all the obligations under this Protocol. In the case of such organizations, one or more of whose member States is a Party to this Protocol, the organization and its member States shall decide on their respective responsibilities for the performance of their obligations under this Protocol. In such cases, the organization and the member States shall not be entitled to exercise rights under this Protocol concurrently.

3. In their instruments of ratification, acceptance, approval or accession, regional economic integration organizations shall declare the extent of their competence with respect to the matters governed by this Protocol. These organizations shall also inform the Depositary, who shall in turn inform the Parties, of any substantial modification in the extent of their competence.

Article 25

1. This Protocol shall enter into force on the ninetieth day after the date on which not less than 55 Parties to the Convention, incorporating Parties included in Annex I which accounted in total for at least 55 per cent of the total carbon dioxide emissions for 1990 of the Parties included in Annex I, have deposited their instruments of ratification, acceptance, approval or accession.
2. For the purposes of this Article, “the total carbon dioxide emissions for 1990 of the Parties included in Annex I” means the amount communicated on or before the date of adoption of this Protocol by the Parties included in Annex I in their first national communications submitted in accordance with Article 12 of the Convention.
3. For each State or regional economic integration organization that ratifies, accepts or approves this Protocol or accedes thereto after the conditions set out in paragraph 1 above for entry into force have been fulfilled, this Protocol shall enter into force on the ninetieth day following the date of deposit of its instrument of ratification, acceptance, approval or accession.
4. For the purposes of this Article, any instrument deposited by a regional economic integration organization shall not be counted as additional to those deposited by States members of the organization.

Article 26

No reservations may be made to this Protocol.

Article 27

1. At any time after three years from the date on which this Protocol has entered into force for a Party, that Party may withdraw from this Protocol by giving written notification to the Depository.
2. Any such withdrawal shall take effect upon expiry of one year from the date of receipt by the Depository of the notification of withdrawal, or on such later date as may be specified in the notification of withdrawal.
3. Any Party that withdraws from the Convention shall be considered as also having withdrawn from this Protocol.

Article 28

The original of this Protocol, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations.

DONE at Kyoto this eleventh day of December one thousand nine hundred and ninety-seven.

IN WITNESS WHEREOF the undersigned, being duly authorized to that effect, have affixed their signatures to this Protocol on the dates indicated.

Annex A

Greenhouse gases

Carbon dioxide (CO₂)
Methane (CH₄)
Nitrous oxide (N₂O)
Hydrofluorocarbons (HFCs)
Perfluorocarbons (PFCs)
Sulphur hexafluoride (SF₆)

Sectors/source categories

Energy

Fuel combustion

Energy industries
Manufacturing industries and construction
Transport
Other sectors
Other

Fugitive emissions from fuels

Solid fuels
Oil and natural gas
Other

Industrial processes

Mineral products
Chemical industry
Metal production
Other production
Production of halocarbons and sulphur hexafluoride
Consumption of halocarbons and sulphur hexafluoride
Other

Solvent and other product use

Agriculture

Enteric fermentation
Manure management
Rice cultivation
Agricultural soils
Prescribed burning of savannas
Field burning of agricultural residues
Other

Waste

Solid waste disposal on land
Wastewater handling
Waste incineration
Other

Annex B

Party	Quantified emission limitation or reduction commitment (percentage of base year or period)
Australia	108
Austria	92
Belgium	92
Bulgaria*	92
Canada	94
Croatia*	95
Czech Republic*	92
Denmark	92
Estonia*	92
European Community	92
Finland	92
France	92
Germany	92
Greece	92
Hungary*	94
Iceland	110
Ireland	92
Italy	92
Japan	94
Latvia*	92
Liechtenstein	92
Lithuania*	92
Luxembourg	92
Monaco	92
Netherlands	92
New Zealand	100
Norway	101
Poland*	94
Portugal	92
Romania*	92
Russian Federation*	100
Slovakia*	92
Slovenia*	92
Spain	92
Sweden	92
Switzerland	92
Ukraine*	100
United Kingdom of Great Britain and Northern Ireland	92
United States of America	93

* Countries that are undergoing the process of transition to a market economy.

