

Introduction

Scientific evidence on climate change predicts that global mean temperatures will rise somewhere between 1.4 degrees centigrade to 5.8 degrees centigrade by 2100 relative to 1990 (Nakicenovic and Swart, 2000). Anthropogenic greenhouse gas (GHG) emissions are identified as the main cause behind climate change. In 1992, 150 countries adopted the UN Framework Convention of Climate Change (FCCC), which laid the guidelines to lead a global solution to the climate change problem. The FCCC proposed to deal with the issue through the principles of “common but differentiated responsibilities”, “equity”, “respective capability”, “cost efficiency” and “sustainable development”, requiring the developed countries to take lead in combating climate change (Article 3, UNFCCC, 1992). The Kyoto Protocol (KP) amended the UNFCCC in 1997. The KP set binding national targets for emission reductions for the Annex 1 parties (industrialized countries) for the year 2008-2012. Reductions could be achieved domestically or in overseas markets through the use of “flexibility instruments”. The Clean Development Mechanism (CDM) is one such flexibility instrument that involves developing countries. Through CDM, developed countries could gain credits for emission reduction projects undertaken in developing countries. Today, there is strong and growing evidence in India of projects and attempts towards the CDM. The key purpose of this paper is to present empirical evidence of some of these responses.

Developing countries have always been under pressure to take up commitments to reduce emissions alongside the developed countries. This pressure was reintensified in October 1997 when the US made a demand for “meaningful participation” by developing countries and later declared its ratification of KP contingent on “meaningful participation” (Ott and Oberthur, 2001)¹. While the demand for meaningful participation was made, its proponents left the

¹ US ratification is seen essential to the success of KP because US is responsible for majority of historical, present and future emissions of GHG's. Its ratification is seen as a signal for other industrialized countries to ratify the KP. Hence so much importance is being accorded to this term.

definition rather vague (Pachauri, 1998, Luterbacher and Sprinz, 2000). Many researchers have thereafter argued that non-participation in reducing emissions is a Northern misconception and that developing countries have been making enough efforts to reduce their emissions. Price reforms in energy sector and coal subsidies, coupled with climate friendly voluntary policies in the field of energy conservation would not only lead to GHG reduction (Ramakrishna, 1997) but might place developing countries much ahead of developed countries in terms of carbon savings² (Reid and Goldemberg, 1997). Pachauri and Sharma (1999) highlight India's achievements in renewables and increases in energy efficiency due to price reforms as the right steps that could be counted towards GHG reductions. Some of these measures relating to energy efficiency in energy sectors have reduced the emissions of developing countries by as much as 5% below what emissions would have been in case these measures were not undertaken (Larsen and Shah 1995 cited in Repetto, 2001). Along similar lines, India's massive program for wind energy development under the 1992 Five year Plan (Rahman, 1997) and a major program for solar energy projects (UNFCCC, 1997) can be counted as an action towards reducing emissions.

A secondary purpose of this paper is thus to discuss and add to the growing literature on ways and means by which developing countries, particularly India, have been participating in reducing their emissions to prevent climate change. Most of these studies, however, indicate that these measures have been undertaken for reasons other than climate change³. In contrast, CDM is an instrument adopted under an international treaty whose main purpose is to combat climate change⁴.

² Given the fact that not many of the developed countries were able to reduce their emission as promised in the FCCC.

³ Carbon savings have been produced as a result of other national policies.

⁴ This in no way means that CDM is the best solution to produce carbon savings for developing countries.

The US call for “meaningful participation” also motivated several responses⁵, which attempted to define meaningful participation in terms of efforts such as CDM or policies towards energy efficiency (Kuik and Gupta, 1998, Repetto, 2001). The meaningful participation demand was prompted by the Byrd Hagel resolution of July 1997 in the US Senate, which prohibited the US, from ratifying a Protocol that did not mandate new specific scheduled commitments for developing countries (Senate 98, 105th Congress: see Appendix 1). This paper argues that, interpreted in the light of this resolution and the emerging consensus in the North for developing country commitments (Najam and Sagar, 1998, Sagar and Kandlikar, 1997), the efforts of developing countries to use CDM or other efforts in renewable energy or energy efficiency may not satisfy this demand for “meaningful participation.” Further, meaningful participation, which might mean quantified commitments, does not take into consideration “equity”, a key criteria for developing country participation. Developing countries have often defined equity in terms of an explicit and fair allocation of GHG emission quotas. Full participation can only result when Southern demands are given equal importance.

Chapter 1 of this paper presents a short account of international negotiations that preceded CDM. **Chapter 2** provides a background on CDM. **Chapter 3** outlines the responses and efforts being undertaken towards CDM by key stakeholders in India. This information is obtained from websites of involved institutions and interviews of key persons concerned with these activities. **Chapter 4** develops the argument that developing country participation in CDM might not be adequate to satisfy the demand for meaningful participation raised by the US. It advocates reviving the debate on allocation of GHG emission quotas as a long-term solution. Finally, **Chapter 5** concludes that India needs to undertake a comprehensive review of its formal and informal carbon saving measures, which will assist it in putting forth a demand for GHG allocation quotas.

⁵ From both developing and developed country researchers.

1: A Brief History of Climate Change Negotiations

The aim of this section is to provide a short history of climate change negotiations. I begin with details of global greenhouse emissions. I then outline some of the international efforts to address climate change issues.

1.1 GHG Emissions

Before starting a discussion on climate change responses it is important to consider why climate change is an important issue, what its sources are, and whom it is most likely to affect.

Recent reports from Intergovernmental Panel on Climate Change (IPCC) claim that the range of global warming has been unprecedented within the last 10,000 years (Houghton et al, 2001). The changing climate will endanger many ecosystems, human welfare and life on earth in general. The stakes associated with the projected climate change are thus high (McCarthy et al, 2001). As a solution, to prevent this catastrophe, IPCC suggests that high⁶ and immediate cuts in GHG emissions are needed to stabilize the atmospheric concentrations of the gases responsible for climate change (Houghton et al, 1990)⁷.

A country wise breakup of GHG emissions shows a stark difference between developed and developing countries. In 1998, the developed countries accounted for 50% of the total energy related carbon dioxide emissions while developing countries in Asia accounted for 22% (Metz et al, 2001). A cumulative picture of emissions from 1900 to 1999, shows that US and Canada have contributed a lion's share of 25% of total GHG emissions, while the share of developing Asia is a mere 19% (Baumert and Kete, 2001). Considering emissions on a per capita basis,

⁶ Cuts of over 60% in long-lived gases such as CO₂ are required.

⁷ However there are skeptics who disagree to the idea that climate is indeed changing. For example, Harris (2000) notes that the Bush Administration never accepted the scientific assessments of the IPCC. But the majority of scientific community agrees to the fact.

reveals an even greater disparity. In 1999, developed countries had an emission rate of 3.3 carbon tons per capita per year, while developing countries had an emission rate of 0.54⁸ (International Energy Outlook, 2002). While a rapid rise in emissions in the developing countries makes their future emissions comparable with the developed world, the projections from 1999-2020 show that the per capita emissions in 2020 in developed countries will still be much higher at 4.0 vis-a vis 0.73 carbon tons per capita per year in the developing world (International Energy Outlook, 2002)⁹.

Data on distributive effects of climate change shows that the effects of climate change are expected to be greatest in developing countries in terms of loss of life and effects on the economy¹⁰ (McCarthy et al, 2001). Countries with the least resources or developing countries are the most vulnerable as they have lesser capacity to adapt to adverse affects of climate change, which depends on a variety of factors such as wealth, technology etc. (McCarthy et al, 2001).

1.2 International Attempts to Counter Climate Change

This section illustrates the key events in the international climate change negotiations, highlighting the differences in positions and demands of developing and developed nations and the consensus that emerged at each stage of the negotiations. It details India's intervention, stressing its role in the climate change negotiations. The responses towards CDM in India (detailed in Chapter 3) are a direct result of this involvement.

⁸ The per capita carbon emission rates for 1999 are calculated using total emissions figures and population figures from International Energy Outlook, 2002.

⁹ For instance, Metz et al (2001) note that the energy related CO₂ emissions in developing Asia rose in 1998 at a rate of 4.9% while developed country emissions rose at a rate of 1.6%. International Energy Outlook 2002 using slightly different projection rates shows that the emissions in 2020 of the developed countries will be 4900 million metric tons while the developing countries will be 4542 million metric tons. Further, US emissions will increase to 6.4 per capita in 2020 while India's emissions will still be a low at 0.36 per capita.

The climate problem first recognized in the 1830's by Fourier and later in 1897 by Arhenious (Gupta, 1997) was made noticeable in 1930s through the findings of G. D. Callandar (Patterson, 1996; Morisette, 1996). Scientific consensus on the seriousness of the problem that emerged in the first World Climate Conference in Geneva in 1979 was politicized in the 1985 Villach Conference (Patterson, 1996). Subsequent workshops held in Villach and Bellagio in 1997 discussed distribution of costs amongst countries for combating climate change. They concluded that developed countries had superior financial and technical resources; developing countries would require international assistance to combat climate change (Rajan, 1997).

In 1988, the United Nations Environmental Program (UNEP) and the World Meteorological Organization (WMO) constituted the Intergovernmental Panel on Climate Change (IPCC), which became the premier scientific and technical advisory body on climate change issues. Through the 1988 Toronto Conference on Changing Atmosphere, a Non Alignment Movement (NAM) summit in 1989 and a New Delhi Conference of Select Developing Countries in the same year, there emerged a common theme of the primary responsibility of developed countries to combat climate change (as they were the main source of emissions) and the need for development assistance for the developing countries (Rajan, 1997). In contrast, the 1989 Noorwidjk Ministerial Conference and a 1989 G7 Paris Summit called for "common action" from all countries¹¹, though did stress the need for Northern countries to assist Southern countries (Rajan, 1997).

The UNCED and the FCCC

The UN Framework Convention on Climate Change (FCCC) signed in the 1992 United Nations Conference on Environment and Development (UNCED) in Rio was the first international treaty

¹⁰ IPCC 1996c as cited in (Sharma S and Kavi Kumar K S, 1998) notes: It is expected that while developed countries might lose 1-2% of their Gross National Product or GNP, developing countries might lose 2-9% of their GNP.

¹¹ It should be noted that these conferences did not acknowledge the historical responsibility of the North for GHG emissions and called for both developed and developing country participation.

to address the global climate change issue (Morissette, 1996). The FCCC was a result of two years of intense negotiations, which mirrored some of the concerns that were brought up in the earlier conferences. Throughout the negotiations, the developing countries maintained the general stance that developed countries are historically responsible for causing climate change, hence they should take up the main responsibility of addressing the problem (Dasgupta, 1994). They also highlighted that these countries possess the greatest financial and technological resources to address the problem. India, in particular, noted that the an “equitable” solution to the climate change problem would only result if developed countries reduce their per capita emissions so that over a period of time this converges with the rising per capita emissions of the developing world which will grow in the natural course of development (Rajan, 1997). On the other hand, the developed countries deemphasized their responsibility of causing climate change and hence the need for taking action. The developed countries thus sought binding commitments from all countries. Developing countries (who felt that they were not responsible for the problem) did not want any binding commitments in the Convention. They were, however, prepared to accept voluntary commitments conditional upon the provision of new and additional financial resources from developed countries to “fully” implement these climate change measures (Dasgupta, 1994).

The FCCC was finally adopted in May 1992. Through its Preamble, it noted that the majority of historical and current GHG emissions have originated in developed countries while the share of developing countries is low and it will grow to meet their developmental needs (Preamble, UNFCCC, 1992). The UNFCCC goes on to specify principles that should guide this process: equity, common but differentiated responsibilities, precaution, cost-effectiveness, the right to sustainable development, and the avoidance of arbitrary restriction on international trade (IPCC, 2001). It also required the developed country parties to take the lead in combating climate change. All parties (developing and developed) were required to prepare national inventories of

GHG emissions and promote and cooperate in processes that limit anthropogenic GHG emissions (Commitments, Article 4, UNFCCC, 1992). They were also required to take climate change considerations into account while formulating their relevant social, economic and environmental policies (Article 4, UNFCCC, 1992). The developed country parties were committed to adopting national policies and measures to limit GHG emissions and bring them down to 1990 levels. This would demonstrate that developing countries were taking lead in modifying the trends of their emissions (Article 4, UNFCCC, 1992). The extent to which developing countries would implement their commitments (mentioned above) was contingent on developed countries implementing theirs relating to resource and technology transfer (Article 4, UNFCCC, 1992). This implementation would also take into account that developing countries had economic and social development as their overriding priorities (Article 4, UNFCCC, 1992). The onus of action thus lay on the developed countries for combating climate change (Gupta, 1997; Bartsch and Mueller, 2000). The FCCC, signed by 152 countries in 1992, was later ratified by 186 countries¹², including India and the US. Ironically, hardly any of the developed countries were able to stick to their voluntary commitments and bring down their emission levels in the subsequent years (Bartsch and Mueller, 2000)¹³.

For providing financial and technological assistance to developing countries, the Global Environmental Facility (GEF) was created. Another instrument called Joint Implementation (JI) was proposed, where developed countries could undertake emission reduction projects in developing countries to meet their commitments. Both GEF and JI faced significant opposition from developing countries. Gupta (1997) reports that developing countries, which were initially opposed to the idea of GEF as an interim operating entity for the mechanism of financial transfer,

¹² Based on current data on the UNFCCC site accessed on May 18, 2002:
http://unfccc.int/cop6_2/convkp/index.html

were induced to accept the GEF since no other alternative was offered to them and they wanted access to available funds. The developing countries were inherently suspicious of the industrialized countries' using instruments such as Joint Implementation (where developed countries could undertake emission reduction projects in developing countries to meet their commitments) to evade domestic action.

The FCCC also set the stage for the annual conference of parties (COP) where parties to the FCCC would meet for negotiating climate change issues and actions. COP 1 in 1995 accepted a pilot phase of Activities Implemented Jointly (AIJ) as a compromise (Bartsch and Mueller, 2000) against the former controversial JI. Through AIJ, developed countries could invest in developing countries for GHG mitigation projects¹⁴. The pilot phase of AIJ was expected to pave the way for another concept, the Clean Development Mechanism (CDM) later on (TERI, 1998). Yamin (1995) notes that the Indian delegation played an important role in achieving AIJ.

All parties to the FCCC met a few times before the first annual Conference of Parties (COP-1) in 1995 in Berlin. Issues of tightening up commitments of industrialized countries were raised. These were vehemently opposed by the US and Australia, who suggested that if their commitments were to be strengthened, the developing countries should also start taking up commitments. To this, developing countries argued that no new commitments would be negotiated unless the state of existing ones (of developed countries) is known (Patterson, 1996).

¹³ Harris (2000) also notes that even the financial and technical transfers the developed countries promised in the FCCC have been modest so far.

¹⁴ Under AIJ, developing country parties had to request participation of developed country parties. No credits are issued to any party.

At COP-1, India and fifty other developing countries circulated a green paper which stated that while developing countries opposed any new commitments, they were open to cooperation amongst developing and developed countries under existing commitments. This would lead to an iterative process where ultimately all countries would collaborate to prevent climate change (ECO, 1995). Finally, the “Berlin mandate” was adopted to strengthen developed country commitments beyond the year 2000, based on the premise that the current voluntary commitments for emission reduction were inadequate, while no such commitments were mandated for the developing countries (Anderson, 1995). Patterson (1996) notes that India was instrumental to brokering the deal in Berlin, which led to the strengthening of commitments. In the end, an Ad Hoc Group on the Berlin Mandate was established to begin this process through a legally binding Protocol.

At the next Conference of Parties in 1996 (COP2), the US finally agreed to a legally binding protocol. However, this changed position was linked to the acceptance of tradable permits or emissions trading (Earth Negotiations Bulletin, 1996)¹⁵. In 1997 before the third Conference of Parties (COP3), the US put forth a renewed demand for developing country participation, which it called “meaningful participation” in its negotiating position (Earth Negotiations Bulletin, 1999). In retaliation, the developing countries produced evidence that even without formal commitments they were already taking significant steps to curb their growth of emissions (UNFCCC, 1997)¹⁶.

COP3 and the Kyoto Protocol

The Kyoto Protocol (KP) signed by 160 parties amended the FCCC in December 1997. The KP divided the countries into two categories, Annex 1 (developed countries and economies in transition) and Non Annex 1 (developing countries). Based on the principle of “common but

¹⁵ A contrasting account is presented by Bhandari (1998), which says that in 1996, the US changed its position to adopt legally binding emission cuts but made it contingent on similar commitments by other countries.

differentiated responsibilities”, the KP established legally binding emissions limits for Annex 1 countries while no such commitments were proposed for the Non-Annex 1 countries. Industrialized countries were expected to reduce their emissions by 5.2 % from the baseline year of 1990 for the commitment period of 2008-2010¹⁷. Annex 1 parties were also expected to make demonstrable progress on their commitments by 2005 (Article 3, Kyoto Protocol, 1997) though the first commitment period would run from 2008-2012.

GHG mitigation could be achieved through domestic measures or market based instruments involving other countries called “flexibility mechanisms”¹⁸. The US fought tooth and nail to build as much flexibility in the KP as possible: “the US was successful in negotiating various forms of international emissions trading at Kyoto, including the CDM and both project and national level emission trading amongst Annex 1 countries” (Repetto, 2001). The eagerness of the industrialized countries to meet most of their commitments through trading¹⁹ was offset by the successful introduction of the supplementarity provision by G77 supported by the European Union (CSE, 1998). The supplementarity provision (Article 17) allowed only a certain portion of emission reduction to be met through trading, while the rest would be met through domestic action²⁰.

Article 12, or the Clean Development Mechanism, is the most important flexibility mechanism as it involves the developing countries. Termed as the “Kyoto surprise”, CDM essentially involves developing country participation. The CDM is a project-based mechanism, where developed

¹⁶ Acknowledging the note, the Chairman of the meeting said that this showed clear progress on the part of developing countries as against the demand for commitments made by certain countries such as the US.

¹⁷ US has to reduce by 7 %, Japan has to reduce by 6% while Australia can increase by 8% by 1990. It is interesting to note that an industrialized country can increase its emissions while developing countries are being asked to take up commitments.

¹⁸ The flexibility instruments were the European Bubble (Article 4), Joint Implementation (Article 6), International Emissions Trading (Article 16) and the Clean Development Mechanism (Article 12).

¹⁹ If countries meet all their emission reduction requirements through trading this would result in no actual action domestically.

²⁰ The US and other developed countries want to meet their commitments as cost effectively as possible. Flexibility instruments in the Protocol would allow them to shop for cheap abatement options around the world.

countries can undertake projects in host or developing countries and gain credits towards their emission reduction commitments. Its acceptance was termed as a *volte face* on the part of developing countries, which had opposed any form of participation till date (Grubb, 1999). A more detailed description of the CDM is presented in Chapter 2.

Following the demand for meaningful participation made earlier (prior to COP3), the US also included a demand for emissions trading with mandatory commitments for all countries (Earth Negotiations Bulletin, 1997). Later the US proposed that a developing country assuming voluntary commitments²¹ could gain new resources and technology through emissions trading (Earth Negotiations Bulletin, 1997). Developing countries reiterating their opposition to new commitments, argued that economic development was their highest priority²², they had low per capita emissions and they should not be deprived of the environmental room they needed to grow. They also argued that such commitments were against the “common but differentiated responsibilities” clause, which asks developed countries to show leadership. Responding to the idea of emissions trading, the developing countries demanded that the determination and creation of “equitable” emission entitlements based on the per capita criterion should be a prerequisite to emission trading (UNFCCC, 1998).

²¹ This article on voluntary commitments called Article 10 was dropped at the insistence of G77 and China.

²² They argue that taking up a quantified commitment would fix a cap on their emissions and would hinder development, which is not only their priority but their right too.

The US Administration signed the Kyoto Protocol in 1998. It could not however, be ratified because the Senate prohibited the Administration to agree to any Protocol that did not pose similar commitments on developing countries in the same time period²³. According to the US, the emissions in the developing world were rising fast and their aggregate emissions would equal the emissions of the developed world soon.

COP4 to COP7

Developing country participation was again one of the core issues at the fourth Conference of parties (COP-4) in Buenos Aires though G77 and China made every attempt to resist legally binding emission commitments. COP-4 resulted in the Buenos Aires Plan of Action, which set a deadline for parties to reach an agreement to give effect to the Kyoto Protocol. COP-6 met in Hague to finalize the Kyoto Protocol. “Disagreements over many issues including Kyoto’s flexibilities and still rising emission trends in most industrialized countries, were too great and the talks collapsed”(Vrolijk, 2001). While the US President Bush withdrew from the Protocol²⁴ in March 2001, 180 countries still met in Bonn for COP6-Part 2. COP7 in Marrakesh produced a ratifiable treaty without the US²⁵. India agreed to host COP8 in November 2002.

1.3 Summary

Early on and later through the climate change negotiations, the developing countries have maintained that the historical responsibility for the bulk of emissions and hence the major responsibility to find solutions rests with developed countries; the developed countries have stressed on “common action” from all countries to solve the global problem of climate change.

²³ See Appendix for details of the Byrd Hagel Resolution.

²⁴ Bush said that he opposed the KP because it exempted 80% of the world namely developing nations such as India and China from making emission reductions and thus was unfair to the Americans.

²⁵ The future of ratification of this treaty is uncertain because of the US withdrawal from this treaty.

The 1992 FCCC lay the initial responsibility of action on the developed countries since a) developed countries possess superior technical and financial resources; b) developing countries have other overriding priorities like poverty alleviation; c) developing countries need technology and financial resources to combat climate change; and, d) the bulk of emissions have arisen in developed countries. The developed countries, particularly the US, have always argued for developing country commitments often interpreted as legally binding quantified commitments. This demand was intensified in 1997, when the US made its own participation contingent on “meaningful participation” of developing countries, whose aggregate emissions would supersede the developed countries in the next twenty years. The Bush government withdrew from the Protocol on this account. This latest demand contradicted the FCCC mandate, which was ratified by many countries including the US, by shifting the responsibility for action onto developing countries. The developed countries have resisted quantified commitments because they feel this will hamper their economic development and they have low per capita emissions. However they are not against participation and cooperation in the first round of commitments in the Kyoto Protocol. They have stepped forward to agree to Activities Implemented Jointly in 1995 and later to the CDM, which would allow Northern nations to gain credits for reductions in developing countries²⁶. The developing countries have also asked for a fair and equitable allocation of emission quotas, a demand that has been relegated to the background due to the considerable focus on meaningful participation and developing country commitments.

²⁶ India agreed to host CDM projects in 1999. Also, one of the reasons why developing countries accepted CDM was the benefit they would gain from foreign investment.

2: Background on CDM

The aim of this chapter is to familiarize the reader with the Clean Development Mechanism. First, I provide a short history of CDM. Second, I present an overview of the concept of CDM. Third, I describe how a typical CDM project operates. Fourth, I identify the various forms of CDM highlighting the balance of participation of host and investor countries.

2.1 The History of CDM

The CDM, initially proposed as a Clean Development Fund (CDF) by Brazil, was meant to be a fund for non-compliance penalties of developed countries, which would facilitate emission reduction projects in developing countries²⁷. According to Goldemberg (1998), the CDM was a result of a political compromise when the US wanted emissions trading with mandatory reduction commitments for all countries. This was unacceptable to the G77 and China. Voluntary commitments suggested as an alternative, was also not accepted. Under the leadership of US, the CDM emerged as a form of “joint implementation for credit”²⁸, thus combining the ideas of “joint implementation” and “emissions trading” (Toman and Cazorla, 2001) and involved certified voluntary developing country participation”(Earth Negotiations Bulletin, 1997).

Through the CDM projects, Annex 1 countries could gain emissions reduction credits in developing countries. The CDM was resisted by India and China. It was a way to make developing countries participate (Panayatou, 1998; Mwandosya, 1998; Toman and Cazorla, 2001), which had been refusing to take on commitments till then (Cavard et al, 2001). The CDM

²⁷ The Brazilian Proposal aimed to develop an allocation framework for assigning responsibility to the climate change problem based on historical contribution of each country. This would be used to assign emission targets: failure to meet these targets would result in a penalty fund called the CDF (Banuri, 2001).

²⁸ Term mentioned in Bureau of Oceans and International Environmental and Scientific Affairs, 1998

would also prepare developing countries to face possible future emission limitations or reduction commitments (Siniscalco et al, 1998; Panayatou, 1998).

2.2 The CDM

Article 12 of the Kyoto Protocol explains that the purpose of CDM is to “assist” Non-Annex 1 parties in achieving sustainable development and to contribute to the ultimate objective of the Convention. CDM would assist the Annex 1 Parties in achieving cost-effective GHG mitigation. Annex 1 parties could take up projects in developing countries (i.e. Non Annex 1 countries), which would generate “certified emission reductions” that could be used by Annex 1 Parties to offset their own commitments²⁹.

The CDM, which caught the fancy of many, thus generated a rapidly growing literature and a flurry of expert meetings around the world (Grubb, 1999). What are some of these ideas?

The CDM is a private sector effort

First, the CDM was expected to be largely a private sector driven effort. This would be so because the bulk of emissions in Annex 1 countries arise from the private sector (thus they would need to seek cost efficient solutions such as CDM) and private sector capital flows in towards developing countries in the 1990’s rose faster than that of overseas development assistance (Kete et al, 2001). The primary goal of the CDM was to guide foreign corporate investment into developing countries towards sustainable development (Grubb, 1999).

Efficiency and Equity perspectives in the CDM

The basic theory of emission trading drives the economic rationale behind the CDM. The CDM allows for cost efficient reduction of GHG emissions by locating the project where the marginal abatement costs are the lowest. Countries differ with regard to marginal abatement costs because of their different dependencies on production activities that emit GHGs, resource efficiency and dependence or access to energy sources (Ott and Sachs, 2000). Under these conditions both trading entities gain as long as the costs of reduction differ. The CDM promoters herald it as a win-win partnership for both developed and developing countries³⁰. For industrialized countries, CDM could be additional to Joint Implementation in achieving cost efficient emission reductions; for developing countries CDM could be “a new channel for financial assistance, investments to promote sustainable development, technology transfer from developed nations and a vehicle for promotion of equity to achieve more holistic objectives of the Kyoto Protocol” (Goldemberg, 1998).

The CDM has however aroused a mixed set of assessments and expectations with regards to who would benefit the most. Skeptics point out the flaws in this rosy situation of mutual gain. When CDM is implied as cost effective this means that industrialized countries have acquired something that would be otherwise expensive to obtain in their own country. The cost incurred in a CDM project is in lieu of a carbon credit. This credit is taken from the account of the developing country and subtracted from the emission budget of the developed country. It is thus necessary that the developing countries also get fair or equitable gains. In order to gain the most cost efficient solution equity could be put at stake:

²⁹ Emission reductions would be certified on the basis of criteria such as voluntary participation, real, measurable and long term benefits related to mitigating climate change and emissions additionality.

³⁰ One of the biggest supporters of CDM as a win-win option is the US itself. See Text of US Energy Secretary Bill Richardson’s Speech (1999).

1. The low hanging fruit problem:

Efficiency demands that the cheapest abatement option is the best option. Thus CDM could function as a cheap and efficient deal to assist developed countries in meeting their commitments wherein the South would be required to sell the economic rights of its future generations for a few dollars (Agrawal and Narain, 1998). If the ‘low hanging fruit’ picked by a developed country early on it will not be available to the future generations of the developing countries. They will have to resort to more expensive abatement options when it is their turn to accept commitments. Parikh (1993) notes that the current cost of many options might be as low as \$10-25 per ton of carbon; the same options in the future, might cost as high as \$200-300 per ton. Thus developed countries could be “buying Manhattan for the price of a few glass beads” and developed countries would be devoid of the credits true worth later on. Banking of certified emissions reductions by developed countries exacerbates the problem further. It amounts to buying the rights for a petty sum today and using them when the best profits can be reaped (Ott and Sachs, 2000).

In order to achieve maximum efficiency, the developed countries might also try and pick the most toxic low hanging fruit problem. CSE (1998) notes that coalwashing costs as low as \$3/ carbon ton, the cost of afforestation is \$21 and cost of investment in rail freight infrastructure is \$221. Obviously the industrialized country seeking low cost abatement options will pick up the lowest cost opportunity. Cheap deals like “hot air”, where the price of carbon is as low as \$ 20 per ton further aggravate the issue (CSE, 1998). By picking the low cost abatement options for meeting their commitments cost efficiently and not pursuing the more expensive options (such as renewable energy) the CDM could again lock the world into a fossil fuel path that developing countries need to avoid. Such cheap options will also act as a disincentive to making domestic reductions in the industrialized country. Thus both social equity and ecological effectiveness will be sacrificed for the sake of economic efficiency. The low hanging fruit problem also signifies the tension between the two goals of a CDM project: compliance vs. sustainable development. A

project that might be suitable for compliance might not be the best to bring about sustainable development.

2. Setting of a price of the CER: As in a normal trade, gains occur to both the buyer and seller in a CDM transaction in terms of consumer and producer surplus. The cost of abatement to Annex 1 decreases from purchases of CERs (consumer surplus) from Non-Annex 1 countries. This reduction is the consumer surplus. Gains for non Annex 1 is the money realized from the sale of CERs at global marginal costs (or the market clearing price) and is similar to the producer surplus. However the implicit assumption here is that the entire amount of credits generated by the non Annex B is sold at the “global marginal cost” or market-clearing price (Painuly, 2001). In the case of CDM it has not been ascertained as to how the price of a CER will be determined. Parikh (1993) notes that since the CDM is a project based mechanism and the developing countries might lack capacity for negotiating a fair deal, or might have incomplete information, the CER price that they obtain might be much lower than what would be obtained in a competitive market. Gains for a developing country are maximum when the price of the CER is close to the market-clearing price (that is price is not negotiated but the market sets the price); gains decline sharply as the CDM carbon prices move closer to actual carbon supply costs. Parikh (1993) explains that when cost savings are based on incremental costs then the developing countries are deprived of their fair share and all savings accrue to developed countries. Incremental costs are those, which are required to change a system from conventional to carbon reducing technologies. These costs are higher in developed countries where labor is expensive and energy efficient technologies are being used. In such a case all the savings, both the consumer and producer surplus will accrue to the developed countries. Ortolano (1997) notes the same principle in case of emissions trading: if the price of the permit fluctuates the regulatory agency needs to set a correct and stable price for the permit. Setting a stable price for the CER can also

cure the low hanging fruit problem since this will exclude the very low priced projects which only tantamount to compliance and do not bring about any sustainable development.

3. Sharing the CERs: Sokona et al (1998) note the equity dimension in sharing of certified emission reductions between Annex 1 and Non-Annex 1 countries. Non-Annex 1 parties cannot sell their reductions directly in the market or gain from its profit making aspect. The Annex 1 country, which once bought the CER could potentially sell the CER to a higher bidding country. This negates the developing countries from having an equitable deal. Some developing countries have argued that as a matter of equity, a portion of the credits be apportioned to them which they could sell in the market or bank for future use. Such a sharing of credits would have a direct bearing on the cost efficiency of the CDM.

4. Determination of permits: For efficient functioning, a market-based system requires determination of allocation of permits. In case of the CDM, the allocation issue has been temporarily settled by choosing the baseline method against which the emission reductions are measured though the developing countries had argued for an “equitable allocation of permits”. However the demand for meaningful participation necessitates reviving this issue. Two kinds of methods have been proposed for distributing emission permits: the “per capita” method by the developed countries and the “grandfathering” by the developed countries (a detailed discussion of these issues is undertaken in Chapter 4). Developing countries stand to gain the maximum from the CDM if there is an equitable allocation of emissions or per capita allocation (Painuly, Agrawal, Undated). Since their per capita emission are low this will give them surplus emissions to trade. This method is unacceptable to the developed countries, which have high per capita emissions. In Kyoto the emissions permits were distributed on the basis of grandfathering. The developed countries were supposed to revert their emissions to a particular baseline year (1990). Based on grandfathering the developing countries would need to adopt growth caps and perhaps

in a year such as 2030 they would be asked to revert their emissions to 2010 levels or even freeze the emissions at a certain level in a particular year (Parikh, 1993). Grandfathering has been strongly resisted by developing countries as they feel such caps would hinder their development. It is also considered inequitable, as it does not punish those who had been more profligate in the past.

2.3 Some Technical and Operational issues in the CDM:

The aim of this section is to introduce some technical complexities involved in the CDM. Tied to technical complexity is the issue of host country technical and institutional capacity to carry out CDM projects. A typical CDM project requires significant technical knowledge as indicated by the activities in a typical CDM project cycle depicted in Table 1³¹:

Table 2.1: A Typical CDM Project Cycle

Phase	Typical Activities	Key Institutions
1. Project Development, Design and Financing	Project identification and formulation, conducting feasibility and baseline studies, financing, seeking government approval and assurance (CDM projects for certification might need to fulfill certain criteria some of which may be: extent of technology transfer, existence of agreements for sharing project benefits, project liability), insurance options in case of project failure.	National governments, Project developers, NGOs, Development Banks and other investors, Insurance institutions
2. Validation and Registration	Approval of project baseline and additionality, ensuring adequate monitoring provisions, ensuring public comment, registering project with CDM Executive board.	Independent third parties, CDM Executive Board
3. Project Implementation	Technology implementation, technology maintenance.	Project operators
4. Project Monitoring	Checking project performance, keeping records Technology maintenance.	Project operators
5. Verification, Certification and Issuance of Credits	Assessing quantity of emission reductions achieved, verification of emission reductions, certification and issuance of certified emission reductions.	Independent third parties, CDM Executive Board

³¹ The information in this section is mostly taken from Baumert and Kete (2000) and somewhat from Toman and Cazorla (2001).

Besides the technical and operational difficulties involved (which could be overcome through capacity building) it would also be worthwhile to note that emission trading as a market-based instrument is not so popular in certain countries. For example, the traditional approach in Europe has been to rely more on carbon taxes than emissions trading.

2.4 Types of CDM³²

Four different types of CDMs have been proposed:

1. Bilateral CDM: In this model, most of the CDM activities such as project selection, financing and sharing of credits is worked out directly between Annex 1 and Non-Annex 1 parties on a project-by-project basis. The bilateral CDM is preferred more by the private sector and industrialized countries. The CDM is seen as a key flexibility instrument whose main purpose is to reduce compliance costs (Yamin, 1998). This approach modeled on the Activities Implemented Jointly principles is favored by the private sector, industrialized countries and several large developing countries where the majority of the foreign direct investment is concentrated and where the markets are relatively better developed than say markets in Africa. Another concern with the bilateral projects is the high transaction costs that might favor more capital-intensive projects rather vis-a-vis the small renewable energy projects. It might not lead to investment in the key sectors that the developing countries might want to develop. Bilateral CDM, which depends on a project transaction, might also not be very favorable to the developing country parties, which lack the capacity to negotiate CER prices placing the developing countries on an unequal footing with the developed country partner.

2. Multilateral CDM: This is also known as the portfolio approach where funds from Annex 1 countries are collected in a centralized fund and then channeled towards project activities in

developing countries (in an entity like the Prototype Carbon Fund in the World Bank). Since the developing countries do not directly negotiate with the private sector, the power imbalance between negotiators is not as much as in the case of the bilateral CDM. This approach will also mitigate the geographical imbalances that might occur in project investments where some developing countries are favored over others.

3. Unilateral CDM: The whole exercise of project development, financing, and all the associated risks are concentrated in the host countries. Thus the host countries should have enough capacity and resources to select, develop, finance and operate a CDM project on their own. Unilateral projects are expected to be more consistent with developing country priorities. The concern regarding the low hanging fruit could be suitably addressed through this type of CDM as developed countries will no longer be able to avail the cheapest and the most attractive options. In fact since there are no rules that specify as to what constitutes a CDM project, policies such as removal of coal subsidy policies or price reforms in the energy sector can be treated as policy projects as well under unilateral CDM.

4. Hybrid CDM: This is like the unilateral model in which all project selection and development occurs through the domestic institutions. Financing is sought from domestic and international sources to finance a portfolio of projects through a centralized mechanism (multilateral CDM).

2.5 Summary

The CDM was meant to be a way for introducing developing country participation in the KP, possibly leading to emission limitation commitments later on. The CDM expected to be a private sector driven effort is a voluntary activity. While the CDM is economically efficient there is a

³² Data for this section is mostly taken from Baumert and Kete (2000) Other sources, if used, have been mentioned alongside.

need to ensure that it does not become simply an instrument of compliance but also perpetuates equity and ecological effectiveness. The type of CDM determines the balance of participation by host and investor countries. Certain types of CDM might be more favored by developing countries. The CDM, a new concept, both theoretically and in practice, is beset with functional and operational difficulties. The acceptance of the CDM might also be affected by the philosophical traditions, which dictate the environmental policy of a country.

3: Responses in India towards the CDM

In this chapter, I examine the responses in India towards the CDM. In particular, I detail the responses of key stakeholders: the government, the NGOs and the private sector.

3.1 Response of the Government

India has played a strong role in climate change negotiations (see chapter 1). In 1995, the Government of India (GOI) agreed to host Activities Implemented Jointly (AIJ) projects. In 1996, the Ministry of Environment and Forest (MOEF) set up an AIJ task force consisting of representatives from several government departments, which set up a process for selecting and evaluating AIJ projects. In 1997 and 1998, the GOI endorsed five AIJ projects (CO2E, Undated). This was done with the aim of initiating a learning process, which would later translate into more complex activities such as the CDM (ITUT, Undated).

Initially, the GOI was opposed to the idea of CDM. In 1999, Katie McGinty and Karl Hausker, chair of the US Council of Environmental Quality and a senior official in the US Environmental Protection Agency respectively, came to India as senior visiting fellows at the Tata Energy Research Institute (TERI) for a year. Through this year they worked to convince business organizations and GOI to accept the CDM. Their visit was closely followed by the visit of the US Energy Secretary, Bill Richardson, which led to the signing of the Indo-US Joint Statement on Co-operation in Energy and Related Environmental Aspects (Reported in McGinty and Hauskar, 2001). The next important milestone was the Indo-US Business Dialogue on the CDM held from May 21-29, 1999 at the White House in Washington, DC³³. The outcome was a consensus that

³³ This event was attended by many senior executives from the private sector in US such as American Electric Power and Enron, senior Indian industrialists, representatives from the Indian government, the United States Agency for International Development (USAID), Katie McGinty, the Secretary of US Department of Treasury, etc.

the CDM was a win-win partnership for both countries (Indo-US Business Dialogue, 1999). 1999 thus marked a significant turnaround on the Indian government's policy on CDM³⁴. While promotion of CDM opportunities by the US government³⁵, efforts of business organizations such as Confederation of Indian Industries (CII) could be a factor, part of the reason for this pro-CDM position could be the change in the office of the policy maker itself. The key official at MOEF who was opposed to CDM, left the organization³⁶. The Indian government initiated active promotion of CDM in 1999 (CO2E, Undated). The new person in charge holds a pro-CDM view³⁷. In 2000, the GOI signed the Indo-US Joint Statement on Cooperation in Energy and Environment³⁸ (Indian Embassy, 2000). Through this bilateral agreement, the GOI accepted to cooperate with US in implementing CDM projects. A "Working Group on the FCCC" including a separate group to deal with Kyoto Mechanisms was set up in the MOEF (ITUT, Undated).

GOI thereafter made its stand towards the CDM clear by its active participation in various events relating to climate change and acknowledging the benefit potential of CDM for developing countries³⁹.

³⁴ A mixed account is present regarding when the GOI actually changed its stance towards the CDM. For instance, McGinty and Hauskar (2001) write that the Joint Statement signed in 1999 was the first formal signal that India was reappraising its position on CDM. The Joint Statement signed in 2000 was a strong signal that India was ready to engage in the CDM in a positive, proactive manner. On the other hand, Sagar (2000) writes that it is heartening to note that while signing the Joint Statement in 1999 the Indian government did not blindly consent to the US regarding the CDM.

³⁵ A detailed account of the efforts of US government can be found in McGinty and Hauskar (2001).

³⁶ Personal Communication, Chandrashekhar Sinha, Climate Change Team, World Bank, April 25, 2002.

³⁷ AK. Mehta says that while GOI is open minded to CDM they are concerned about the size of CDM. Personal Communication, A.K. Mehta, MOEF, 2002

³⁸ This statement signed between the Madeleine Albright (in the presence of Bill Clinton) and Jaswant Singh, Ministry of External Affairs in March, 2000 had some paragraphs talking about Indo-US cooperation in CDM.

³⁹ For example, speaking on a TERI sponsored Indo-Australian Business meet, Mr Vasudevan, Additional Secretary, Ministry of Power (MOP), said: "India is trying to articulate a national strategy on CDM. The CDM offers tremendous opportunity for the developing countries to promote sustainable development"(TERI, 2001).

The Bush Administration in the US has halted any government involvement in India towards the CDM. Nonetheless, the Government of India continues to be active. For example, the Ministry of Non-Conventional Energy Sources (MNES) has initiated two CDM projects ideas relating to bagasse and biomass generation. The World Bank Prototype Carbon fund is assisting this ministry in operationalising and publicizing the projects. The detailed project planning and implementation will be carried out by private industries⁴⁰. The MOEF is also conducting roundtables to outline the details of the CDM along with key organizations such as the Confederation of Indian Industries, the Tata Energy Research Institute and Development Alternatives.

The GOI has also taken a lead in hosting the next Conference of Parties (COP8) in Delhi in November 2002. There is some anticipation that the GOI will ratify the Kyoto Protocol⁴¹ (The Economic Times, 2002). But, while the GOI is eager to participate in the Kyoto regime, this in no way reflects its preparedness to tackle the issues in the upcoming climate change negotiations or a carefully thought out and prepared strategy for COP8⁴², or on CDM⁴³. Lack of a clear government policy makes CDM projects high-risk projects in the eye of investors⁴⁴.

3.2 Responses of the Private sector

The private sector, as discussed here, includes business organizations and private industries.

⁴⁰ Personal Communication, Chandrashekhar Sinha, World Bank, April 25, 2002.

⁴¹ The KP needs 55 countries to ratify it while 49 have already done so. However it cannot come into operation since incorporating Parties 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. (Article 25, Kyoto Protocol).

⁴² Personal Communication, Chandrashekhar Sinha, Climate Change Team, World Bank, April 25, 2002. and Eric Brejla, Louis Berger Group, Washington DC, April 25, 2002.

⁴³ Sandeep Tandon thinks that the government does not have a definite plan regarding CDM and specially carbon trading. It does not even know how much CDM investment is expected. Personal Communication, Sandeep Tandon, USAID-India, Delhi, January 8, 2002.

⁴⁴ Personal Communication, Ron Sisseem, Louis Berger Group-India, Delhi, January 9, 2002.

Business organizations

Confederation of Indian Industries (CII)⁴⁵ is the premier business organization representing the interests of the Indian Industry. Seizing upon the opportunity for the foreign investment flows that CDM promises, CII has been active on various fronts.

In collaboration with the United States Agency for International Development (USAID) and Louis Berger Group (LBG) they have initiated a Climate Change Center. The activities of the center include spreading awareness of climate change issues, building consensus on the CDM among the Indian industry, building local capacity to develop climate change mitigation projects, and developing CDM projects. For example, to spread awareness and build partnerships, CII organized a Roundtable on "Climate Change and Indian Industry: Preparing for the year 2000". By organizing such roundtables on a regular basis, the CII has brought together industry representatives who could act as possible project partners and share financial and technical information in carrying out CDM projects. CII circulates a regular newsletter and maintains a climate change website. Some of their efforts have been international. For instance, they helped organize the Indo-US Business Roundtable⁴⁶. Another key activity of the climate change center has been to analyze business opportunities arising due to CDM⁴⁷. Through a Project Information Bank they also collect ideas on CDM projects from other private sector firms and link project planners with national and international finance institutions.

⁴⁵ Information about CII is obtained from: <http://www.ciionline.org/busserv/climatechange/index.html>

⁴⁶ Some details of this business dialogue have been given in Chapter 1.

⁴⁷ For example, a study commissioned by the CII in July 1999 on investment potential of CDM in India. estimated that FDI could bring in investment of the order of \$360 million or \$2.4 billion per year (7-15% of the total foreign direct investment flows).

CII has been active locally. The Green Business Center initiated by CII in 1999 in Hyderabad assists the local industry in designing GHG emissions reduction strategies and works with the government of Andhra Pradesh to build state level policies to attract CDM investments.

CII initiated CDM activities in India by planning a portfolio of about 30 GHG mitigation projects. In the year 2000, 15 of these projects were reassessed and reformulated by the Louis Berger group (an international consulting company), as a part of a larger subcontracted USAID project as potential CDM type projects.

Though initially much of the support for CDM activities came from the US government, CII is now continuing on its own. In fact, CII officials express their disappointment at the sudden withdrawal of the US government, which has affected the financing of the CDM projects⁴⁸. Many of the CDM projects are facing financing problems. One of the reasons cited is the low price of carbon in the international market⁴⁹. While the CII had anticipated a carbon price of \$25 per ton; the prevailing price is \$2-3 per ton of carbon in 2002⁵⁰. The Kyoto market has been left thin with low market prices because of the withdrawal of the US (Vrolijk, 2001). The carbon price has a direct bearing on the technological innovation; not much technological additionality can be bought with 2-3 dollars⁵¹. Thus foreign financing not forthcoming (especially from the US which was instrumental in the acceptance of the CDM by India), financing is being sought from Indian institutions (such as Infrastructure Development and Financing Corporation, State Bank of India) and a few international sources (like Oregon Climate Trust Fund).

⁴⁸ Personal Communication. Rahul Kshetrapal, CII, Delhi, January 8, 2002. Katie McGinty, one of the key people who promoted CDM says that they have no contact with CII now. Personal communication, Katie McGinty, Natsource, Washington DC, April 24, 2002.

⁴⁹ Personal Communication. Rahul Kshetrapal, CII, Delhi, January 8, 2002. Sandeep Tandon, Personal Communication, USAID-India, Delhi, January 8, 2002.

CII is also an important player in other aspects of CDM such as certification. For example, since most CDM projects are high-risk projects they require some liability insurance. For this purpose CII has identified about 18 certification companies. Some of these are local Indian firms undertaking ISO 14000 certification, while others are Indian branches of multinationals such as Lloyds Register, etc⁵².

Along with the CII, two other organizations are involved in promoting CDM. The Federation of Indian Chamber of Commerce is responsible for disseminating information on CDM through a website. Credit Rating Information Services India, Limited has been instrumental in evaluating the finance potential of CDM and arranging financing for CDM projects (Chatterjee, 2000).

Private firms

A number of individual firms have been active in carrying out AIJ projects⁵³. For example, ESSAR India, a large private sector firm with coal and mining operations is carrying out an AIJ project in Gujarat funded by New Energy Development Organization, Japan. The project aims to generate direct reduced iron through efficient technology. Another AIJ project relating to agroforestry, funded by US, is being hosted by a farmer's cooperative group called ADAT in Bagepalli, Karnataka.

With regards to CDM, currently one CDM project is being undertaken by Energy Developments Limited, an Indian affiliate of an Australian private sector firm in the area of waste

⁵⁰ Personal Communication. Rahul Kshetrapal, CII, Delhi, January 8, 2002.

⁵¹ Personal Communication. Rahul Kshetrapal, CII, Delhi, January 8, 2002.

⁵² Personal Communication, Chandrashekhar Sinha, Climate Change Team, World Bank, April 25, 2002.

⁵³ Information on AIJ projects is obtained from: <http://www.ccasia.teri.res.in/aij.htm>

management⁵⁴. This project will convert the entire waste stream that would otherwise be converted to greenhouse gases, to electricity, thus also replacing electricity, which would ordinarily be produced from fossil fuels. The project is also expected to bring about technology additionality since a new and innovative technology will be introduced to India from Australia. This project is partially funded through the Prototype Carbon Fund of the World Bank. Thus this project became the first in India to receive a Host Country Letter of Endorsement. This private sector company will also receive a capital subsidy of Rs. 150 million from the GOI (the total project cost is Rs. 1.8 billion and GOI support constitutes 8.33% of the capital) and will develop the project on a Build, Own and Operate basis. The monitoring and verification will be carried out by independent agencies appointed as per the terms of reference of the CDM. Some CDM projects are being carried out through private funding in Bangalore and Chennai⁵⁵.

A number of other CDM projects are currently under planning or are in operation by various stakeholders. A total of 30 CDM or CDM type projects have been prepared, out of which 14 have received approval from the Ministry of Environment and Forests⁵⁶. Eleven of these (relating to renewable technology) worth 30 million dollars have been funded by the Dutch government.

3.3 Response of the NGOs and Research Institutes

Most of the work on climate change and policy is being carried out by a handful of national level NGOs and Research Institutes.

⁵⁴ Personal Communication, Ajay Mathur, World Bank, March 5, 2002. Sunand Sharma, EDL-India, March 31, 2002.

⁵⁵ Personal Communication, Eric Brejla, Louis Berger Group, Washington DC, April 25, 2002 and Chandrasekhar Sinha, World Bank, Washington DC, April 25, 2002.

⁵⁶ Personal Communication, Chandrasekhar Sinha, World Bank, Washington Dc, April 25, 2002.

Development Alternatives (DA)⁵⁷

Development Alternatives is the first NGO in India to host an AIJ project. The project called DESI-power, a biomass gasification project, is being implemented at twenty sites in India. Similar to the Confederation of Indian Industries, Development Alternatives has initiated a Climate Change Center. Through this center and with USAID support, Development Alternatives has helped design greenhouse gas mitigation projects or CDM type projects. It is working to build institutional capacity for CDM stakeholders. It is assisting financial institutions in India in evaluating greenhouse gas emissions reduction projects and developing appraisal tools. It is imparting technical training to municipal officials on energy generation from solid waste. DA is also engaged in outreach activities to build co-operation between Indian and U.S. stakeholders through joint research and policy and business roundtables.

Tata Energy Research Institute (TERI)⁵⁸

TERI is a research and policy NGO with a strong focus on global issues. TERI has been the most active NGO in the climate change front. TERI has undertaken more than forty projects in the area of GHG mitigation and CDM. Through these projects TERI has engaged in GHG inventorying, institutional capacity building, identification of GHG mitigation opportunities and institutional design of the CDM. For example, TERI carried out one of the first studies on vulnerability and impacts of climate change for India (called Climate Change in Asia⁵⁹) and developed a portfolio of GHG mitigation projects (called ALGAS⁶⁰) in Asia. Collaborating with other research institutes such as the World Resources Institute, USA, TERI identified the key sectors for CDM

⁵⁷ Most of the information in this section is obtained from the Development Alternatives website: <http://www.devalt.org/da/esb/gesg/active.htm>

⁵⁸ Most of the information for this section is taken from the Tata Energy Research Institute website: <http://www.teriin.org/division/padiv/cger/cger.htm>

⁵⁹ This project is called: Climate Change in Asia undertaken from 1992-94 for Asian Development Bank.

⁶⁰ This project is called: Asia Least-cost Greenhouse Gas Abatement Strategy (ALGAS) done in cooperation with National Physical Laboratory.

investment opportunities in India⁶¹. Alongwith Pembina Institute, Canada, TERI is working on developing CDM pilot projects for Canadian investors. It has also undertaken a number of capacity building projects for AIJ/JI⁶². Some of TERI's efforts have been directed towards sensitizing the corporate sector, creating awareness about international negotiations and providing technical assistance for carrying out AIJ and CDM activities⁶³. TERI has also played a role in advising the government on CDM⁶⁴.

In addition to engaging in research on operationalising CDM, TERI has been active in bringing CDM and climate change stakeholders together through meetings and workshops⁶⁵. The fact that TERI's President, Dr. Pachauri, has been elected as the Chairman of Intergovernmental Panel for Climate Change gives greater visibility to India and Indian NGOs in climate change mitigation.

Center for Science and Environment (CSE)⁶⁶:

CSE is a policy and advocacy NGO. Most of its campaign and research work is related to equity issues in climate change negotiations. CSE promulgated the idea of "the equal entitlements to the atmosphere," which for some time was a central theme of developing country arguments in

⁶¹ This project called "Opportunities to developing countries from capital flow from developed countries under the CDM of the Kyoto Protocol" was carried out for World Resources Institute, 1988.

⁶² TERI carried out two such projects: AIJ in India funded through New Energy and Industrial Development Organization in 1998 and Joint implementation funded by Netherlands Energy Research Foundations in 1997.

⁶³ TERI's in house project called TREAT or TERI Repository of Environmental Activities and Technologies engages in these activities.

⁶⁴ It recently advised the Ministry of Power on CDM opportunities in the power sector.

⁶⁵ For example, the 2001 Indo-Australian Bilateral Meet on CDM brought together a large number of participants from the industry, government agencies, research organizations, and NGOs from India and Australia (TERI, 2001)

⁶⁶ Most of the information in this section is taken from the Centre for Science and Environment website: <http://www.cseindia.org/html/cmp/cmp33.htm#cam>

climate change negotiations. According to this idea, every human being has an equal right to the atmosphere. The atmosphere should be divided equally on a per capita basis after deciding on a safe limit of carbon dioxide (carbon dioxide entitlements). This theory is based on the notion of “ecospace.” Industrialized countries have already used up their ecospace and thus need to reduce emissions while developing countries still need their ecospace to develop and hence can increase their emissions. CSE also opposes the CDM in its present form, which it views as allowing northern countries to buy cheap abatement options.

The CSE has largely played a watchdog role, informing the GOI and larger research community on climate change. For example, the CSE was instrumental in informing the GOI about the flaws in a 1990 World Resource Institute report. This report showed that the annual GHG emissions from the developing world were growing and would overtake the developed world soon and thus exaggerated the South’s responsibility of climate change⁶⁷(Rajan, 1997). The CSE has also been instrumental in motivating the GOI take a more active stance in the climate change negotiations (Chatterjee, 2000).

Winrock India⁶⁸

Winrock, India is an affiliate of an international nonprofit organization based in Arkansas, US. Winrock is preparing India’s first national communication about sector wise GHG emissions and adaptation strategies. This communication will fill the gap that exists in the country in terms of information on GHG emissions and help India fulfill its commitments regarding communications

⁶⁷ This CSE Report was: Agrawal and Narain (1991). Global Warming in an Unequal World. CSE, Delhi.

⁶⁸ Information on Winrock is accessed from: <http://www.winrockindia.org/wedo1d.htm>.

of GHG emissions under the UNFCCC. Winrock is also engaged in preparing India-specific baselines for key off-grid Renewable Energy Technologies in India.

Other Institutes⁶⁹

The Indira Gandhi Institute for Development Research, a research institution in Mumbai, has done considerable work on consumption patterns, energy demand and carbon emissions in India. The Indian Institute of Management, Ahmedabad is engaged in developing methodologies for additionality and baselines for CDM projects. The National Physical Laboratory in Delhi has been instrumental in conducting research on the human dimensions of global climate change. The Center for Atmospheric Sciences at the Indian Institute of Technology-Delhi is working on anthropogenic factors of global warming, actual and anticipated changes in India's climate and examining the relationship between climate change and monsoons.

3.4 Summary

The GOI, which till recently opposed CDM, changed its anti-CDM stance in 1999. Promotion of the CDM in India by the US and efforts of organizations such as the Confederation for Indian Industries have influenced this change in the government policy on the CDM. The Ministry of Environment and Forests, as a lead climate change mitigation agency in India, is planning to host COP-8 in the year 2002. Other ministries, such as the Ministry of Non-Conventional Energy Sources, are also planning a strong role in initiating CDM in India. NGOs like the Tata Energy Research Institute and Development Alternatives, as well as business groups are working to create awareness, capacity building and planning of CDM projects. While there seems to be some collaboration between the GOI and organizations such as TERI and DA, CSE (the key group that

⁶⁹ This information is taken from Chatterjee (2000).

put forth the equal entitlements approach) has been sidelined in the whole activity⁷⁰. Interestingly, their approach of equal atmosphere rights based on per capita emissions has been an important element in India's negotiating position (see Chapter 1). A series of conclusions can be drawn regarding the nature of CDM. First, it appears that the CDM in India is emerging as more of a host country driven effort. When the CDM becomes a vehicle driven by a host country, then it can no longer be called a process where an Annex 1 country is "assisting" a Non-Annex 1 country achieve "sustainable development". The fact that most of the efforts are emerging in the host country, planning is dominated by Indian institutions (in certain instances initiated by GOI), and some of the financing is being sought from Indian institutions suggest that a unilateral or hybrid form of CDM is emerging. However, it would be too early to categorize it thus, as the CDM efforts are still fledgling and mostly at the planning stage.

Second, the CDM, which was expected to be a private sector driven effort earlier, now includes heavy involvement by both the government and NGOs in India. This might result in a CDM that is better aligned with national development priorities, rather than a CDM which is solely driven by compliance targets of Annex 1 countries (bilateral CDM). It will also build host country capacity in undertaking such activities (rather than being totally dependent on foreign technology and expertise) if market-based instruments are to dominate climate change policies.

On the flip side, it is not clear whether India has undertaken a thorough review of its capacity to carry out the CDM, which is a market-based mechanism. Developing countries like India (which are unfamiliar with market based instruments) might not have the necessary institutions and market knowledge to adequately engage in this endeavor⁷¹. Countries such as the US (where the sulphur dioxide trading program originated) have well defined market institutions; no parallel

⁷⁰ This is so because they are opposed to CDM.

institutions exist in India. This places the developing country on an unequal footing against its developed country partner in the CDM market. It is also not clear whether, in this newfound fervor for the CDM, there has been a thorough assessment of what other carbon emission reduction methods might be present (suitable to a developing country), and which might be a better alternative to the CDM.

This analysis of CDM also leads to following reflections on India's "participation" in climate change mitigation:

Participation is early action: Developing countries including India are not big polluters at present but their responsibility lies in the future if their emissions continue to grow at a fast rate. There is evidence that India is not only undertaking the CDM but also a number of other activities relating to climate change mitigation. **Participation is voluntary:** CDM is voluntary and India's undertaking it shows that India is willing to share the burden of future emissions⁷².

Participation is Active: CDM has emerged over time. Chapter 1 reveals many instances in the climate change negotiations which show that India has been an active participant in terms of brokering policy, and negotiations, and in generating consensus on issues such as AIJ.

Participation is difficult: Despite the technical, legal and financial difficulties involved, a number of CDM initiatives have sprung up in India. This shows that India is making attempts to deal with the climate change problem though it might lack sufficient technical expertise.

In brief, India has persisted with the CDM, although the US government has withdrawn from it⁷³.

⁷¹ This is not to say that such knowledge cannot be built.

⁷² This participation is not due to any philanthropic reasons but India does possess good potential for CDM projects and stands to gain from the foreign investments (though its not clear how much now that the US has withdrawn from the Kyoto market).

4: A Need for Allocation of Global Carbon Emissions

Is CDM sufficient as a mechanism of “meaningful participation”? This chapter reviews the history of meaningful participation and suggests that the CDM may not be sufficient. This paper suggests that to seek a long-term solution to the recurring demand for developing country commitments and ensure actual participation, “equity”, a key concern of developing countries needs to be given center stage in climate change negotiations.

4.1 The History of Meaningful Participation

Chapter 1 notes that throughout the climate change negotiations there has been some pressure on developing countries to take up commitments for emission reductions alongside the developed countries. The pressure on developing countries was intensified in 1997 when the US made its participation in the Kyoto Protocol contingent on “meaningful participation” from developing countries. In July 1997, the US Senate passed the Byrd Hagel resolution by a full vote of 95-0. This resolution forbade the administration from participating in any protocol, which would mandate new commitments for the US unless new specific scheduled commitments to reduce GHGs were mandated for developing country parties in the same compliance period, and which would harm the US economy.

Thus in October 1997, the US administration stated that unless developed countries “meaningfully participate” in this effort it would not assume binding commitments (Bryner, 2000). But the proponents of meaningful participation were unable to spell out exactly what they meant (Pachauri, 1996; Luterbacher and Sprinz, 2000; Nature, 1997). When Argentina decided to assume voluntary commitments at COP5, the US heralded this decision as constituting the right kind of “meaningful participation” by a developing country (Tebo, 1998). As Chapter 2 notes

⁷³ Again, this is not to say that India is carrying out CDM for any philanthropic reason.

CDM emerged as a compromise solution to the US demand for mandatory commitments for all countries.

4.2 Can CDM be meaningful participation?

The call for meaningful participation (which was vague and undefined), thus prompted responses to define it. For example, Repetto (2001) writes that developing countries actively engaged in CDM could be portrayed as participating meaningfully. If accepted, this would break the deadlock of the US ratification.

However, interpreted in the light of the Byrd-Hagel resolution and the earlier demands for commitments by Northern countries it appears that the proponents of meaningful participation are looking for early quantified binding emission reduction commitments or growth caps on emissions for a certain future year from developing countries. Thus linking CDM to meaningful participation might not be able to satisfy this tall order. Any effort, be it CDM (under a formal climate regime) or policies to promote energy efficiency (not relating to a formal climate regime) might be held inadequate against this yardstick of “meaningful participation”.

As a result, there needs to be a long-term solution to the recurring demands for developing country participation and commitments. The debate is thus about the participation of developing countries in global climate change abatement efforts in the long run, what should be the best system to involve them and what should be the nature of commitments they should adopt.

4.3 Meaningful Participation, Equity and Future Commitments

The demand for meaningful participation or growth caps for a certain future year is unpalatable to developing countries. There are many reasons for this resistance, the main one being that

“growth caps” as perceived antagonistic to “development” which has been recognized as the key priority by developing countries through the climate change negotiations and the FCCC. Indeed a global solution would be required to solve the climate change problem but it cannot be accomplished if this important priority (of any developing nation) is ignored (Baumert et al, 1999; Philbert and Pershing, 2002). Developing countries argue that such growth caps (which are based on uncertain future emissions) will exacerbate the already existing inequities between nations. Carbon emissions are inextricably linked with economic growth and higher standard of life and thus to socio-economic or development based equity (Banuri, 2002). Often couched in the demand for an equal right to global commons or the “equitable” emission entitlements or “environmental room for growth” (see chapter 1), is this assertion for the fundamental right to the opportunity for economic progress and improvement in the standard of living enjoyed by those who have or have enjoyed greater access to the global commons (Banuri, 2002).

A long-term solution to the global climate change problem, which requires “meaningful participation” from developing countries thus cannot be fashioned if ‘equity’, a key consideration for developing countries (Nature, 1997, Mueller, 2002) is not taken into account. Equity has often taken a backseat against other demands (Banuri and Siegfried, 2000; Sagar and Banuri, Undated), in this case meaningful participation. The developing countries will be equal partners in climate change mitigation only if they are convinced of the fairness of burden sharing or equity (Byrne, 1998). Environmental policies can be hampered or even blocked by those who consider them “unfair”(IPCC, 2001). Unless their needs of economic development and equity are put center stage in the negotiations they cannot be expected to participate fully. While equity might not be the magic key to unlock the doors of participation by all, the literature on equity and climate change argues that incorporating equity concerns will help generate support for mitigation efforts (IPCC, 2001).

4.4 Conceptual and Operational Dimensions of Equity⁷⁴

The most commonly addressed theme in equity is that of the right to global commons and right to development as mentioned above. Equity considerations, however have given rise to a number of approaches and options to achieve a more “equitable” solution to the climate change burden sharing. Different developing countries might favor a particular approach and an equitable solution will need to consider all these aspects. The IPCC (2001) proposes a four-class taxonomy of equity based on: rights, liability, poverty, and opportunity. Before listing these concepts and approaches it is essential to recapitulate the criteria on which countries can be differentiated. These criteria have been frequently invoked in climate change negotiations (Chapter 1) and have given rise to five equity concepts. These are namely (Banuri and Siegfried, 2001):

- Ability or willingness to pay
- Capacity to respond
- Vulnerability to impacts
- Responsibility for impacts
- Income and aspirations for development

The five equity concepts are as follows (the IPCC recognizes only four):

1. Rights-based Equity: This is based on equal rights to the global commons. This type of equity has often been undermined by India and China, independently and with respect to emissions trading. This approach advances solutions like “contraction and convergence” (Meyer, 1999), whereby net aggregate emissions decline to zero, and per capita emissions of Annex I and non-Annex I countries reach converge at a particular point. Though the initial analysis has been based on a single criterion of equal per capita (or population) allocation later analysis has explored alternative allocation formulas that consider factors such as geographical area, historic use,

⁷⁴ While a number of other equity taxonomies, for example see: Rose et al (2001) exists this section uses the IPCC (2001) taxonomy assuming it might be the most acceptable.

economic activity, or combinations of these. 'Equitable' entitlements allow "surplus" permits generated by countries with low per capita emissions to be sold to other countries, leading to a transfer from rich to poor countries. Thus it provides incentives to both developing and developed countries to reduce their emissions, as emissions rights become a scarce commodity. Such an approach promises distributional equity, efficiency, and sustainability. In fact maximum gains from the CDM for the developing countries can be realized if equitable entitlements are adopted. Such an approach not only gives greater attention to Southern perspectives (Sagar and Banuri, 2001) but also allows setting up a framework for implementing the Convention in a logical, consistent and fair manner (Najam and Sagar, 1998).

2. Liability-based Equity: These solutions are based on the belief of that its people have a right that they should not to be harmed by others' actions unless a suitable compensation is paid to them. Damages caused by the caused by overuse of the commons need to be penalized and victims of damages need to be compensated. This dimension of equity has been particularly endorsed by the small island states (an increase in sea level might submerge the island states) who have proposed an insurance scheme to mitigate the risk impacts that may result from climate change. This issue of contribution was also highlighted by the Brazilian Clean Development Fund proposal. However it has not been given as much footage as other equity proposals because its difficult to establish liability form historical emissions.

3. Poverty-based Equity: This is based on the need to protect the poor and vulnerable against the impact of climate change. Roughly 2 billion people in the world exist at levels of consumption, which do not pose a threat to the climate. This large population which uses a minimal amount of fossil fuel and has not contributed to the climate change problem has been totally neglected in the

climate debate. It is important to consider them because they might bear a higher fraction of costs of solutions as compared with their richer counterparts (Sagar and Banuri, 2001). These poor and vulnerable communities also lack the flexibility to adapt to global changes or global agreements. Thus options based on this approach propose investment in capacity building and protection for the poor and vulnerable groups to enable them to enhance their livelihoods. Options of promoting renewable energy in the developing countries which also relate to the sustainable livelihoods (renewable projects are usually small scale and hence appropriate for scattered and low-income populations) also fall under this approach. This equity issue also follows approaches, which seek an explicit distribution of emission rights within the countries, which differentiates rich and poor groups or a make a distinction between luxury and survival emissions.

4. Opportunity-based or Rights to Development Equity: are based on the right of people for the opportunity to achieve a standard of living (which has been enjoyed by those with greater access to the commons). No restrictions should be placed on the ecospace in the developing countries. This has again been endorsed by countries like India and China and is almost similar to the rights to global commons approach which perceives carbon emissions to be linked to economic growth and development.

The discussion of equity will not be complete without discussing a dominant equity conception in the West:

5. Burden based Equity: This conception of equity, advanced mostly by the developed countries, is more of a compromise approach based on the ability and willingness to pay. While the other considerations of equity have been invoked from time to time, the ability to pay has dominated the discussion. Developed countries fail to recognize the per capita or liability based

approach and has accepted the differentiated commitments more on the basis of the fact that they have a higher capacity to pay. In addressing this approach GDP based criteria have been used. (Grubb, 2001).

4.4 Per Capita, Grandfathering and Carbon Emission intensities

The per capita allocation approach⁷⁵ has been much celebrated in the equity discussions and finds a number of variants alongwith other “equitable” allocational formulas (such as per capita historical emissions which can count as a liability based approach, or different allocations within a country which counts as a poverty or vulnerability based approach). According to the simplest per capita approach once the emission entitlements are apportioned based on a per capita approach, in order to prevent interference to the world’s climate system, both the North and the South will have to reduce their emissions substantially. The North will have to reduce its current carbon emissions of about 3 tonnes per capita and the South of its 0.5 tonnes per capita to 0.25-0.3 tons per capita (Agrawal, Undated). However apportioning the atmosphere on a per capita basis is not enough. A change in the carbon trajectory will require a rapid shift towards zero-carbon energy options; sole focus on energy efficiency measures will pose a serious risk to a zero-carbon world. Energy efficiency methods could lock in a fossil fuel world for a longer time and lock out the renewable energy systems (Agrawal, Undated). The per capita approach is thus inflammatory not only for the fact that it divides the atmosphere on a per capita basis which means strict reductions of emissions in developed countries but also it prescribes zero carbon based systems as the only means of ecologically effective action.

On the opposite end of the end of spectrum of allocation formulas is the “status quo” or the grandfathering approach, which is advocated by the developed countries as meaningful

⁷⁵ All four equity approaches listed above can be expressed considering per capita as a core concept.

participation and requires developing countries to adopt growth caps. The grandfathering approach, which allocates emission quotas proportionate to the current emissions, not only holds the past emitters blameless but establishes their current emissions as a status quo based on past usage and custom (Grubb, 1995). Grandfathering does not recognize the equity issues that are important to developing countries (mentioned earlier) and hence it is unacceptable. It has received widespread attention as a default allocation in the absence of any other agreement though no one advocates it as an equity principle in its own right (Grubb, 1995). The only ethical basis offered for grandfathering is referred to as “equal burdens”⁷⁶. In case of the Kyoto Protocol, this principle was used to allocate equal reduction quotas amongst the industrialized countries pertinent to a baseline year. The choice of the baseline year for grandfathering is highly uncertain. The baseline issue is particularly critical for developing countries where good databases do not exist and prediction of emission rates is highly uncertain (Baumert et al, 1999). In case a stringent growth cap is adopted for them using this approach it would leave no room for development. On the other hand if a lax cap is applied it is ecologically ineffective. For example, if a stabilization level of 450 ppm is chosen the developing countries such as India would be required to participate in reduction activities in a few decades and at much lower levels of income as for the average Annex 1 countries (Berk and Elzen, 2000). Parikh (1993) notes another flaw in choosing such an adhoc baseline year. Choosing 1990 as a base year fallaciously assumes that 1990 level is higher than 1980 and 1993 is higher than 1990: in reality this may not be true. Emissions fluctuate more so in case of developing countries. Say if the emissions in 1980 were higher than the 1990 and 1980 is chosen as a base year will this allow certain countries to increase emissions. Developed countries once they go back to the higher levels of 1990 are allotted the right to pollute (Parikh, 1993). Also, such an approach, which allows the polluters to simply buy their way through could potentially lock the world in a fossil fuel economy. Not only is the choice of the year adhoc but grandfathering also ignores the fact the developed countries are already enjoying a higher

⁷⁶ Muller (2001) offers a divergent view recognizing grandfathering as an equity principle in its own right.

standard of living vis-à-vis other countries. In fact this problem is highlighted by the creation of so-called Russian hot air. Russia, despite having a higher standard of living than developing countries is allowed to profit on the surplus emissions that its economic slowdown has create. Based on grandfathering the developing countries would need to adopt growth caps and perhaps in a year such as 2030 they would be asked to revert their emissions to 2010 levels or even freeze the emissions at a certain level in a particular year (Parikh, 1993). Grandfathering has been strongly resisted by developing countries as they feel such caps would hinder their development. So not only is grand fathering inequitable but also scientifically uncertain and hence an unviable solution. Does that leave us with per capita as the unanimous solution or is there a third category of approaches? A third category of approaches namely certain performance indicators, which can be adopted by the developing countries as voluntary or binding commitments, have been proposed. To give an example, the GHG intensity indicator measures GHG intensity of the economy in terms of emissions per unit of GDP figures ($\text{Assigned Amount 2020} = \text{GDP 2020} * (\text{GHG emissions 1995}/\text{GDP 1995} * R\%$, where R is a reduction percentage based on a relevant status quo or baseline). According to this approach, the absolute growth caps that threaten the economic growth potential of developing countries can be replaced by a target that measures the delinking of economy with carbon emissions or carbonization. When trading, the indicator is converted into absolute emissions. The main problem with such a metric as the authors (Baumert et al, 1999) also acknowledge is judging what constitutes good performance in terms of carbon intensity indicators and the intensity level with which to judge progress. Documenting progress again resorts to choosing a status quo baseline year (as in the case of grandfathering). The other problem with this metric is the uncertainty in predicting an indicator for unstable economies. Since countries will be uncertain of their exact emission levels till the end of the commitment period this uncertainty will have implications for both compliance and emission trading. Further this metric pays lip service to the equity dimensions that developing countries hold dear by merely recognizing the economic development dimension. Even if such metrics are adopted they are a

short-term measure; in the long term there would be a need to adopt of absolute emission levels. This again leaves us with the per capita and the grand fathering option that fix absolute levels of emissions, albeit in different ways. Grandfathering that perpetuates status quo and negates the commonly held grounds of equity as perceived by developing nations has been disqualified earlier. This leaves us with the variants of per capita solutions. The per capita solutions not only incorporate the right to the atmosphere demand but a multiple criteria indicator can incorporate other dimensions as well such as responsibility and capacity. For example, Sagar (Undated) proposes an indicator based on per capita income levels, and per capita income cumulative responsibility.

As noted earlier, that the South has often highlighted the per capita proposals in terms of equitable allocation of emission quotas (the Indian per capita proposal, the G77 and China position before COP4). Now that the CDM as a form of emissions trading is in operation in India, and the pressure for assuming commitments seems to be mounting it is time to directly debate this very important issue. A fair and explicit allocation of emission quotas for each country, incorporating equity concerns can clarify what a country can emit and hence what commitments it needs to adopt.

4.5 The CDM and Equity

The CDM itself has generated some criticism relating to equity issues. Till now much of the effort has been directed towards defining the technical modalities of CDM such as baselines, additionality etc. where these equity concerns have been neglected. Four issues have been identified earlier:

1. Emission allocation quotas or determination of emission rights (which maximize CDM gains to developing countries).
2. The sharing of proceeds of certified emission reductions

3. Setting of the price of certified emission reductions
4. The low hanging fruit problem

The first issue of determination of quotas is handled in section 4.4. The renewed focus on equity will also help throw light on the three other concerns. A focus on equity issues will help determine an appropriate price for emissions reduction and ensure that the gains are equitably distributed between the two countries. This can be also accomplished if foreign investment is not used for merely buying compliance but investment is made in the right kind of projects say renewable energy projects. Such projects will change the way energy systems work in the world and will go a long way in delinking economic growth from carbon emissions and promoting sustainable development. Focusing on equity issues will also help a better geographic distribution of CDM projects. Such projects will mitigate the low hanging fruit problem; channel research and entrepreneurial resources into a new market (not the fossil fuel market), bring down unit costs of carbon free systems and strengthen technical and managerial capacities for enabling such systems. Thus both developed and developing countries will be able to engineer a successful transition to a carbon-free future (IPCC, 2001). Thus the pursuit of equity will not only generate consensus for participation but also enable sustainable development, which will provide a further impetus for developing countries to participate in a climate change abatement regime.

4.6 Prospects of US ratification

The position that developing countries have often adopted in response to meaningful participation is the need of the developed countries to take lead in reducing emissions while reiterating the no commitments option for the developed countries. Such a position is a reactive position, which does not offer any constructive solutions. Advancing “equity” based participation solutions for developing countries is a more proactive stance, which shows their willingness to be a part of the

abatement regime. Whether this will confirm to the US definition for meaningful participation is hard to say. However, coupled with the CDM it will highlight responsible action on the part of the developing countries to take part in long-term carbon abatement. When developing countries present this portfolio of equitable solutions the US will no longer be able to defend the lack of participation or meaningful participation argument (which it has not defined per se). Again this proactive stance though might not directly change the Administration's view it will definitely induce pressure on it through pro-Kyoto industry groups, environmental NGOs and international groups, which will force the US to reconsider its position.

4.7 Equity as a means to an end

Nevertheless in the long run since the developing countries will need to be a part of the climate change solution, in this process, "equity" will be accorded a greater significance than before in climate change negotiations. While equity is not an end in itself for climate change negotiations to succeed, it's a means to an end to get developing country participation on Board. Climate change action cannot cure the inequities in the world but it should not be the instrument to perpetuate them further.

5: Conclusions and Recommendations

While developing countries were not expected to make any commitments for reducing GHG emissions under the 1992 UNFCCC, there has been a renewed demand from developed countries for their participation in combating the global problem of climate change and in taking up commitments. The US has been the most strident in calling for “meaningful participation” and has made its own participation contingent on developing country participation. The Kyoto Protocol opened a door for developing country participation in the form of the CDM. Although, it was opposed to the CDM at the onset, India accepted CDM in 1999. CDM projects are now emerging in India. In addition, a number of other voluntary initiatives such as price reforms in energy subsidies and achievements in renewable energy are underway. India thus needs to conduct a thorough examination of possible initiatives in each sector, which might include, for example, plans for energy from biomass, windpower, improved cookstoves, better mass rapid transit systems, and use of compressed natural gas buses and what effect these initiatives would have on cumulative national emission scenarios. This will help India take stock of the situation of what it has been doing to prevent climate change and set clear goals for the future.

After this introspection, there needs to be some looking outwards. The call for “meaningful participation” or adoption of similar commitments (in light of the 1997 Byrd Hagel resolution) reflects the growing consensus in the West for developing countries to take up commitments in the immediate future. This next step should include directing the climate change debate to allocation of GHG emission quotas. COP8 to be held in India presents an opportune moment to do so.