

To critically analyze the Financing Aspect for CDM Projects in India

Dr.S.U.Gawade*
Avadhoot D. Pol**

Key Words:

- 1.Clean Development Mechanism
2. Financial system

Abstract

The Clean Development Mechanism (CDM) under the Kyoto Protocol to the UN Framework Convention on Climate Change (UNFCCC) enables industrialized countries to meet a part of their emission reduction requirements through purchase of emission reduction credits from projects in developing countries. Various studies have concluded that India is likely to be one of the major countries supplying such projects. However, in order that a large number of high-quality CDM projects is developed and result in Certified Emission Reductions as specified by the International CDM Executive Board, the institutional set up in the Indian finance sector has to be suitably geared up. So far, banks and financial institutions have not developed procedures for efficient financing of CDM projects. A necessary condition for an in-depth involvement of the financial sector is the development of transparent and effective approval rules by regulators both on the central and state level as well as improved project development capacity of the private sector.

Findings : Based on the primary analysis of the questionnaire circulated to the respondents and the secondary analysis of about 20 projects, the detail findings like abnormal delay for CDM projects, understanding level of CDM projects, risk involved and other finding are summarized in this paper

Research implications : The study mainly focused on CDM projects in relation with the financial structures. The Clean Development Mechanism (CDM) under the Kyoto Protocol to the UN framework Convention on Climate Change (UNFCCC) enables industrialized countries to meet a part of their emission reduction requirements through purchase of emission reduction credits from projects in developing countries. Various studies have concluded that India is likely to be one of the major countries supplying such projects. However, in order that a large number of high-quality CDM projects is developed financial structures has been analyzed in this research paper.

Originality : This paper, by combining information, concepts into one model, offers new insights into the new ways to make impeccable financial structures and reduce the problems related to the finance structures.

CDM project development in India

The CDM project development process in India picked up in early 2002, when the Netherlands government tender CERUPT was announced. About 17 projects sought approval from the focal Ministry of Environment and Forests (MOEF). Since there was no formal approval authority, MOEF convened an ad hoc group of officials from key concerned ministries like MNES, MOP etc. and the group accorded HC approval to 12 projects, which were submitted to CERUPT. Six projects of these were accepted by the

Netherlands in the initial screening and ultimately five were provided with an ERPA.

Meanwhile, the industry, Financial Institutions and several consultants have been actively involved in the promotion of

CDM projects. Besides the IDFC deal with the World Bank outlined above, the Netherlands based Rabo Bank operates under a similar deal with the Dutch government and thus is looking for CERs. The bank has opened a cell in India and also engaged Winrock International India to conduct a technical analysis of project proposals from India. However, exact details of this arrangement are not known.

Financial system awareness about CDM

The awareness about CDM in the financial sector has been growing in the recent past especially since 1998, when major outreach programs were launched by bilateral agencies like USAID, notably the Greenhouse Gas Pollution Prevention Project's Climate Change Supplement. Thus the banking sector capacity has been improving.

This happened at the same time as many of the banks have started development of special innovative financial products, to succeed in the fierce competition. Many banks such as ICICI Bank rely on catering to each business deal in a unique manner and offer specially developed products to

*Head research, Sinhgad Institute of Management, Pune and can be reached at sugawade@yahoo.co.in

**Director, SIBAR, Pune and can be reached at adp2807@gmail.com

suit to the needs of the off taker. Some of the products that have become common are securitization, credit enhancements through trusts, etc.

This will help the CDM projects in many ways, as the banks will be able to assess and cater to the needs of the project proponents. Some banks like SBI, Syndicate Bank, Bank of Baroda etc. have formed separate groups to finance energy efficiency, solar PV and environmental projects. The institutions like IREDA, Power Finance Corporation also lay stress on GHG abatement from the projects being funded by them.

Nevertheless, in general, the level of awareness of CDM remains low and is concentrated in a few FIs at present, but is growing.

However, awareness about CDM projects has not grown among insurance companies in

India. Though the bulk of the business in this sector so far was in the state owned general insurance, the situation is fast changing with several private insurance companies that have formed joint ventures with international insurance companies.

They have begun providing insurance products for industrial projects. However, so far no specific products like weather derivatives or those required for GHG market are ready.

It is understood that the GOI has been reviewing insurance in the context of disaster management and is examining possibility of a unified legislation. It has very recently constitute a high level Task Force on Insurance and Climate Change. The Task Force is responsible for:

1. Identification of specific national needs and concerns relating to insurance and other related issues arising from adverse impacts of climate change
2. Development of strategies and approaches related to insurance and risk assessment in the context of climate change and extreme weather events in various sectors.

KYOTO Protocol

Global warming as a phenomenon is hazardous for all the aspects of environment and hence conscious efforts were started to stop/reduce the global warming. A variety of approaches were implemented to reduce carbon emissions ranging from efforts by individuals and firms to reduce their climate footprints to initiatives at regional and global levels. Among these were the commitments of governments to reduce emissions through the 1992 United Nations Framework Convention on Climate Change (UNFCCC) and its 1997 Kyoto Protocol.

In 1992 Rio earth summit, United Nation Framework Convention on Climate Change (UNFCCC) was adopted with an objective to stabilize atmospheric concentration of GHG at levels that would prevent dangerous humane interference with climate system. The UNFCCC came into effect on 21st March, 1994 according to which industrialized countries shall have the main responsibility to mitigate climate change. Such countries are listed as Annex- I countries. Under UNFCCC all the member countries were to report on their national GHG emissions inventories and propose climate change mitigation strategies. After two and half years of intense negotiation between Annex-I countries, an agreement was struck at the now famous Kyoto protocol on 11 December 1997 in Kyoto, Japan. The convention, participated by 60 countries of the world, was to negotiate binding limitations on greenhouse gases for the developed nations pursuant to the objective of the Framework Convention on Climate Change of 1992.

Clean Development Mechanism

The Clean Development Mechanism (CDM) allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex I Party) to implement an emission-reduction project in developing countries. Such projects can earn saleable certified emission reduction (CER) credits, each equivalent to one tonne of CO₂, which can be counted towards meeting Kyoto targets. The mechanism is seen by many as a trailblazer. It is the first global, environmental investment and credit scheme of its kind, providing standardized emissions offset instrument, CERs. A CDM project activity might involve, for example, a rural electrification project using solar panels or the installation of more energy-efficient boilers. The mechanism stimulates sustainable development and emission reductions, while giving industrialized countries some flexibility in how they meet their emission reduction or limitation targets.

GHG reduction project can take place anywhere in the world and emission reduction units generated out of these projects are bought by the companies which are interested in reducing their carbon emissions or required to meet carbon emission caps under regulatory requirements. A CER or carbon Credit is defined as the unit related to reduction of 1 ton of CO₂ emission from the baseline of the project activity.

The Clean Development Mechanism (CDM) is one of the "flexibility" mechanisms defined in the Kyoto Protocol (IPCC, 2007). It is defined in Article 12 of the Protocol, and is intended to meet two objectives:

- 1.to assist parties not included in Annex I in achieving

sustainable development and in contributing to the ultimate objective of the United Nations Framework Convention on Climate Change (UNFCCC), which is to prevent dangerous climate change; and

2.to assist parties Included In Annex I In achieving compliance with their quantified emission limitation and reduction commitments (greenhouse gas (GHG) emission caps). "Annex I" parties are those countries that are listed in Annex I of the treaty, and are the industrialized countries. Non-Annex I parties are developing countries.

Objective (2) is achieved by allowing the Annex I countries to meet part of their caps using "credits" from CDM emission reduction projects in developing countries This is subject to oversight to ensure that these emission reductions are real and "additional." The CDM is supervised by the CDM Executive Board (CDM EB) and is under the guidance of the Conference of the Parties (COP/MOP) of the United Nations Framework Convention on Climate Change (UNFCCC).

The CDM allows industrialized countries to invest in emission reductions wherever it is cheapest globally. Between 2001, which was the first year CDM projects could be registered, and 2012, the end of the Kyoto commitment period, the CDM is expected to produce some 1.5 billion tons of carbon dioxide equivalent (CO₂e) in emission reductions. Most of these reductions are through renewable energy, energy efficiency, and fuel switching.

Indian Scenario

India is a party to the United Nations Framework Convention on Climate Change (UNFCCC) and the objective of the Convention is to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. To strengthen the developed country commitments under the Convention, the parties adopted Kyoto Protocol in 1997, which commits developed country Parties to return their emissions of greenhouse gases to an average of approximately 5.2% below 1990 levels over the period 2008-12.

The Seventh Conference of Parties (COP-7) to the UNFCCC decided that Parties participating in CDM should designate a National Authority for the CDM and as per the CDM project cycle, a project proposal should include written approval of voluntary participation from the Designated National Authority of each country and confirmation that the project activity assists the host country in achieving sustainable development.

Accordingly the Central Government constituted the National Clean Development Mechanism Authority for the

purpose of protecting and improving the quality of environment in terms of the Kyoto Protocol.

The CDM authority has the powers

To invite officials and experts from Government, financial institutions, consultancy

Organizations, non-governmental organizations, civil society, legal profession, industry and commerce, as it may deem necessary for technical and professional inputs and may co-opt other members depending upon need.

To interact with concerned authorities, institutions, individual stakeholders for matters relating to CDM.

To take up any environmental issues pertaining to CDM or Sustainable Development projects as may be referred to it by the Central Government, and

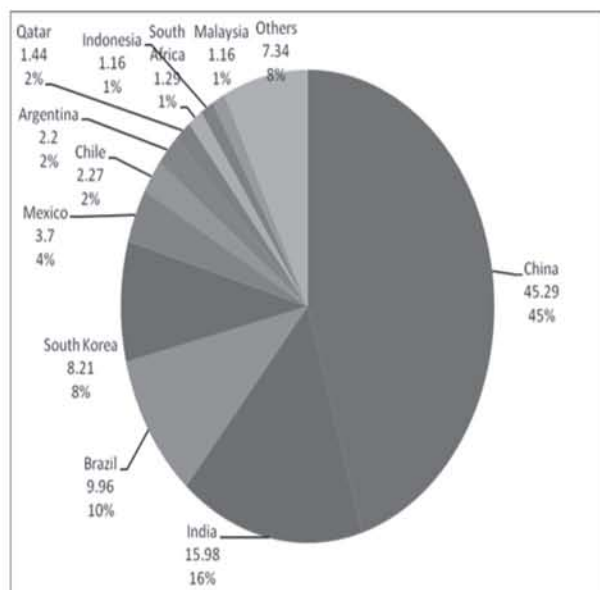
To recommend guidelines to the Central Government for consideration of projects and principles to be followed for according host country approval.

So far, India Concentrated mainly on renewable energy (biomass, wind power, etc.) / waste heat recovery projects which generate much less CERs compared HFC23 projects.

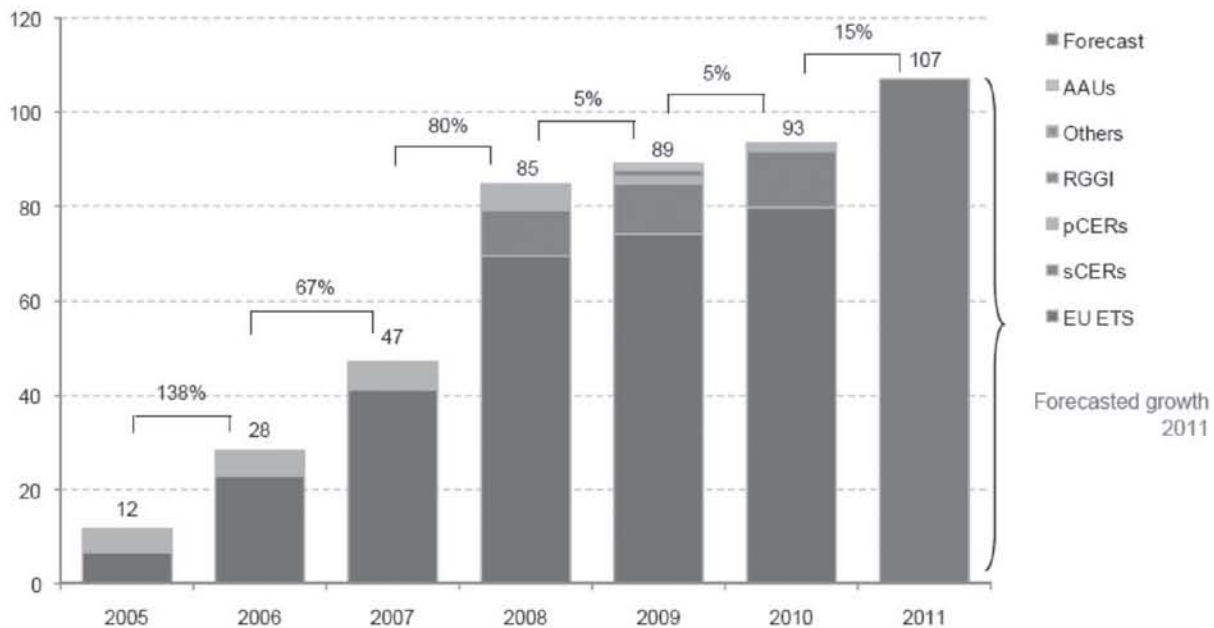
CDM Projects till date

As of 19 April 2012, 4013 projects have been registered by the CDM Executive Board as CDM projects. These projects reduce greenhouse gas emissions by an estimated 538 million ton CO₂ equivalent per year. There are about 5,600 projects yet to be certified. It is estimated that these projects would reduce carbon dioxide emissions by over 2.7 billion tons until the end of 2012.

Figure 1 : Expected average annual CER's by host party.
Source : UNFCCC, 2 December 2007. <http://cdm.unfccc.int>



Projected carbon market size 2005-2011 (EURbn)



Source: Trading figures taken from ECX from Bloomberg, ECX, Bluenext, EEX, CCX, Nordpool, other sources include UNFCCC and our own Bloomberg New Energy Finance estimations

CDM as business opportunity

CDM has created lucrative business opportunities, both for developing as well as developed countries. For the developing countries, their heavy dependence on fossil fuels provides good opportunity to generate carbon credits by switching to energy efficiency projects. Along with this, the sale of carbon credits produces additional revenues for the business. CDM also allows industries in developing countries adopt latest energy efficient technologies which otherwise are financially not feasible. Efficient technologies reduce cost of production and increase competitiveness. For instance, Indian oil is implementing a CDM project costing Rs.10 crores to reduce the refinery gas flare by 90 percent. According to company estimates, the project would yield revenues of Rs.2 crore a year by trading carbon credits. Company would also be able to use captured gas in boilers, replacing the costlier naphtha.

The projected Carbon Market size

CDM has also paved the way for technology transfer from developed countries to the developing ones. Technology transfer usually involves both knowledge and equipment. 39% of the CDM projects accounting for 64% of the annual emission reductions involve technology transfer. Over 70% of the transfer of equipment or knowledge originates from five countries; Japan, Germany, the USA, France, and Great Britain.

NEED FOR THE STUDY

The conventional and novel financing instruments such as project finance for large projects, Special Purpose Vehicles, CDM funds or CDM bonds could become attractive to banks. Such a set up helps in reducing the permit credit risks and political risks considerably.

It is generally felt that India has a vast opportunity to explore in terms of carbon- credits. Through its massive ongoing Infrastructure projects and projects on non-conventional energy sources, a new phase of development is still to be observed, moderate start of which has already begun.

India has been the front runner in developing carbon credit projects since 2005. There are various carbon credit standards available in the market today. Since there is no central body to regulate emission reductions, several organizations have launched carbon market standards. So far more than 550 CDM projects are registered in India and more than 1800 are in pipeline.

OBJECTIVES OF THE STUDY

1. To study and examining the current financial structures of the CDM projects and the specific schemes implemented by internal and external financial institution for financing the projects and the
2. To analyze the challenges faced by financial institution.

3. Analyzing the profitability of select projects using suitable tools of financial analysis.

RESEARCH METHODOLOGY

As a part of the research, it was proposed to conduct financial analysis of selected CDM projects with an intention of studying the financial structures and its feasibility.

The analysis was done based on the secondary data available as of March 2012 around 500 registered projects in India. About 20 projects were selected from the windmill sector and bio mass sector, for an analysis.

Data collection

For primary data, both questionnaire and interview method is used. The main aim would be to understand the current scenario, the challenges faced and then based on the analysis to provide some improvisation solutions.

Construction of questionnaire

Following points kept in mind while preparing a questionnaire:

1. Target group - Normally registered latest project have considered.
2. Cost factor, time factor and convenience factor are to be recorded.
3. Quality of the project is the important factor well thought-out
4. Online surveys are a great alternative to expensive mail or telephone surveys. Which has been used to understand current scenario and the challenges faced by concern person.

Secondary data is collected from following sources:

1. Books, Periodicals & newspapers from various libraries

Table 1 : The list of the projects studied is as follows:

Sr.No.	Type of Projects	Name of Project
1.	Wind power	12 MW Bundled Wind Power Project in Tenkasi, Tamilnadu.
2.	Wind power	1.5 MW Grid connected Wind Electricity Generation at Tirunelveli, Tamilnadu by Kallam Agro Products and Oils P. L.
3.	Wind power	Wind Power based electricity generation project in India by DLF Home Developers Limited
4.	Wind power	13.75 MW wind power project in Davangere, Karnataka, India.
5.	Wind power	6 MW Wind Power Project in Tamil Nadu by REI Agro Limited
6.	Wind power	1.25 MW Wind Power Project at Rajasthan, India
7.	Wind power	1.2 MW wind power project of Matrix Clothing at Gujarat, India
8.	Wind power	1.2 MW wind power project of Maharashtra
9.	Wind power	1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamil Nadu, India.
10.	Wind power	22.5 MW Wind Power Project by Ruchi Soya Industries Limited at Palsodi, Dist. Ratlam, M.P.

2. Internet websites viz., Google, MSN and Yahoo search engines.

3. Research papers and articles

4. PhD & M.Phil theses

Any new mechanism - especially financial one - leads to development of new financial commodities. In recent times, the financial intermediaries operate on wafer thin margins and so rely on developing new and innovative financial products that gives them a competitive edge over others. Currently, the Indian economy is characterized by abundant availability of cash searching for attractive investment opportunities from creditworthy promoters.

A recent survey of the financial institutions suggested that a major part of the banking portfolio is affected by non-performing assets in the system.

In order to move towards international best practices and ensure greater transparency the regulator, Reserve Bank of India has decided to toughen the procedures of qualifying the performance of assets and those for provisioning for them. According to the new norms, a loan asset will be characterized as non-performing asset if the default persists for 90 days. Therefore, while operationalizing any new mechanism, these factors have to be taken in consideration.

CERs resulting from a CDM project are a classy example of commoditization of environmental performance improving the business-as-usual situation. We have described risks and problems for financing of CDM projects in India. In the following necessary features of the financing system in India are discussed

Financial structures

As the market based mechanisms under the Kyoto Protocol move towards certainty, the international bodies on accounting standards have begun taking note and preparing for suitable accounting standards. For example, the International Financial Reporting

Interpretations Committee of (IFRIC) of the International Accounting Standards Board circulated draft interpretation on Emission Rights (IFRIC 2003). The interpretation is still under consideration and expected to be finalized soon. However, the interpretation is pertinent mainly to the companies in the Annex I countries with a cap. The interpretation defines an approach to qualify the emission rights as Intangible Assets or

Contingent Liability under different circumstances. Since India does not have a cap for emissions and the international carbon market is not directly accessible to CDM participants, the accounting standards for the emission rights for Indian companies will

be different. An approach for preparing accounting standards for CERs is suggested later. As discussed earlier, carbon investment in the project is likely to be year-on-year values of CERs sold. Consequently, an off-balance sheet structure is likely to be preferred. However, other conventional structures involving owners' equity to be brought in up front or use of internal cash accruals to finance the project are also not ruled out.

FINDINGS

As a part of the research, it was proposed to conduct financial analysis of some select registered CDM projects with an intention of studying the financial feasibility of the projects. The analysis was done based on the secondary data available of the site-<http://cdm.unfccc.int/index.html>. As of March 2012 about 440 projects were registered in India, of this the wind-mill and the bio mass projects.

Based on the primary analysis of the questionnaire circulated to the respondents and the secondary analysis of about projects, the detail findings are given below:

Interpretations on the basis of collected data analysis are as follows

1.Out of the sample size of 65, more than 77% of the respondents are either owner of the project or are involved in financing of the project.

2.The respondents felt that the reasons for maximum delay is change in CDM methodology, delay in tying up finance and also the validators not available on time for conducting site visits.

3.Very few of the respondents felt the reason for abnormal delay as change in validator/ verifier and also lack of knowledge of the consultant. Unless there is a valid reason there is no reason for changing the validator of the project

4.Most of the CDM projects are implemented by the top-level and middle level managers.

5.Majority of the respondents have financed/implemented between 2 to 5 projects. Given the low number of projects implemented in India, it is quite evident that with wide base, respondents would have implementation exposure of less than 5 projects.

6.Majority of the respondents indicated that they had a dedicated team to work on CDM related projects.

7.The primary reasons for abnormal delay for CDM projects (based on the questionnaire circulated).

8.Lack of understanding on CDM related activities among financial institutions

9.Lack of in-house capacity in understanding and identifying CDM projects

10. Risks involved in financing CDM projects

11.Lack of mobilization of funds for financing CDM related projects

12.Inordinate time delays in bank financing and unfavorable terms and conditions of financing of CDM projects

DISCUSSION AND CONCLUSIONS

Climate change presents increasing challenges on issues involving accounting regulators and practitioners. As the market approach to control climate change has become a dominant approach in practice by governments and businesses, valuation of instruments and investments underlying the markets and associated disclosures are critical to the markets'effective operation.

However, guidance for valuation and disclosure is in developmental stages and there is scant related research in the current accounting literature.

This study is the first to investigate accounting methods used for valuation of a broad cross-section of CDM projects and their implications for equity markets.

Researcher hope to provide a deeper understanding of project characteristics that are associated with errors and bias included in investment analyses.

The results show that firms go beyond inherent flexibility available within required methodology.

of factors such as project-related CER revenue (as proxy for



the strength of the incentive), the host country's corruption index (as a proxy of the functionality of the country's institutional framework), and the level of scrutiny by non-host partners.

Results are preliminary due to small sample size. More sophisticated models are necessary to increase confidence that our results are due to bias rather than error. Thus far we have concentrated on accounting errors in the financial analysis but have not considered technical errors, which are likely embedded in the PDDs.

Although we were not able to detect non-obvious errors, our results provide evidence that project partners intentionally bias their financial analyses towards meeting the additionality criterion. However, measuring non-obvious errors indirectly, e.g. by comparing projects of the same type in more detail or in the same market, or by interviewing project partners can be promising avenues for future research less environmentally favorable alternative. It also encourages project developers to pay higher prices for the environmental alternatives.

In India there are several procedures that investment projects in general need to follow in order to be allowed to operate, including the approval from the village representative body, the Panchayat. The description of the stakeholder consultation process seems to follow a standard model in Indian projects, although there is no regulation about it.

At present only a few developing countries are in advanced stages of CDM approval institution and project development. Noteworthy among them are the Latin American countries like Costa Rica and Brazil. The large potential CDM hosts like China, India and Indonesia are lagging behind. It is clear that this lag has a negative impact on competitiveness and can only be overcome through quick implementation of targeted policies.

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