
MODULE 7 Mitigation and CDM: facts and figures

This module informs policy-makers and practitioners on the current patterns of energy use, consumption and demand, renewable energy sources, efficiency in terms of reducing CO₂ (carbon dioxide) emissions and development of project documents for the CDM (Clean Development Mechanism). These aspects are necessary both for the domestic policies, as well as for the international policies.

What is carbon trading?

Carbon trading is a kind of emissions trading that allows a developed country to meet its commitments under the Kyoto Protocol. Under this Protocol, Annex I countries (developed countries and economies in transition) are required to reduce GHG (greenhouse gas) emissions to below their 1990 levels. Carbon trading puts a price on the action taken to reduce GHG emissions and helps developing countries get returns for their efforts in mitigating climate change. The market can be compliance-based such as the one created under the Kyoto Protocol or some voluntary market, wherein companies/countries take up proactive steps out of their responsibility towards the environment. The Kyoto Protocol provides three mechanisms, using which developed countries can meet their target.

1. CDM (Clean Development Mechanism)
2. JI (Joint Implementation)
3. ET (Emissions Trading).

India is a party to both the UNFCCC (UN Framework Convention on Climate Change) and the Kyoto Protocol. Being a non-Annex I Party, India has no binding emission limits under the Protocol. However, India is an active participant in the CDM established by the Protocol.

Current carbon market scenario

The carbon market doubled in a single year to reach an estimated \$64 billion in 2007 (Figure 1). The contribution of developing countries by supplying primary CDM credits was close to \$12 billion. India is the second biggest contributor to the same, after China. The UK and Japan have been the major purchasers of CERs from developing countries. The price of primary CER in 2007 averaged around \$13.5/tCO₂. However, the price range for the CERs can vary from \$13 to \$22 due to various market factors. A key issue in the carbon market is price volatility that arises from a host of uncertainties associated with the market. The project developer is, therefore, required to keep track of these developments in the market and make an informed decision to ensure that they get the best price.

	2006		2007	
	Volume (MtCO ₂ e)	Value (MUS\$)	Volume (MtCO ₂ e)	Value (MUS\$)
Allowances				
EU ETS	1,104	24,436	2,061	50,097
New South Wales	20	225	25	224
Chicago Climate Exchange	10	38	23	72
UK ETS	na	na		
Sub total	1,134	24,699	2,109	50,394
Project-based transactions				
Primary CDM*	537	5,804	551	7,426
Secondary CDM	25	445	240	5,451
JT [†]	16	141	41	499
Other Compliance & Voluntary Transactions	33	146	42	265
Sub total	611	6,536	874	13,641
TOTAL	1,745	31,235	2,983	64,035

Figure 1 Carbon market 2006/07

SOURCE World Bank, State and Trends of the Carbon Markets, 2008

The Clean Development Mechanism

The CDM provided for under Article 12 of the Kyoto Protocol, enables developing countries to participate in joint GHG mitigation projects. It allows public or private sector entities in Annex I countries to invest in GHG mitigation projects in developing countries. In return, the investing parties receive credits or CERs (certified emission reductions, which they can use to meet their targets under the Kyoto Protocol. One of the flexible mechanisms created under the Kyoto Protocol, the CDM has the dual objective of helping developing countries in achieving sustainable development and assisting developed countries in achieving compliance with their quantified emission limitation and reduction commitments. CDM activities have to be 'supplemental' to domestic actions of developed countries. The Marrakech Accords, agreed upon during the COP-7 meeting in 2001 paved the way for CDM implementation by providing Modalities and Procedures. Since then, CDM activities have been started, mostly in the learning by doing mode. The CDM gained momentum in 2005 after the coming into force of the Kyoto Protocol.

Before the Protocol entered into force, investors considered this a key risk factor. However, with 1128 projects from various countries and various sectors registered with the CDM Executive Board (CDM-EB) by now (Figure 2), the CDM presents a successful example of a market-based mechanism for addressing an environmental issue.

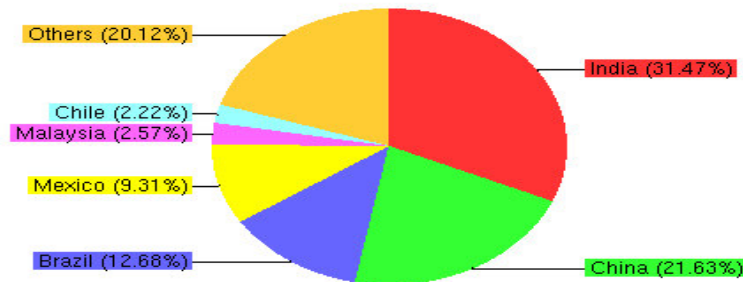
CDM projects

With close to 350 registered projects from a variety of sectors, India has the maximum number of projects registered under the CDM (Figure 2). Indian projects account for 26% amongst a total of 166 965 804 CERs issued by EB (Executive Board) worldwide. The expected carbon credits market is dominated by China, which accounts half of the total expected

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average annual CERs. India comes second, with around 14% of the market share. The largest project categories are biomass and renewable energy. Most projects in India are undertaken on a unilateral basis.

Registered project activities by host party. Total: 1,128



<http://cdm.unfccc.int> (c) 21.07.2008 17:53

Figure 2 Registered project by host party
SOURCE UNFCCC 2008

Types of CDM projects in India

The Indian government and industries have been proactive in their approach to the carbon market. This has helped them gain an early mover advantage in the CDM.

Renewable projects The majority of projects have come from renewable (wind and hydro) projects. It is expected that development of replicable wind technology will make it cost-competitive with other forms of electricity generation and so their number in the CDM project cycle will come down in future. However, biomass and cogeneration projects are showing a healthy trend.

A lot of industries have benefited from the growth in the carbon market. Chemicals and iron and steel industries have gained most by CDM projects. Most of the projects from iron and steel are WHR (waste heat recovery) projects. Two HFC (Hydro-fluoro carbon) projects, which are amongst the biggest from the country, are from chemical industries, apart from some fuel switch and energy-efficiency projects. Energy-efficiency projects have come up in large numbers, across various industries. However, they are comparatively smaller in size. Cement industries in India have undertaken blended cement projects and utilization of clinker projects under CDM.

Forestry and community-based projects have not been able to make a mark in the current CDM portfolio across the country. This phenomenon is mainly due to small scale and large number of independent developers involved, which makes monitoring and benefit-sharing difficult. The transaction cost increases due to multiple location of monitoring. However, with the advent of voluntary carbon markets in India, the possibility of taking up such kind of project will increase. Under the

voluntary carbon markets the project developer need not face the stringent terms and condition of the CDM. The norms are much less stringent, but the price offered is also lower than in the CDM market.

Need to expand the CDM

CDM benefits so far have remained confined to a few countries. Though the mechanism is a market-based mechanism, support of developmental agencies in mobilizing the untapped countries and help in setting up systems and institutions in those countries would be essential. Further, with respect to sectoral coverage, CDM activities have remained limited to a few sectors; energy industries (renewable and non-renewable sources) taking the lead and accounting for 53% of the total number of registered projects. Other sectors with significant number of projects include waste handling and disposal, agriculture, fugitive emissions from fuels and manufacturing industries. A lot of opportunities across different sectors still remain to be tapped.

References

UNFCCC 2008,
<http://cdm.unfccc.int/Statistics/Registration/NumOfRegisteredProjByHostPartiesPieChart.html> , last accessed on 21st July 2008.