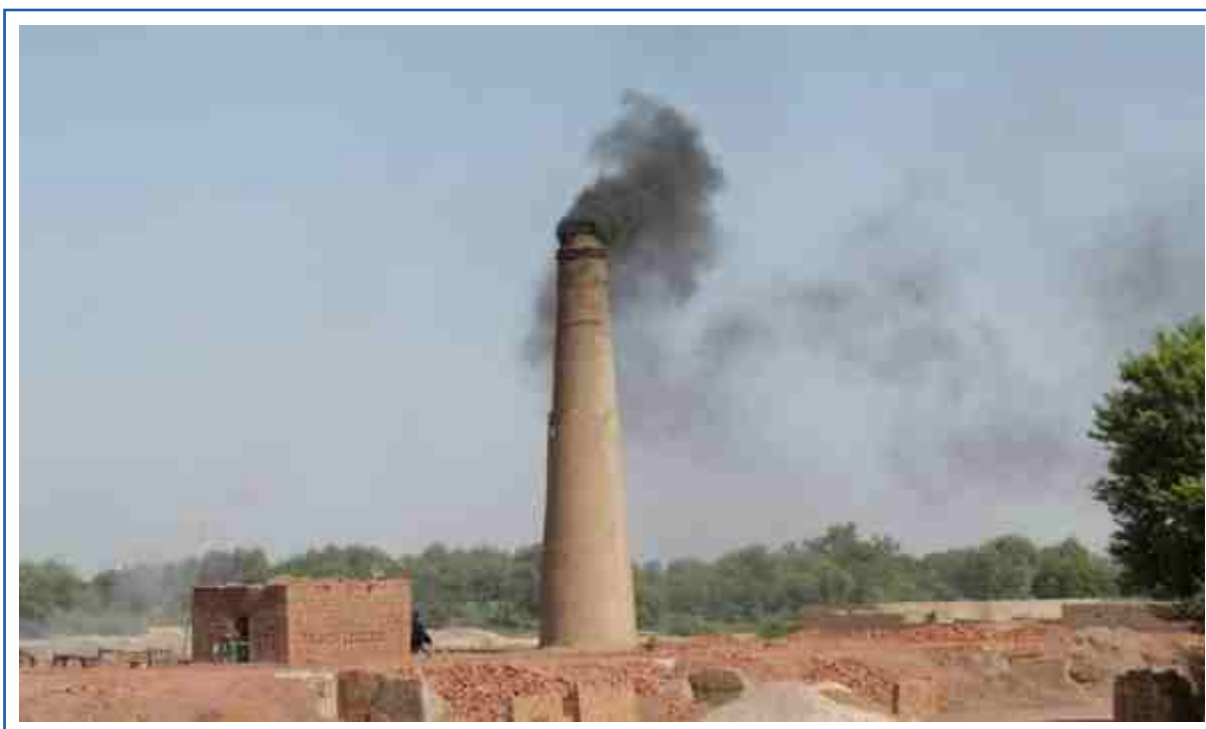


Newsletter



CLEAN DEVELOPMENT MECHANISM



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Editorial Team :

Dr. Neelima Jerath

Dr. S.S. Ladhar

Mr. Gurharminder Singh

Ms. Ravleen Singh

Layout & Design :

Ms. Shivani Khosla

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The key outcomes of UN Climate Change Conference held in Durban in Nov. 2011 includes a decision by Parties to adopt a universal legal agreement on climate change as soon as possible, (and no later than 2015), agrees to a process to arrive at a new emissions reduction protocol and to preserve the measurement and trading features of the Kyoto Protocol pending development of the new agreement. The Conference of Parties (CoP) has also decided to allow Carbon Capture and Storage (CSS) projects to be conducted as Clean Development Mechanism (CDM) activities. CCS involves capturing carbon dioxide, mainly from the combustion of fossil fuels like coal or natural gas, and then piping it into underground geological reservoirs.

CDM, a mechanism under Kyoto Protocol attains the twin aspiration of promoting sustainable development in developing countries (non-Annex I), while facilitating compliance with the greenhouse gas mitigation commitments in developed and industrialized countries (Annex I). CDM allows Green House Gases (GHGs) emission reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of carbon dioxide. CERs can be traded or sold to industrialized country in order to meet part of their targets under Kyoto Protocol. It assists developing countries like India in achieving financial help, technology and sustainable development. The carbon price aspect associated with CDM also aims to encourage the producers and consumers to invest in products, technologies and processes which emit less GHGs.

CDM projects are supervised by the CDM Executive Board elected by the parties through a rigorous pre defined cycle, to ensure real, measurable and verifiable emission reductions that are additional what would have occurred in the absence of project activity. Globally, as of 21st November 2011, 3583 projects have been registered by the CDM Executive Board. In India, various CDM projects are being taken up in energy, fuel switching, industrial, renewable energy and solid waste sectors.

The present issue of newsletter provides information on CDM, its objectives, characteristics and important steps in the CDM Project Cycle. The current scenario of CDM in India and its potential in Punjab has also been discussed.

It is reiterated that CDM would continue to be a key tool in the International community's fight in arresting and reversing the upward trend in GHGs to tackle climate change.

Editors.....

CLEAN DEVELOPMENT MECHANISM

Clean Development Mechanism (CDM) is one of three 'flexible mechanisms' defined under the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) (Box 1 & 2). It allows developed countries to undertake Green House Gases (GHGs) emission reduction (or emission removal) projects in developing countries to counteract their own domestic emissions.

Box 1. Kyoto Protocol

The Kyoto protocol evolved during the seventh conference of the parties to the UNFCCC (United Nation Framework Convention on Climate Change), at Kyoto Japan in 1997. The Protocol came into force in February 2005. It provides legally binding targets to the developed countries to collectively reduce their emission to less than 5% of 1990 level by the year 2012. It lists six gases as greenhouse gases (GHGs) - Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF₆). It emphasised the industrialized countries to stabilize these GHGs emissions. To help developed countries meet their emission reduction targets, the Kyoto protocol provides three flexible mechanism namely, Clean Development Mechanism (CDM), Joint Implementation (JI) and International Emission Trading (IET). Of these, JI and IET are among the developed countries only, while the CDM is between developed and developing countries. Developing countries' interest in participating in CDM lies in the fact that it envisions technology transfer and financial flows to developing countries from developed countries.

Source: <http://cdm.unfccc.in>

The CDM is the first of its kind global environmental investment mechanism and carbon credit scheme which provides a standardized instrument for offsetting emissions generating Carbon Emission

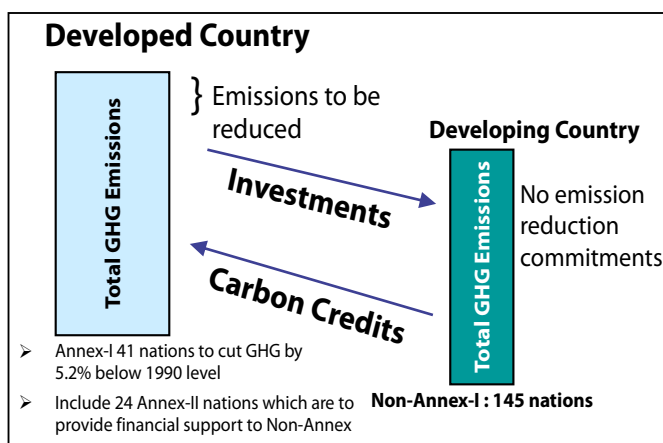
Reductions - CER (Box 3) units. These CERs can be traded and sold, and finally used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol.

The objectives of CDM are as follows:

- To help mitigate climate change.
- To assist developing country Parties (Box 2) in achieving sustainable development, thereby contributing to the ultimate objective of the Convention.
- To assist developed country Parties in achieving compliance with part of their quantified emission limitation and reduction commitments.

A CDM project involves co-operation between a company in a country with reduction commitments (sponsoring country) and a company in a developing country without such commitments (host country). Thus, a company in the sponsoring country supports implementation of project activities in a host country where comparable emission reductions can be achieved at a lower cost (Fig 1).

Fig. 1. Clean Development Mechanism



Box 2. Parties/Country Groups for Emission Reductions as per UNFCCC

The UNFCCC divides countries into three main groups according to differing commitments to emission reductions:

Annex I Parties include the industrialized countries that were members of the Organization for Economic Co-operation and Development (OECD)* in 1992 and countries with Economies In Transition (the EIT Parties). Annex I Parties have different GHG emission ceilings for the 5-year period of 2008-2012 (termed as 1st commitment period).

Annex II Parties consist of the OECD members of Annex I (24 in no.), but not the EIT Parties. They are required to provide financial resources to enable developing countries to undertake emissions reduction activities under the UNFCCC and to help them adapt to adverse effects of climate change. In addition, they have to "take all practicable steps" to promote the development and transfer of environmentally friendly technologies to EIT Parties and developing countries. Funding provided by Annex II Parties is channelled mostly through the Convention's financial mechanism.

Non-Annex I Parties are mostly developing countries. Certain groups of developing countries are recognized by the Convention as being especially vulnerable to the adverse impacts of climate change, including countries, with low-lying coastal areas, prone to desertification and drought, that rely heavily on income from fossil fuel production & commerce. The Convention emphasizes activities that promise to answer the special needs and concerns of these vulnerable countries, such as investment, insurance and technology transfer.

The 49 Parties classified as Least Developed Countries (LDCs) by the United Nations are given special consideration (funding and technology-transfer activities) under the Convention on account of their limited capacity to respond to climate change and adapt to its adverse effects.

In practice, Annexure I of the UNFCCC and Annexure B of the Kyoto Protocol are used almost interchangeably. Further, the Annex I countries can invest in CDM projects and non-Annex I countries can host CDM projects.

**OECD is an international economic organisation founded in 1961 to stimulate economic progress and world trade. It is a forum of countries committed to democracy and the market economy, providing a platform to compare policy experiences, seek answers to common problems, identify good practices, and co-ordinate domestic and international policies of its members. Most OECD members are high-income economies with a "very high" Human Development Index (HDI) and are regarded as developed countries.*

Source: <http://cdm.unfccc.in>

The reductions generated must, however, be additional to any that would have occurred without the project taking place. Thus, to create sustainable benefits and global emission reductions in the most cost-efficient manner CDM Projects are being implemented all over the world through UNFCCC.

The CDM activities should result in net decrease in GHGs and be approved by the Govt. of the participating country. It should ensure environmental integrity and economic

efficiency. Further, if the activity is mandated by law then it is not eligible. The main characteristics of CDM Project activity are summarized in Box 4. The CDM Projects are developed on the following three criteria:

- Voluntary basis
- Associated long-term climate change mitigation benefits
- Contribution to emission reductions.

Box 3. Carbon Emission Reduction (CER)/ Carbon Credit & its Mechanism

A CER or Carbon Credit is the unit used for trading purposes. It is equivalent to reduction of 1 tonne of Carbon dioxide (CO₂) emission from the baseline of the project activity. A credit can be sold in the international market at the prevailing market price. There are two exchanges for carbon credits: the Chicago Climate Exchange and the European Climate Exchange.

The concept of Carbon Credit (CC) trading seeks to encourage countries to reduce their GHG emissions, as it rewards those countries which meet their targets and provides financial incentives to others to do so as quickly as possible. Surplus credits (collected by overshooting the emission reduction target) can be sold in the global market.

Mechanism of availing CC: One credit is equivalent to one tonne of CO₂ emission reduced. CC are available for companies engaged in developing renewable energy projects that offset the use of fossil fuel. Developed countries have to spend nearly \$300-500 for every tonne reduction in CO₂, against \$10-\$25 to be spent by developing countries. The developing countries lower GHG emission targets as fixed by the Kyoto Protocol so they are entitled to sell surplus credits to developed countries. It is here that trading takes place. Foreign companies who cannot fulfill the protocol norms can buy the surplus credit from companies in order countries through trading.

Source: <http://www.peda.gov.in>

Box 4. Main Characteristics of the CDM Project Activity

The main characteristics of the CDM Project Activity are as under:

- Participation is voluntary and should have the host country's approval.
- Should meet the sustainable development goals defined by the host country.
- CDM investments will be market driven. Public and private parties are eligible to participate.
- Must account for GHG emissions that occur outside the project boundary that are attributable to the project.
- Should lead to measurable reductions in emissions, which will be transferable to the investor in the form of Certified Emission Reductions or CERs, upon quantification and certification by a third party.
- The reduction in emissions must be additional to any that would occur in the absence of the approved project activity.
- Should include the participation of stakeholders.
- Limited to strict physical boundaries within which GHG emissions will be reduced or sequestered.
- Limited to countries that have ratified the Kyoto Protocol.
- The CDM projects should also be oriented towards improving the quality of life of the poor from the environmental standpoint and consider the social well being, economic well being, environmental well being and technological well being.

Source: UNDP, 2003

CDM PROJECT CYCLE

The Project Proponent (PP) has to fulfill certain requirements to get its activity accredited as a CDM Project. The activities eligible for availing Carbon Credits are mentioned in Box 5. Every CDM Project has pre-defined Project Cycle and must qualify through a rigorous and public registration & issuance process. The major steps in any CDM Project Cycle (MOE, Japan) are described here under (Fig. 2):

1. Project designing, developing and financing:

- a) **Preparation of Project Concept Note (PCN):** The PCN demonstrates a complete planning of a project in terms of CDM criteria. It details the GHG reduction envisaged by the project expressed in tones of CO₂ emission reduction per year and describes in brief, the sustainability of the proposed

Project. PP provides PCN to interested Parties if they are interested. The buyer or investor signs a letter of intent to buy all or a certain amount of emission reductions.

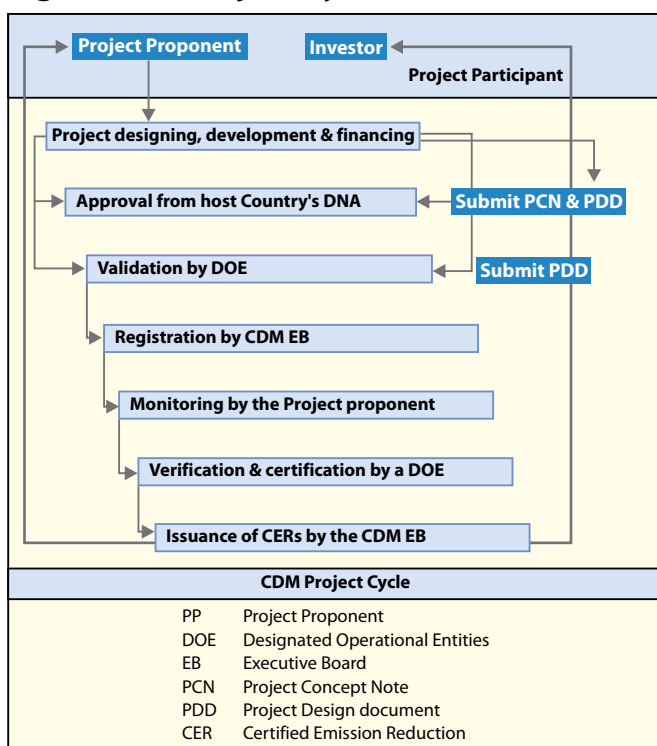
Box 5. Activities Eligible for availing Carbon Credits

The activities eligible for availing Carbon Credits are:

- Afforestation & reforestation Projects.
- Agri-biomass based Energy Projects.
- Bio-methanation : Power Generation route, Organic Fertilizer
- Energy Generation by controlled combustion
- Wastewater Projects: Methane Capture, Methane Capture & Flaring, Organic Fertiliser.
- Wastewater cum solid waste treatment : Methane capture, Power generation
- Avoidance of methane and nitrous oxide emission from paddy fields
- Household level biogas plants treating organic farmyard, Kitchen, and biowastes
- Solar Energy
- Special Manure making practices

Source: <http://www.peda.gov.in>

Fig 2. CDM Project Cycle



- b) **Project Design Document (PDD):** This is the principal document or basic report used by PP for CDM project approval. It describes the Project and gives information on various stakeholders, duration, site details or the project boundary for GHG reduction and baseline estimates (can be based on the fossil fuel, thermal, electrical, mechanical energy replaced by any renewable or less polluting fossil fuel) against which the reduction in GHG emission can be calculated

(or calculation of Carbon Credits) and documentation of the monitoring mechanisms for yearly estimations of GHG reductions.

2. Approval from Host Country's Designated National Authority (DNA):

The CDM project is required to get approval from host country's DNA. DNA reviews CDM Project on the basis of three criteria namely: sustainable development indicators, additionality & environmental criteria. The details of these criteria are given in Box 6. The project proposal should describe methodology of determination of baseline in a simple, easy to understand, uniform and consistent manner. For reference, the approved methodologies by the CDM Executive Board and the lifetime of project cycle should be mentioned clearly.

3. Validation of Designated Operational Entities (DOE) :

Validation is the independent evaluation of the PDD conducted by a third party agency known as Designated Operational Entity - DOE (Box 7) as per the UNFCCC's prerequisites. It can be done at the time of evaluation by DNAs. During validation the following points are looked upon:

- Requirements as per UNFCCC
- Comments by stakeholders
- Environmental impact analysis or assessment
- Additionality of the GHG emissions reduction
- Baseline and monitoring methodologies.

The same DOE can carry out both validation (at project outset) and verification (during project operation) only if a specific request is made to the CDM EB (Box 8).

4. Registration by Clean Development Mechanism Executive Board (CDM EB):

Registration of the project with the CDM EB is the act of formal acceptance of the validated project. The request for registration of a CDM project is the responsibility of the DOE. The DOE submits the validation report and host country approval to the Executive Board for registration. The registration of the project with the Executive Board will be final after a maximum of eight weeks after validation and the submission of the project to the Executive Board, unless a review is requested. The review by the Executive Board must be related to issues associated with the validation requirements for CDM projects. Until the review is finalized by the Executive Board, the decision for validation is not final and thus the project cannot be registered.

5. Monitoring by the Project Proponent (PP) :

After registration, the CDM Project is implemented. The PP or Project developer is responsible for monitoring of the project performance. The monitoring starts from the point of implementation and as per procedures depicted in the validated monitoring plan of the PDD.

Box 6. Criteria for CDM Project approval from DNA

1. Sustainable Development Indicators*

The CDM project activity should lead to:

- Social well-being - Alleviation of poverty by generating additional employment, removal of social disparities & providing basic amenities to people with improvement in quality of life of people.
- Economic well-being - Additional economic benefits as per needs of the people.
- Environmental well-being - Resource sustainability and bio-diversity friendly, reduction in the levels of pollution and with lesser effects on human health.
- Technological well-being - Transfer of environmentally safe and sound technologies. The transfer of technology can be within the country as well from other developing countries also.

2. Additionality

- Emission Additionality - The project should lead to real, measurable and long term GHG mitigation. The additional GHG reductions are to be calculated with reference to a baseline.
- Financial Additionality - The procurement of CERs should not be from Official Development Assistance (ODA).

3. Baselines

- Baselines should be precise, transparent, comparable and workable.
- Baselines should avoid overestimation.
- The methodology for the determination of baselines should be homogeneous and reliable.
- Potential errors should be indicated.
- System boundaries of baselines should be established.
- Interval between updates of baselines should be clearly described.
- Role of externalities should be brought out (social, economic and environmental).
- Baselines should include historic emission data-sets wherever available.
- Lifetime of project cycle should be clearly mentioned.

**The Project Proponents should commit a certain percentage of the CERs revenue every year (subject to a minimum of 2%) for Sustainable Development including society/community development and accordingly make monitorable action plan for the same and include in the PCN & PDD.*

Source: <http://www.cdmindia.in>

Box 7. Designated Operational Entity (DOE) for CDM

DOE is the domestic or international legal entity that is qualified by the CDM Executive Board. It plays important role during the various stages of the CDM project development process as stated below:

- Validation of CDM activities at the beginning of the project.
- Verification of emission reduction of a registered CDM project activity.

- Availability of CDM project design documents to public.
- Receiving public comments on the CDM documents.
- Incorporating stakeholder comments.
- Verification and certification of CERs.
- Request to the Executive Board.

Source: <http://cdm.unfccc.int/>

Box 8. CDM Executive Board

The Executive Board was elected at COP-7 and has ten members representing both industrialized and developing countries. The CDM Executive Board administers CDM and reports directly to the Conference of Parties to the UNFCCC /the Meeting of Parties to the Kyoto Protocol (COP/MOP). The Executive Board is responsible for:

- Making recommendations to the COP/MOP on amendments as well as on further modalities and procedures for the CDM.
- Approving new methodologies related to baselines, monitoring plans and project boundaries.

- Reviewing simplified procedures and definition of small-scale projects and report to COP/MOP.
- Accrediting and suspending of operational entities.
- Reviewing accreditation procedures.
- Making publicly available proposed CDM activities and all procedures for developing a CDM project.
- Developing and maintaining a CDM project registry.
- Reviewing project validation and verification reports.
- Issuing verified CERs

Source: UNFCCC, 2002 and <http://cdm.unfccc.int/>

6. Verification & Certification by Designated Operational Entity (DOE):

Verification is a periodic performance review that takes place once the project is implemented. It reviews ex-post determination of the monitored GHG emission reductions that have occurred as a result of the CDM project. The PP or Project developer is responsible for contracting DOE to carry out the verification process.

The Executive Board provides a list of DOEs (Box 9) that can be contacted to carry out verification activities. The DOE verifies the data collected by the developer according to the monitoring plan.

The verification process confirms the total number of CERs resulting from CDM projects during a specific period of time with the criteria defined under the Kyoto Protocol.

Box 9. List of Designated Operational Entities (DOEs) accredited by UNFCCC

Japan Quality Assurance Organisation (JQA)	Bureau Veritas Certification Holding SAS (BVCH)	Lloyd's Register Quality Assurance Ltd. (LRQA)	Environmental Management Corp. (EMC)
JACO CDM., LTD. (JACO)	SGS United Kingdom Ltd. (SGS)	Colombian Institute for Technical Standards and Certification (ICONTEC)	Japan Management Association (JMA)
Det Norske Veritas Certification AS (DNV)	Korea Energy Management Corporation (KEMCO)	Korean Foundation for Quality (KFQ)	Germanischer Lloyd Certification GmbH (GLC)
TUEV SUED Industrie Service GmbH (TÜV SÜD)	TÜV Rheinland Japan Ltd. (TÜV Rheinland)	Swiss Association for Quality and Management Systems (SQS)	China Quality Certification Center (CQC)
Deloitte Thmatsu Evaluation and Certification Organization (Deloitte-TECO)	ERM Certification and Verification Services Ltd. (ERM CVS)	China Environmental United Certification Center Co., Ltd. (CEG)	Ernst & Young Associés (France) (EYG)
Japan Consulting Institute (JCI)	Spanish Association for Standardisation and Certification (AENOR)	SIRIM QAS INTERNATIONAL SDN.BHD (SIRIM)	
	TÜV NORD CERT GmbH (TÜV Nord)	Korean Standards Association (KSA)	

Source: <http://cdm.unfccc.int/>

Frequent verification increases transaction costs, but also allows for more frequent transfer of CERs. The DOE makes the monitoring report publicly available and submit a verification report to the Executive Board. This report is also to be made publicly available. The verification includes:

- Review of monitoring results and data collection systems linked to emission reductions.
- Review of established practices and the accuracy of data collected as well as monitoring equipment.
- Review of the management system supporting the reported emission reductions.

- Based on a successful verification, the operating entity will determine and certify the amount of emission reduction credits generated. Consequently, a request is made to the CDM Executive Board, for issuing certified credits.

Certification is the written assurance by a DOE that during the specified time period, a project activity achieved the reductions in GHG emissions as stated and verified, in compliance with all relevant criteria.

The performance of the CDM project with respect to the quantity or quality of the CERs is the responsibility of the DOE. Consequently, a

DOE carry adequate liability insurance. The certification report prepared by the DOE consists of a request to the Executive Board to issue the amount of emission reductions that have been verified by the DOE as CERs Adaptation fund (Box 10).

Box 10. Adaptation Fund

CDM is the main source of income for the UNFCCC "Adaptation Fund" which was established to finance adaptation projects and programmes in developing country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change. The Adaptation Fund is financed by a 2% levy on CERs issues by the CDM.

7. Issuance of CER

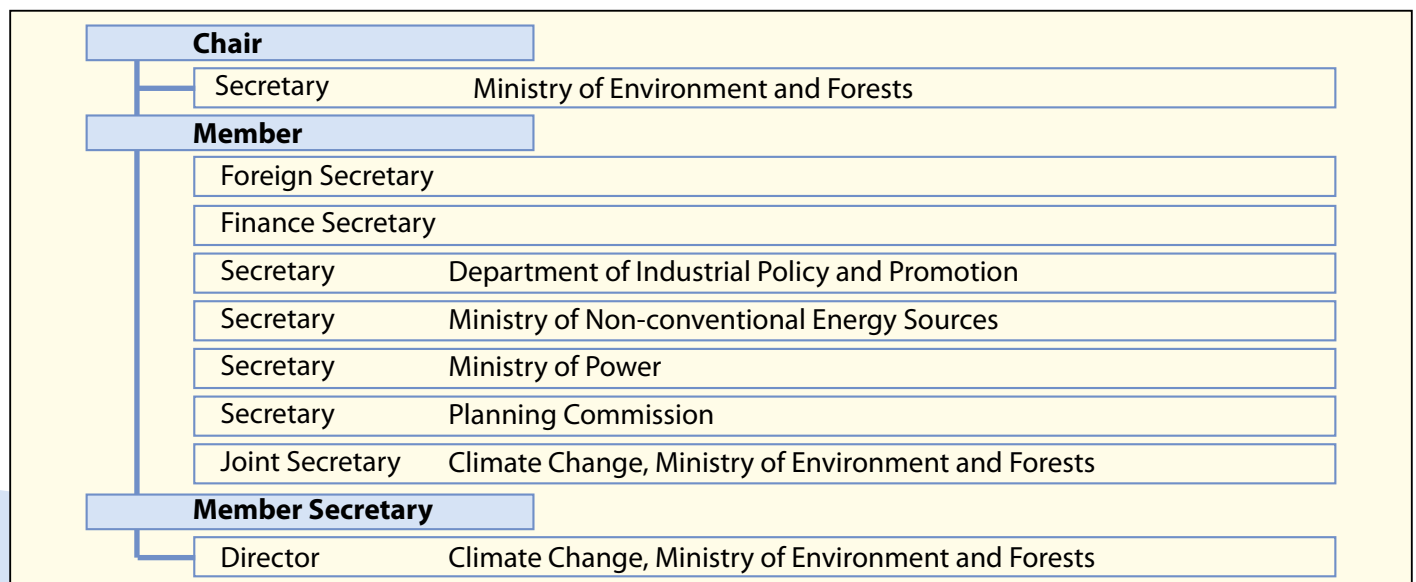
DOE sends a request to issue CERs to the CDM EB. CDM EB issues the certified amount of CERs within fifteen days. This can be stopped by the PP or more than three CDM EB members requesting for review. When the Executive Board approves the issuance of CERs, the CDM registry administrator, working under the authority

of the Executive Board, forwards the CERs into the appropriate accounts. This includes, if applicable, the account for the share of proceeds, for administrative expenses and forwarding the remaining CERs to the project developer, and the 2 per cent of the CERs required to go into the adaptation fund.

CDM: INDIA SCENARIO

India is a party to the United Nations Framework Convention on Climate Change (UNFCCC) since 1992 and ratified to the Kyoto Protocol on 26th August , 2002. The Central Government of India constituted the National Clean Development Mechanism Authority (NCDMA) in December, 2003 with 6 ministries and the Planning Commission as its members (Fig 3). The Government of India has also prepared & released Prime Minister's National Action Plan on Climate Change (NAPCC) in June 2008. The brief of the same is given in Box 11.

Fig 3. National Clean Development Mechanism Authority (NCDMA) Structure in India



Source: <http://cdmindia.nic.in>

Box 11 . National Action Plan on Climate Change

Prime Minister's Action Plan on Climate Change

Mission	Objective	Responsible Entity
National Solar Mission	20,000 MW of solar power by 2020	Ministry of New & Renewable Energy
National Mission for Enhanced Energy Efficiency	10,000 MW of EE savings by 2020	Ministry of Power
National Mission for Sustainable Habitat	EE in residential and commercial buildings, public transport, Solid waste management	Ministry of Urban Development
National Water Mission	Water conservation, river basin management	Ministry of Water Resources
National Mission for Sustaining the Himalayan Ecosystem	Conservation and adaptation practices, glacial monitoring	Ministry of Science & Technology
National Mission for a Green India	6 mn hectares of afforestation over degraded forest lands by the end of 12th Plan	Ministry of Environment & Forests
National Mission for Sustainable Agriculture	Drought proofing, risk management, agricultural research	Ministry of Agriculture
National Mission on Strategic Knowledge for Climate Change	Vulnerability assessment, Research & observation, data management	Ministry of Science & Technology

Mission focused on 'Mitigation'

Mission focused on 'Adaptation'

Source: www.pmindia.nic.in

In India, DNA Approval are straightforward and PP could get host country approval letters within 60 days unless there is no query from NCDMA. The NCDMA meeting for project approval is held every month. In application, the PP is required to submit various documents like, cover letter signed by the project sponsors, PCN: online submission (one copy) & submission of 20 hard copies, PDD: online submission (one copy) & submission of 20 hard copies and two CDs containing PCN and PDD.

CDM Projects in India

Since its inception the Indian DNA has approved a significant number of projects. 738 projects have been registered by the CDM

Executive Board till 1 November 2011 (Table 1, 2 & Box 12). This accounts for about 21% of all the registered projects all over the world.

Table 1. Status of CDM Projects : India

Number of CDM Projects registered at the CDM Executive Board (as of 1 November 2011)	738
Number of registered unilateral* CDM Projects (at the time of registration) (as of 1 November 2011):	603 (82%)
CDM Projects at or after the validation stage	1,022

Source: <http://cdmindia.nic.in>

*Unilateral refer to those CDM project activities that do not have an Annex I Party letter of approval at the time of registration of the project.

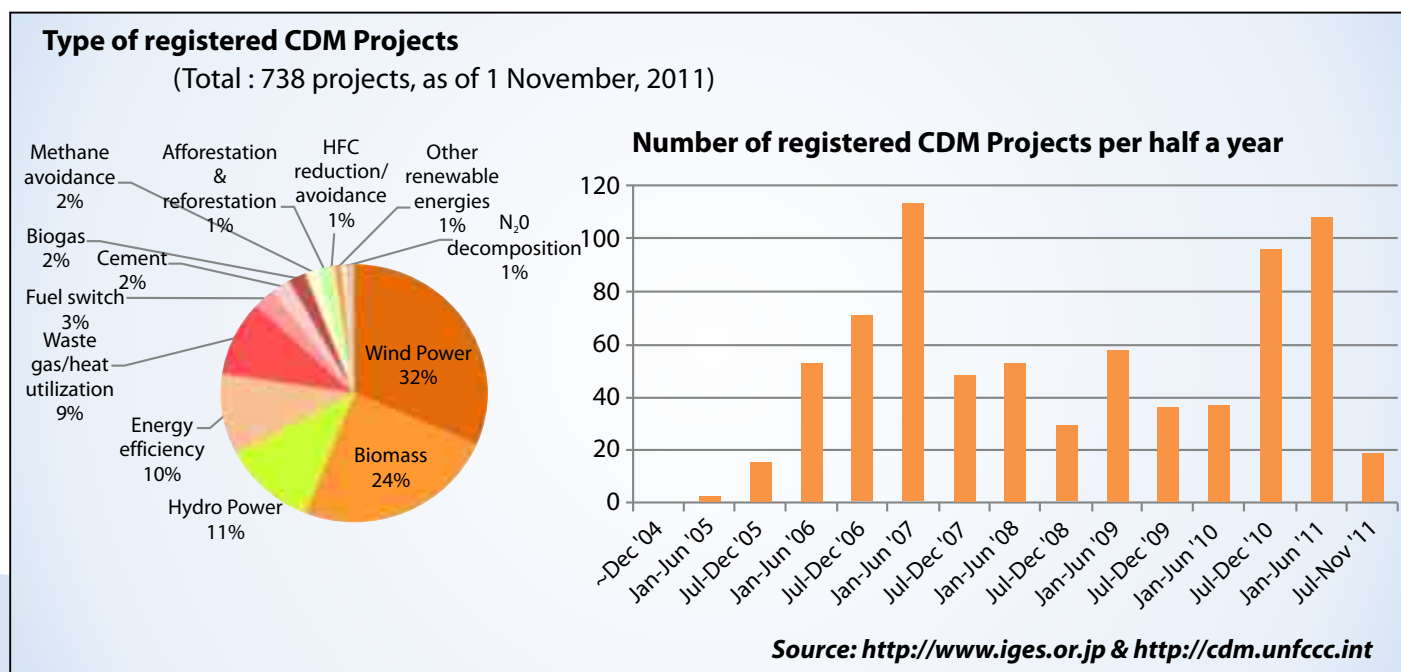
Table 2. Details of Registered CDM Projects in India

	No. of Projects	Avg. Annual Reductions	Total Ers by 2012 (t-CO ₂)	Amount of Issued CERs (t-CO ₂)	Review Requested	Rejected
Wind Power	233	32,055	33,996,009	9,854,826	56	8
Biomass	180	38,613	37,839,697	8,617,197	61	15
Hydro Power	83	88,199	20,586,368	2,877,343	23	5
Energy efficiency	75	113,814	13,099,874	1,385,897	21	8
Waste gas/ heat utilization	70	76,220	35,541,907	11,577,767	33	8
Fuel switch	20	358,053	27,760,522	7,637,476	7	0
Cement	17	114,708	16,806,437	1,382,047	2	4
Biogas	16	28,218	2,551,228	695,884	4	0
Methane avoidance	13	82,138	2,433,170	47,795	3	0
Afforestation & reforestation	7	72,246	5,528,972	0	1	0
HFC reduction/avoidance	7	1,577,424	82,691,940	74,813,284	2	0
Other renewable energies	6	18,503	419,763	0	2	0
N ₂ O decomposition	5	406,915	6,137,291	155,115	3	0
Transportation	3	211,355	1,065,277	82,317	0	0
Methane recovery & utilization	2	94,254	1,174,219	88,873	0	0
PFC reduction	1	433,551	1,301,367	33,624	0	0
Total	738	82,915*	289,234,041	119,249,445	218	48

Source : <http://www.iges.or.jp>

*average annual emission reduction of all the projects

Box 12. Type of Registered CDM Projects



In the initial stage of CDM adaptation in India, biomass utilisation, waste gas/heat utilisation and renewable energy (wind, hydro) projects were mainly taken up. However, as per India's initial communication to UNFCCC regarding the GHGs in 1994 the major contributors of GHGs emission were energy sector (61 percent) and agriculture sector (28 percent). Later, alongwith other under above mentioned sectors, India also registered CDM projects on energy efficiency (cement, steel, etc.), fuel switch, HFC reduction, N₂O decomposition, afforestation and reforestation, and transportation. Recently, a number of wind power projects were also registered giving wind power a top share in the Indian projects.

In India, CDM promotion cells have been established at state level. They conduct supportive activities such as information dissemination on CDM and coordination between local and national governments.

India is considered as the largest beneficiary, claiming about 31% of the total world carbon trade through the CDM, which is expected to rake in at least \$5-10bn over a period of time (www.peda.gov.in).

One of the features of CDM implementation in India is the large share of unilateral CDM projects Indian project developers implement the project by bearing the transaction costs of CDM and taking on the risks of the projects. Therefore, the price of credits issued by unilateral CDM projects tends to be higher than bilateral (standard form of the CDM project, involving an investor, a developed

country and a host developing country) or multilateral (involves the investor country, a host country and third party provision of the finance) CDM projects.

CDM Capacity Building Initiatives

CDM is an important and innovative international financial cooperation mechanism that can play a significant role in mitigating climate change and promoting sustainable development in the long run. Various capacity building programmes taken by Government of India are as follows (<http://envfor.nic.in/>):

- Bureau of Energy Efficiency (BEE), Ministry of Power, Government of India is implementing "A CDM - Capacity building Programme" in partnership with Designated National Authority, Ministry of Environment and Forests, Government of India which is funded by German Ministry of Economic Cooperation and Development through Indo-German Energy Programme (IGEN), German Technical Cooperation (GTZ). Its objective is to promote high quality CDM projects and provide experience through 'learning by doing'.
- Asian Development Bank (ADB) supports climate change initiatives across its developing member countries in Asia and the Pacific through its Renewable Energy, Energy Efficiency and Climate Change (REACH) Program supported by the trust

funds from the Governments of the Netherlands, Denmark and Canada, and through the CDM Facility established in 2003. In India, Technical Assistance (TA) project is being funded through the Canadian Cooperation Fund on Climate Change under the REACH program and be implemented in close cooperation with the MoEF. It has learning-by-doing approach and targets CDM opportunities available at selected urban local bodies, municipalities and rural sectors. The main focus of activities is to address the capacity building needs of various stakeholders to strengthen India's position as a key player in the rapidly evolving international carbon markets.

- United Nations Development Programme (UNDP) has been working closely with the Government of India in various strategic areas of development interventions. As one of the implementing agencies of the Global Environment Facility (GEF), UNDP is contributing towards resource mobilization for addressing global environment issues. UNDP primarily seeks to contribute to an effort to mobilize and leverage additional CDM resources for an enhanced contribution to rural development and poverty alleviation in India.
- Five state agencies namely, Punjab Energy Development Agency (PEDA), Maharashtra Energy Development Agency (MEDA), Rajasthan Energy Development Agency (REDA), Environment Protection, Training &

Research Institute (EPTRI) and Environment Management & Policy Research Institute (EMPRI) have been identified by the Ministry of Environment & Forests for capacity building exercise.

CDM POTENTIAL: PUNJAB

The State Government has notified PEDA as the State Nodal Agency for Carbon Credits under the CDM. All PP or Project developers (private as well as Government) can have PEDA's assistance in terms of seeking carbon credits under CDM for supply new and renewable sources of energy as well as for demand (energy efficiency) side projects. CDM potential in Punjab is given in Table 3.

Table 3. CDM Potential in Punjab

Energy Source	Unexploited (MW)	Exploited (MW)
Biogas Plants	164	40
Biomass	1000	28.5
Solar Energy	100	2.325
Small Hydro	140	30
Municipal Solid waste	100	-
Co-generation (Sugar)	220	75
Co-generation (Other Industry)	300	145
Energy Efficiency (Buildings)	500	-
Transport (Diesel Buses - Fuel Switch over to CNG (Tons of CO ₂ equiv.)	15000 TCO ₂ e	-
Waste Management	-	-
Change in cropping pattern, AF/RF	-	-

Source: <http://www.peda.gov.in>

Box 13. CDM Services by PSCST

PSCST is providing consultancy for CDM projects in Punjab as follows:

- Advisory services on CDM Process, esp. L&M industry
- PIN-PDD preparation
- Facilitation for DOE selection
- Voluntary Emission Reduction or Voluntary Emission Reduction (VER) Projects
- Identifying new VER areas (Aforestation/ Reforestation (A/R) and Medicinal Plant Projects etc.)

The maximum of exploited CDM potential is in the co-generation projects, however, there is lot of potential in other areas. Punjab State Council for Science & Technology (PSCST) is providing consultancy services for CDM Projects in Punjab (Box 13 & 14).

Box 14. A Case Study of a CDM Project in Punjab

Punjab Energy Development Agency (PEDA) had awarded the work of CDM consultancy i.e. for the development of PDD and PCN for 1MW Solar Photo Voltaic (SPV) at village Phulokhari, District Bhatinda to PSCST.

Under this project, PSCST had carried out the following activities:

- Preparation and submission of PCN and PDD with National CDM Authority (NCDMA).
- Follow up with NCDMA for approval.
- Organizing local stakeholders meeting.
- Facilitating PEDA in hiring of Designated Operational Entity (DOE) for validation of the project.

Further, PSCST have also prepared draft DNIT for hiring of Designated Operational Entity (DOE) and submitted to PEDA for finalization as per its departmental guidelines.

Project Details

- Annual Generation : 1429 MW
- Annual CERs : 1331
- Crediting Period : 10 years
- Total CER's Credit value for 10 years:
 - @ 11 Euro per CER : Euro 146410 (Rs. 92.53 lacs approx.)
 - @ 8 Euro per CER : Euro 106480 (Rs. 67.29 lacs approx.)
- CDM Process Cost for : Rs. 18-20 lac approx. project period
(includes Rs. 8-10 lac initial cost)

CDM: THE CHALLENGES AHEAD

Just as there are opportunities, there are also a number of concerns and challenges associated with development of CDM projects, few of them are stated as under:

- Develop expertise for smaller projects
- Tap untapped areas
- Promote active financial institution participation by making them responsible for Green Funding.
- Regular awareness & capacity building of stakeholders.

Thus, it is suggested that following initiatives may be taken to catalyze CDM activities:

- Emphasis to mobilize private sector participation in the CDM, willing to respond positively to CDM criteria.

- Encouraging CDM participation of large public sector emitters (e.g. power & transport sector).
- Information infrastructure to support a functioning market - e.g. baselines for major sectors like Power, Cement, Iron and Steel.
- Explore opportunities for sector trading schemes (Sectoral & Programmatic CDM)
- Integration of GHG emissions reduction activities in development assistance and national development programmes

However, it can be concluded here, that if the concerns over the CDM are properly addressed, it would continue to be an important instrument in the fight against climate change and lead to sustainable development.

References

Ministry of the Environment, Japan (MOE). CDM Manual: for Project Developers and Policy Makers.

United Nations Development Programme (UNDP), 2003. The Clean Development Mechanism: A users Guide. United Nations Development Programme, One United Nations Plaza, New York, NY 10017.

United Nations Framework Convention on Climate Change (UNFCCC), 2002. A Guide to the Climate Change Convention Process, Climate Change Secretariat Bonn.

Web References

<http://cdm.unfccc.int>
<http://www.iges.or.jp>
<http://www.icbe.com>
<http://cdmindia.nic.in>

<http://envfor.nic.in>
<http://www.peda.gov.in>
<http://www.pmindia.nic.in>

UN climate meet approves roadmap for 2015 deal

UN climate negotiators today struck a compromise deal on a roadmap for an accord that will, for the first time, legally force all major carbon emitters to cut greenhouse gas emissions, ending days of wrangling between India and the EU over the fate of the Kyoto protocol.

While the new pact to be finalised till 2015, will, for the first time, bring India and China under the ambit of a legal mechanism guiding emission cuts, the accord will come into effect only from 2020.

The pact on tackling climate change - the agreement on which came after hard negotiations that ran 36 hours beyond schedule - must be completed by 2015, and talks on the new legal deal covering all countries will begin next year, when Kyoto Protocol expires.

Under the compromise, while India and China agreed to bring themselves under a governing treaty, the developed nations agreed to a second commitment period under Kyoto Protocol, putting to rest concerns that they would walk away from commitments once the 1997 treaty expires in 2012.

Kyoto Protocol remains the only legally binding treaty for cutting greenhouse gas emissions, and India had batted hard for its revival at the 194-party conference here.

Kyoto Protocol sets binding targets for 37 industrialised nations and the EU to slash carbon emissions to 5 per cent below the 1990 levels by 2012.

Up to now, China and India have been exempt from any constraints because they are developing countries, while the US has opted out of the Kyoto Protocol.

During the conference, which was originally scheduled to close on Friday, the EU had pushed hard for a "roadmap" to a new, legally-binding treaty against fierce resistance from India and China, whose delegates argued that mandatory cuts would slow their growth and condemn millions to poverty.

"Am I to write a blank cheque and sign away the livelihoods and sustainability of 1.2 billion Indians, without even knowing what the EU 'roadmap' contains?" asked Environment Minister Jayanthi Natarajan. "Please do not hold us hostage."

The final text of the Durban conference said parties would "develop a protocol, another legal instrument or an agreed outcome with legal force". The compromise averted the use of "legally-binding".

"The equity of burden-sharing cannot be shifted," Natarajan said, while rejecting the EU proposal which, she argued, undermined the two-decade-old principle that developing nations had less responsibility than industrialised countries.

The intense debate went on past midnight last night, prompting Conference president and South African Foreign Minister Maite Nkoana-Mashabane to call a recess.

Nkoana-Mashabane gave Natarajan and European Commissioner Connie Hedegaard 10 minutes to come up with a compromise formula.

After their talks, India and EU agreed to the compromised formula, with Natarajan saying: "We have shown our flexibility and we have agreed to this..." UNFCCC chief Christiana Figueres seemed happy with the outcome at the Durban talks.

"In honour of Mandela: It always seems impossible until it is done. And it is done!" Figueres tweeted, citing the words of the former South African President and anti-apartheid icon.

"I think in the end it ended up quite well... The first time you will see developing countries agreeing, essentially, to be bound by a legal agreement," US chief negotiator Todd Stern said.

Describing the agreement reached at the climate talks in Durban as "significant", UN chief Ban Ki-Moon said it represents an "important advance" in the work on tackling global warming and sought its quick implementation.

Many delegates earlier felt the host South African government lacked urgency and strategy to clinch a deal.

However, there was applause in the main conference hall when Nkoana-Mashabane announced the final outcome.

Apart from the roadmap for a new deal, the meet agreed to the management of a fund for climate aid to poor countries, though how to raise the money was not specified.

Under the agreement, EU will place its current emission-cutting pledges inside the legally-binding Kyoto Protocol.

Xie Zhenhua, head of the Chinese delegation, said the outcome was fully in accordance with the mandate of the UN Framework Convention of Climate Change (UNFCCC), the Kyoto Protocol and the Bali Roadmap.

Describing the outcome as "progressive and balanced," he said it was also in line with the two-track negotiation process and the principle of common but differentiated responsibilities.

"The conference made decisions on the arrangement of the second commitment period under the Kyoto Protocol, which is the most pressing issue for developing countries," Xie was quoted as saying by China's official news agency Xinhua.

Earlier, the EU said the developed nations do not want India to harm its economy but insisted the country still needs to agree to a legally binding treaty.

"We would never dream of asking India to harm its economy," Hedegaard told PTI. "We fully recognise India's right to grow and we are fully aware that India has lot of development needs and needs to access energy." - PTI

The Durban outcome

- The pact will for the first time bring India and China under the ambit of a legal mechanism guiding emission cuts.
- The accord will come into effect only from 2020.
- Under the compromise, the developed nations agreed to a second commitment period under the Kyoto Protocol.
- Talks on the new legal deal covering all countries will begin next year, when the Kyoto Protocol expires.

Source: The Tribune: December 12, 2011

Historical emissions must be accounted for: Brazil, India and China

NEW DELHI: India, Brazil and China took yet another step in firming their alliance on the climate front with the three BASIC countries together demanding that the principle of 'historical emissions' be placed firmly on the Durban agenda for possible decisions.

The US, on the other hand, took another step back, suggesting that the UN process could not tell it if private investments by corporate groups should be accounted as US government's contribution to climate funds or not. It instead demanded that a graduation formula be put up for developing economies like India and China to also contribute to climate funds in coming years. On Monday, the US had indicated that it was not in favour of upping its emission cut pledges (made at Cancun last year) till 2020.

The submission by the three -- India, China and Brazil - read, "The submission demands that the gathered countries take a decision to work towards identifying a global goal for substantially reducing global greenhouse gas emissions as well as a timeframe for global peaking of emissions must be based on historical responsibility."

The three along with other key partners in the developing

world, sources at Durban said, were mulling several options to operationalise the Cancun agreements of 2010 and help the hosts South Africa find a successful middle ground. Operationalising the agreements would require that the pledges on finance technology and emission reduction by developed and developing countries be converted into official UN decisions accepted by all countries.

India had pledged an emission intensity reduction target of 25-30% by 2020 with similar targets by other BASIC countries. The developed countries had pledged absolute emission reduction cuts along with \$100 billion as climate funds starting 2020 and \$30 billion as fast-start funds between 2010 and 2012.

But on the second day of the talks, EU kept up its demand for a long-term global deal far beyond operationalising Cancun agreements and was backed by the small island states.

Going into Durban, India had demanded that besides operationalising the Cancun agreements, the leftover items from the 2009 Bali Action Plan also be decided at the South Africa talks. To this end, it had put equity, IPR and trade barriers back on the Durban agenda ensuring that these critical elements didn't get washed out of the discussions.

By Tuesday, its proposals for the inclusion of the three issues in the negotiations had gained greater traction with the developing world pitching the BASIC countries yet again at the forefront of the climate talks.

Source: The Times of India: December 02, 2011

PPCB set up air stations at busy traffic points

Amritsar: The regional office of Punjab Pollution Control Board has set up ambient air stations to gauge the impact of vehicular pollution in busy hours on key points in holy city.

Kuldip Singh, environmental engineer said these ambient stations would calculate RSPM, the nitrogen oxide and sulphur dioxide contents in the air.

"The results will show the impact of vehicular pollution in busy hours. It will further help us to diversify the traffic to other routes and maintain free flow of traffic." Meanwhile, four stations have been installed at Sant Singh Sukha Singh Chowk, Bikaner Sweets for Kitchlew Chowk, Din Dayal Upadhaya Market for Bhandari Bridge and Sheedan Sahib Gurudwara for Chattiwind Chowk.

There are nearly 1,200 units here registered with the board. These units are needed to take permission for running units with a rider of discharging effluents and releasing gases in air within a permissible limit.

Source: The Tribune: November 22, 2011

Events

24th March to 26th March 2012

The International Conference on "Sustainable Development and Environmental Protection: Clean Development and Environmental Sustainability for Developing Nations.

Venue: Ota near Lagos, Ota, Nigeria

Organized by: Institute For Environment Research And Development (IERD)

Website: <http://www.ierdafrica.org>

Contact name: Dr Adedeji Daramola

26th February to 28th February 2012

International Conference on Climate Change and Humanity (ICCCH 2012)

Venue: Singapore, Singapore

Organized by: CBEES

Website: <http://www.iccch.org/>

Contact name: Conference Secretary at iccch@cbees.org

24th February to 26th February 2012

International Conference on Environmentally Sustainable Urban Ecosystems (ENSURE 12)

Venue: Guwahati, Assam, India

Organised by: Centre of Excellence for Integrated Land-use Planning and Water Resource Management, Civil Engineering, Indian Institute of Technology Guwahati

Website: <http://www.iitg.ernet.in/coeiitg/ensure.html>

Contact name: Prof. A. K. Sharma

9th February to 10th February 2012

National Conference on Novel Techniques for Mitigation of Vital Pollutants in Environmental Systems

Venue: Coimbatore, Tamil Nadu, India

Organized by: Department of Civil Engineering, Coimbatore Institute of Technology

Website: <http://tinyurl.com/4ygskcq>

Contact name: Dr. S. Keerthinarayana, Professor, Civil Engineering

Useful Weblinks

<http://www.cdmindia.gov.in/>

National Clean Development Mechanism (CDM) Authority, Ministry of Environment and Forests

<http://cpf.wbcarbonfinance.org>

Carbon Partnership Facility

<http://cdmrulebook.org>

CDM Rule Book : Clean Development Mechanism Rules, Practice & Procedures.

<http://www.cdmindia.com/>

Clean Development Mechanism: Advisory Services for Environmental Management, Indo Germany Programme.

<http://www.cdmbazaar.net>

United Nations Framework Convention on Climate change CDM Bazaar

Contact Us

Punjab ENVIS Centre

Punjab State Council for Science & Technology
MGSIPA Complex, Near Sacred Heart School
Sector 26, Chandigarh - 160 019

Phones : 0172-2792325, 2793300, 2793600

Fax : 0172-2793143

E-mail : pun@envis.nic.in

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To obtain information from grass root level for further dissemination, the Centre invites articles, review papers, case studies or news items relevant to the subject area for publishing the same in the forthcoming issues of the Newsletter.

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