

**TALK ON “OPPORTUNITIES IN CLEAN DEVELOPMENT MECHANISM
(CDM)” July 2, 2007**

ORISSA WATERSHED DEVELOPMENT MISSION (OWDM), BHUBANESWAR

1 INTRODUCTION AND BACKGROUND

The Clean Development Mechanism (CDM) is an arrangement under the [Kyoto Protocol](#) allowing industrialised countries with a [greenhouse gas](#) reduction commitment to invest in emission reducing projects in developing countries as an alternative to what is generally considered more costly emission reductions in their own countries. 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 purpose of the CDM was defined under Article 12 of the Kyoto Protocol. Apart from helping developed countries ([Annex 1](#) countries) to comply with their emission reduction commitments, it must assist developing countries in achieving sustainable development, while also contributing to stabilization of greenhouse gas concentrations in the atmosphere. The CDM gained momentum in 2005 after the entry into force of the Kyoto Protocol.

Outline of the project process: An industrialised country that wishes to get credits from a CDM project must obtain the consent of the developing country hosting the project that it will contribute to sustainable development. Then, using methodologies approved by the CDM Executive Board (EB), the applicant must make the case that the project would not have happened anyway (establishing additionality), and must establish a baseline estimating the future emissions in absence of the registered project. The case is then validated by a third party agency, a so-called Designated Operational Entity (DOE) to ensure the project results in real, measurable, and long-term emission reductions. The EB then decides whether or not to register (approve) the project. If a project is registered and implemented, the EB issues credits, so-called Certified Emission Reductions; CERs (one CER being equivalent to one metric tonne of CO₂ reduction), to project participants based on the monitored difference between the baseline and the actual emissions, verified by an external party called a DOE.

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. Efforts are being made to identify possible opportunities for the implementation of CDM projects in the developing countries. Several efforts have been made both by research organizations and industry federations to create awareness and to disseminate information regarding CDM among various sections of the society.

A meeting was organized at the Orissa Watershed Development Mission (OWDM) on climate change and the CDM and the opportunities therein. The presentations on CDM were made by Mr. M. Satyanarayana, Hony Advisor to VEDA MACS, a project which developed the first BioCF project in India.

2 OPPORTUNITIES WITH CLEAN DEVELOPMENT MECHANISM (CDM)

2.1 ISSUES RELATED TO CDM

The United Nations Framework Convention on Climate Change (UNFCCC) is an intergovernmental convention to stabilize greenhouse gases in the atmosphere at a level that would prevent adverse changes in climate conditions. UNFCCC was agreed in 1992. To put the convention into operation, Kyoto protocol was outlined in 1997.

- The 1997 Kyoto Protocol rightly recognises land use, land use change and forestry as both part of the problem and part of the solution to greenhouse gas reductions. CDM is part of the Kyoto Protocol and the standards are still evolving. However, there seems to be some uncertainty with regard to CDM after the first commitment period which expires in 2012.
- Forest ecosystems act as “Sinks” for carbon sequestration and also as “Sources” of Carbon (deforestation, soil erosion etc.)
- CoP (Conference of Parties, held ever year at different parts of the world) -6 decided to give the go-ahead to ‘sinks’ though the concept remains somewhat flawed.
- CoP-7 went on to define ‘sinks’ as the afforestation and reforestation of degraded lands prior to 1990;
- CDM enhances opportunities for sustainable forest management including afforestation, reforestation and agro forestry.
- Agro forestry provides significant opportunities for carbon sequestration.
- Potential of various land management activities to mitigate global emissions of CO₂ by increasing carbon sink potential.
- (IPCC Assessment)
 - Tropical afforestation: 15%
 - Tropical agro forestry: 6%
 - Tropical regeneration: 18%
 - Slowing deforestation: 14%
 - Temperate afforestation: 13%
 - Temperate agro forestry: 1%
 - Agricultural management: 33%
- Annex 1 Countries: Developed countries with emission targets. They can invest in JI / CDM projects
- Non Annex 1 Countries: Those developing countries without targets. They can host CDM projects.
- Standards or protocols for monitoring, verification, legal contracts, trade documentation etc are still evolving.
- Markets for GHG-emissions trading are emerging around the world despite uncertainties regarding the Kyoto Protocol.
- At the recent World Economic Forum, participants identified climate change as one of the most important future variables for business.
- Perhaps more than 200 million tons of CO₂e have been traded in the past five years
- The other biodiversity related conventions have not gained the same level of global political and private sector interest as the UNFCCC.

- UNFCCC's much higher international profile may provide the much needed economic incentives.
- This opportunity to profit in the emissions-trading market (by selling emission credits to those entities who find it less costly to outsource part of their emission-mitigation commitment) provides a new source of funding for activities that will also enhance rural livelihoods.

2.2 SOME OF THE PILOT PROJECTS

Scolec Te (the tree that grows) and the Plan Vivo system in Mexico: Companies wishing to offset GHG emissions can purchase carbon credits from the local trust fund – Fondo Bioclimatico. These funds are used to provide farmers with carbon payments to cover the costs in establishing agro forestry systems, small-scale plantations and community reforestation activities. Local promoters help farmers draw up working plans (Planes Vivos)

Costa Rican Model: Norway negotiated the capture and fixation of 200,000 tons of carbon and paid \$2 million dollars to Costa Rica, which issued Certified Tradable Offsets (CTO). To provide service of carbon sequestration by 25 years in 142 sq km. to recover degraded lands. Funded thro public-private partnership. FONAFIFO under the Ministry of Energy and Environment receives, analyses applications, verifies, monitors and makes payments Carbon credits are marketed by Costa Rican Office for Joint Implementation (OCIC) which acts as a one stop shop for buying and sale of carbon credits (Certified Tradable Offsets). International investors purchase the CTOs developed either by govt. or individuals from OCIC.

Malaysian Experiment: Cooperative venture between Sabah Foundation - Malaysia and FACE Foundation – Netherlands. Rehabilitate 25,000 ha. Of degraded land to sequester 4.25 ml. t of carbon planting for 25 years and maintained for 99years. May not qualify as per the current definitions of afforestation and reforestation.

'Ecomarkets' project supported by The World Bank in Costa Rica: landowners in rural areas receive a payment for conserving and managing forests that provide four key services: water capture, biodiversity protection, scenic beauty and carbon sequestration. The payment is currently set at \$40.00 ha⁻¹ yr⁻¹. Initially, these payments were financed through a tax on gasoline. The Ecomarkets project aims at developing a true market in which consumers of these four environmental services pay for them through a government intermediary.

2.3 OPPORTUNITIES WITH CDM

CDM provides several opportunities in various sectors, though it is mainly practiced in the industrial sector. It does offer scope in the agro forestry and rural livelihood projects though it has not been explored much. The Governments of Japan, Canada, Finland and other EU Countries, many industries in the developed countries invest in BioCarbon Fund (BioCF), which supports forestry projects (LULUCF).

- Opportunities also exist outside KYOTO Protocol i.e voluntary market
- Capacity building at national level is required to tackle and manage these new opportunities on the ground'.

- PCF plus, CDCF plus and BioCF plus programmes of the World Bank attempt capacity building at the global level.
- Need to take advantage of opportunities for agro forestry that arise from 'free - market' approaches to sustainable land use and management.
- We should equip ourselves to sell a new "crop" in the international carbon market through agro-forestry, which can also help solve a problem that threatens our own livelihood.

3 AGROFORESTRY -CDM

CDM projects are being developed in several sectors such as mining, steel, biogassification and forestry, including agroforestry, which is the practice of integration of benefits of trees into agriculturally productive landscapes. It is practiced for years and it provides multiple benefits.

- Fertilizer trees for land regeneration, soil health and food security;
- Fruit trees for nutrition;
- Fodder trees that improve smallholder livestock production;
- Timber and fuel wood trees for shelter and energy;
- Medicinal trees to combat diseases;
- Trees that produce gums, resins or latex products.

Proven impacts of agro-forestry

- Reducing poverty.
- Contributing to food security
- a fairer deal for women farmers and other less -advantaged rural residents
- Reducing deforestation and pressure on woodlands
- Buffer against the effects of global climate change.
- Improving nutrition
- Augmenting accessibility to health through medicinal trees

Carbon Sequestration benefits

Any agro forestry plantation also generates biomass.

- Some plantations meet the Forestry definition of MoEF, GOI
 - 0.5 hac minimum area
 - Fast growing species like eucalyptus will generate more Carbon dioxide.
 - 5mtrs height: Orange and zetropha plantations may not meet the criteria
 - 30% crown cover
- However, many agroforestry plantations may not meet additionally and baseline conditions
- No forestry (Agro, Social, Farm) project can sustain only on carbon incomes: The carbon incomes are secondary or additional incomes.
- May provide the income till the main income starts -if monetized earlier
- Always the Carbon income is "Scale sensitive"

- Not remunerative at lower scale
- The land holding sizes in India makes it imperative to join collectively for getting carbon benefits

Industry Linkage: Very important

- The main income comes from the produce.
- Provides technical advise
- Facilitates financial assistance
- Provides some amount of certainty/stability
- Linkages Examples
 - Eucalyptus > Paper
 - Casuarina> Construction, paper
 - Subabul>Paper, Dairy farms
 - Tamarind, Mango> Processor
 - Neem, Pongamia>Bio-Diesel

Carbon Finance Business

- Prototype Carbon Fund
- CDCF
- BioCF
- Italian Carbon Fund
- Spanish Carbon Fund
- KFW
- Netherlands CDM Facility
- Danish Carbon Fund

BioCarbon Fund: In this project carbon credits are purchased from forest generated products

Tranche I: Out of 150 project proposals submitted, 23 projects identified for purchase of tCERs. This phase is already over and only one project from India has been selected.

Tranche II: Open for submission of PINs (Project Idea Notes). Here too only one project from India has been identified.

Methodology aspects: To acquire credits for CDM projects approved methodologies need to be adopted. One is the Baseline methodology and the other is the Monitoring methodology. It is important to identify which kind of methodology is applicable to the particular project. If not, a new methodology needs to be developed and approval has to be obtained from the CDM Board. But the procedure is too lengthy and cumbersome.

A few methodologies have been approved so far. The "Reforestation of Degraded land (AR-AM-0001)" which is popularly known as the China methodology is the first methodology that was approved by the CDM Board. It assumes that there is no preexisting activity, such as agriculture or grazing, hence no leakage is accounted.

However, in Indian context, mostly lands are on subsistence agriculture (Rain-fed) and it may not be applicable in most of the cases.

- ARNM 0019 – A new methodology which builds on Chinese Methodology but includes leakage component – Honduras methodology -
- If Soil Carbon component is also very substantial, then ARNM 0017-Mexico methodology may be tried.
- For more details refer to <http://cdm.unfccc.int/methodologies/ARmethodologies/publicview.html>

Establishing a baseline: The amount of emission reduction depends on the emissions that would have occurred without the project. The construction of such a hypothetical scenario is known as the baseline of the project. The baseline may be estimated through reference to emissions from similar activities and technologies in the same country or other countries, or to actual emissions prior to project implementation. Changes in the carbon stocks in the carbon pools within the project boundary from a land use that represents an economically attractive course of action, taking into account barriers to investment

Improving Rural Livelihoods through CDM

- Farmers are eligible for carbon benefits on commercial plantations and agro-forestry activity.
- Industry focusing on other sectors as they have better cost benefit.
- Thus a gap existed where farmers who could do with additional income are not getting CDM income.
- VEDA Macs is an organization trying to act as bridge between farmers and CDM income.

4 ABOUT THE BIOCF CDM PROJECT

Project Title

Improving Rural Livelihoods through Carbon Sequestration by adopting environment friendly technology based afforestation practices.

It is the only agro forestry CDM project in South Asia. It is a self sustaining project with no funding from a donor agency.

Objective

To develop reforestation on farmer's lands, presently fallow or under subsistence agriculture, organize credit for improving the lands and their incomes from their lands, through agro forestry on a sustainable basis.

Project participants

- Veda Macs Ltd. (project sponsor)
- JK Papers Ltd. (project partner)
- Farmers (shareholders)
- Regional Banks/Micro financial Institutions.
- Bio Carbon Fund of World Bank.

Project Location & Identification

- Koraput, Kalahandi and Rayagada districts of Orissa.
- Vishakhapatnam, Vizianagaram and Srikakulam districts of Andhra Pradesh.
- Project boundary is all-discreet parcels of lands owned by different farmers in the districts.
- Each of these parcels will be identified by a GPS reading (Longitude and latitude) taken from the centre of parcel of land, supported by the land documents and local drawings.

Activities being undertaken

- Identification of farmers.
- Organizing trainings.
- Arrangements of seedlings produced from clonal technology to the farmers to raise high density plantations.
- Promotion of farmer-industry partnerships with binding agreements to purchase wood.
- Encouraging farmers to go for agro-forestry practices such as inter-cropping during the first year to meet their subsistence costs.
- Arranging long term credit, if required for plantation and maintenance.
- Generation of additional income from carbon credits to the farmers.
- Technical and operational requirements of CDM such as collection, maintenance of data pertaining to biomass in the fields.
- Development of institutional mechanisms to aid the sale of Certified Emission Reductions (CERs), test carbon purchase transactions and accumulate experience in practical and technical measures for A/R CDM project activities;
- Conservation of biodiversity through reducing dependence on natural forests.

Plantation area

- To cover 3500 ha during the project period.
- From 6th year onwards harvesting starts and total ha remains 3500ha as coppicing in the harvested area is practiced.
- No of Farmer participants to reach about 2800 by 5th year.

Benefits to Farmers

- Additional revenue from CDM.
- Effective market linkages.
- Gainful utilization of their degraded lands & lands under subsistence agriculture.
- Removal of financial and technical barriers.

Project Details -Summary

- Green House Gas Targeted: CO₂
- Type of Activity: Carbon sequestration
- Project Activity: Commenced on 1st Oct, 2005
- Project period: 30years-Fixed
- Approach to Non-permanence: tCER's as well as inclusion of permanent crops like Mango, Tamarind, Neem etc.

Present Status of the Project

Host Country Approval: Designated National Authority (DNA) i.e. Ministry of Environment and Forests of GOI has accorded "no objection" certificate on 25th July 2005 and final approval was given on 3rd November 2006

Environment Management Framework (EMF) was developed in conformity with World Bank Safeguard procedures. CEE has undertaken the study to see whether there will be any negative impact on the environment due to project activity.

Disclosure Workshop on Environment Management Framework was conducted by Centre for Environment Education (CEE)

Emission Reduction Purchase Agreement (ERPA)

Emission Reduction Purchase Agreement (ERPA) was signed on 8th May 2007, by the project participants at the World Bank, New Delhi. Status Of Project: Refer:

<http://carbonfinance.org/biocarbon/router.cfmPage=html/IndiaRuralLivelihoods.html>.

- Validation expected to be carried out in August, 2007

Other CDM Initiatives by VEDA MACS

CDM Awareness Workshops for farmers: Being undertaken in various districts mainly in AP and Orissa to generate awareness among the farmers about CDM. Total No of farmers covered so far exceed 4000 farmers.

Awareness Workshops for Officials Of Forest Dept & Others: VEDA MACS provided resource persons for workshops "Unlocking opportunities for forest dependent people" organized by World Bank & TERI at Delhi, Bhubaneswar, Shimla, Guwahati & Hyderabad.

CDM revenue to the farmers of rubber plantations: Participated in discussions with Rubber Research Institute of India regarding the possibilities.

Scope of CDM to improve the raw material for paper industries: Presentation at Indian Paper manufactures Association's - Raw Material Sub Committee on role of CDM in improving the raw material supply for paper industries.

CDM revenue to the farmers involved in Coffee plantations: Discussions with Andhra Pradesh Tribal welfare corporation on scope of CDM income for the farmers involved in Coffee plantations.

CDM revenue to the Farmers involved in Bio-diesel plantations: Efforts to link the farmers involved in Bio diesel plantations project with CDM. Undertaking preliminary work of mobilizing farmers for Bio Diesel for TERI. Nearly 10,000 acres targeted and 4500 farmers covered so far.

Consultancy for Forest Departments: Providing consultancy to the Andhra Pradesh Forest Department on developing Agro Forestry models under CDM.

Other possible initiatives

- Bio gas in rural areas
- Poultry litter
- Meat waste
- Lac cultivation
- Soil carbon conservation
- Watershed catchment area plantations

CDM Market Development Initiatives

- Discussions with Chicago Climate Exchange to designate VEDA MACS as an "Aggregator." However, sustainable forest certification could be an issue for tapping voluntary markets.

DFID may like its partners to

- Commence a study to explore possibilities of developing CDM projects in WORLP and OTELP
- Undertake capacity building activities to WORLP and OTELP officials
- Awareness workshops to Farmers
- Support new innovative institutional mechanisms to promote CDM

5 Q&A & DISCUSSIONS

Post Mr. Satyanarayan's presentation, the meeting witnessed an enlightening Q&A session followed by discussion. The following are the main points discussed.

1. How is the leakage during plantation taken into account?

It is a technical and complex process where the leakage occurred due to grazing etc is taken into account for calculating net reductions.

2. Is there any CDM-agroforestry model that can be replicated in terms of generating rural livelihood?

CDM in agroforestry requires technical backstopping. Studies need to be conducted with the help of research organizations, universities etc to estimate the carbon sequestration potential of various species and also the optimum benefits various agroforestry models can provide. Once such information is made available, projects can be developed to access carbon revenue to benefit the rural communities at large.

The benefit sharing mechanism has to be clearly worked out in a CDM project. CDM is a multidisciplinary partnership where the participation of govt., NGO, industry, community is needed to develop projects as business models. Our goal should be to convert the stakeholders into shareholders in a business model.

3. Is there any change in the ownership of farmers in agroforestry CDM projects?
In the agroforestry projects, the ownership of the land does not change at all and it stays with the individual farmer only. Such type of projects, mainly address small and marginal farmers.

4. What is the scope of agro forestry CDM projects in common land?
Though the BioCF project deals with the private lands belonging to individual farmers, projects can also be developed on common land. However, benefit sharing and the institutional mechanism have to be worked out for those projects.

5. How do we address the issue of permanency of the farmers, in terms of increasing their bargaining power in rural livelihood CDM projects?
The BioCF project intends to form "FACT" (Farmers Association for Carbon Trading) to organize the farmers and also to increase their stake in the project.

6. What is the success of such agro forestry CDM projects in Orissa, where more than half of the population does not have land rights or individual ownership of land?
CDM need not be limited to forestry alone. It can be tried in other sectors such as poultry, solid waste management, biogasification too.

7. Can the BioCF CDM Project extend the benefits/training to other farmers?
The BioCF project can be replicated and also scaled up. However, mere capacity building of farmers or the officials would not help much. Since the first commitment period is coming to an end by 2012, it will be necessary to get the credits before 2012, as there is uncertainty over continuation of Kyoto Protocol beyond that. It may be useful to start designing the PDDS with the help of consultants/experts to ensure that the real economic benefits flow to the target groups.

8. What is the broader economics on which the BioCF CDM Project is based?
As per World Bank estimates, the total project preparation costs would be nearly US\$200,000. In addition US\$80,000 would be required to meet the cost of validation, registration etc.

6 SUGGESTIONS FOR INITIATING A CDM PROJECT

1. Consider CDM as a business venture and not as a govt. programme. Generate a good quality product (CER/tCER) and create a market for it.
2. The entire process of developing a CDM project requires multidisciplinary approach and is a long drawn process. It does not work on a small scale.
3. CDM project involves acquiring carbon, measuring, verifying, quantifying, crediting and then selling it.
4. The demand for CERs is not only for compliance of Kyoto Protocol commitment but even outside Kyoto Protocol. Voluntary market is developing in a big way within US and also outside US. The voluntary market is more interested in social benefits.
5. In case of agroforestry, there is a need to develop appropriate models which can give optimum benefits from carbon sequestration, timber, firewood and non

- wood forest products to the farmers. An organization like WORLP could develop such a model which farmers can adopt generating interest among govt. and other development practitioners.
6. Development of CDM projects particularly in agroforestry requires a new institutional mechanism. A NGO or CBO cannot develop a CDM project on its own. It requires a multidisciplinary approach and requires many competencies. Partnerships with research agencies and industry are also important.
 7. Identify the components in WORLP and OTELP, which can be developed into CDM projects.
 8. Also, identify the technology that can be adopted to mitigate climate change.
 9. The time factor is very critical for CDM projects, especially when credits have to be procured before 2012.

7 CONCLUSION

The meeting concluded with an unanimous opinion that the scope of CDM projects in the context of generating rural livelihood is worth exploring. However, the participants felt that a kind of convergence needs to be developed at the state level first with more orientation and training for the stakeholders. The participants discussed on the following significant issues:

- DFID may initiate the process for developing CDM projects to ensure that rural people have the access to additional source of income through CDM, both voluntary and compliance markets. A scoping study may be conducted for WORLP and OTELP to identify the potential CDM projects.
- It may also be useful to undertake the process documentation of the BioCF project in Orissa and Andhra Pradesh, which will be useful for other development practitioners in developing CDM projects.
- Capacity building of WORLP and OTELP officials, NGOs, research organisations and universities need to be undertaken to generate awareness about the CDM and its benefits to the rural communities.
- PD, OTELP requested Mr. Satyanarayan to share of the list of farmers associated with the VEDA MAC project in Orissa (Koraput, Kalahandi and Rayagada districts) where OTELP also operates.