

Improving Rural Livelihood Through Carbon Sequestration (CDM A/R) Project : JK's Path Breaking Initiative on CDM

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ABSTRACT

JK Paper has developed a project under the CDM (Clean Development Mechanism) of the Kyoto Protocol for linking small and marginal farmers taking up plantations and linking it with the Global Carbon market. It is first of its kind in Southeast Asia under LULUCF (Land Use & Land Use Change & Forestry) Project to sell emission reductions earned through carbon sequestration by the plantations.

This project will enable small & marginal farmers to earn additional revenues through linkage with the global carbon market by afforesting their degraded lands; the project covers 3500 Hectares in 3 districts of Orissa and 3 districts of Andhra Pradesh. Being a path-breaking project and the stringent requirements of the CDM Board and the Bio-Carbon Fund of the World Bank it has been a herculean task for JKPL to bring this project through. The farmer earns additional revenue for every ton of carbon sequestered apart from the revenue received by sale of wood, which encourages them to go for plantation bringing about environmental benefits like preventing soil erosion and protection of vital water resources through sustainable land management practices.

The project has enormous value of replicating on large scale, thus putting India on the global carbon market so far A/R project is concerned. While it plays vital role to combat Global Warming, the aspect of improving livelihood in the backward region gives it a special status under CDM project.

INTRODUCTION

A good environment plays a very significant role in the existence of human beings in this world. But in today's scenario of high industrial growth, destruction of forest the climate of this world is changing very fast. This phenomenon is normally known as Global warming the biggest challenge the world is facing today. To counterpart this problem there is emerging of CDM (Clean Development Mechanism), which is evolved from the much, hyped Kyoto protocol. Kyoto treaty plays an important role in the aspect of curbing the global warming. This treaty specifically states to reduce the Green House Gases (GHG's) emissions by 5.2% below 1990 levels in the time frame of 2008-2012. It is a market linked based mechanism under Kyoto protocol to regulate Annex-I countries to mitigate their GHG emissions, allowing the developing country like India to take part in joint GHG mitigation projects. A third party will certify the CERs (Certified Emission Reduction) evidenced from the reduction of emissions. The CDM project cycle is very demanding on project developers, involving project design and development, validation, registration, monitoring, verification, certification and issuance of carbon credits.

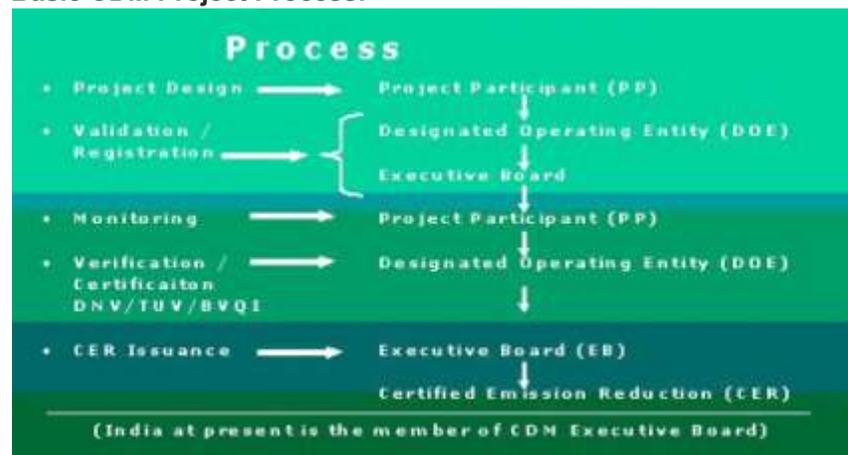
JK Paper Ltd, Unit : J.K. Paper Mill Forest Organization, Rayagad-765 001 (Orissa)

The Afforestation and Reforestation (A/R) projects came under CDM were adopted in the Markech Accord (MA) in cop-7 held in 2001 under chapter LULUCF (Land Use & Land Use Change & Forestry). This land use, land use change and forestry activities are very much importance in the context of developing countries like India and the agricultural sectors and forestry sector can benefit from the new carbon finance inflows. LULUCF projects also tend to have some co-benefits in terms of soil erosion prevention; water shed protection, enhanced bio-diversity and provision of forest resource for the local people for their fuel wood requirement.

About JKPL'S Project

It is first of its kind not only in India, but also in South East Asia under LULUCF (Land Use & Land Use Change & Forestry) Project to sell emission reductions earned through carbon sequestration in the newly established agro-forestry plantations. By introduction of a market for ERs associated with carbon sequestration benefits generated by agro-forestry plantations, which up until now have not been able to move into this arena. These kinds of plantation under the degraded land of 3500 hectares comprising of around two thousands

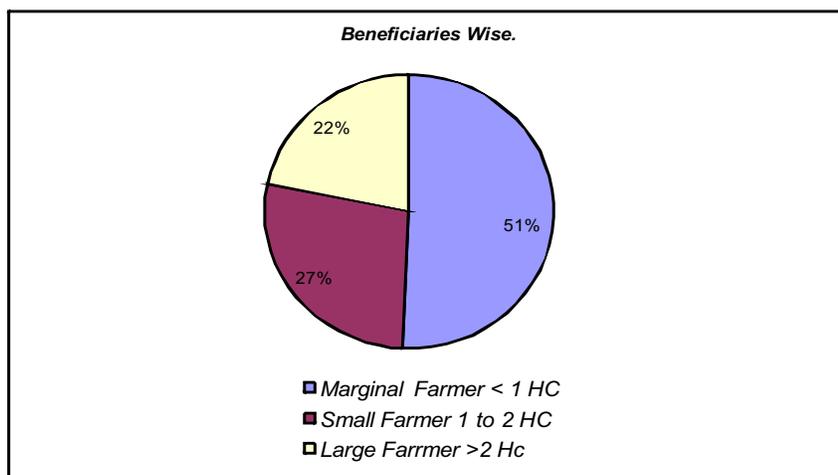
Basic CDM Project Process:



Year	2004	2005	2006	2007	Total area in Ha.	
	Area in Ha.	Area in Ha.	Area in Ha.	Area in Ha.		
Sl	Districts					
1	Rayagada	56	70	57	217	400
2	Kalahandi	74	62	59	129	324
3	Koraput	22	39	19	116	196
4	Vizainagram	32	436	511	366	1345
5	Visakhapatnam	129	96	126	179	530
6	Srikakulam	68	301	100	256	725
7	Grand Total	381	1004	872	1263	3520



Casuarina plantation at a farmer's field at Manapuram, District Vizianagaram of Andhra Pradesh. Saplings supplied by JK Paper Ltd, Rayagada. Area of plantation:- 8 acres.



farmers covering three districts each in Orissa and Andhra Pradesh under this effort and without this project most likely there would be further degradation of land, thereby not offering any prospect of carbon sequestration. The table below shows the district wise coverage of areas under CDMA/R project.

With the effort of JKPL and NGO (VEDAMACS) it is giving to improve the livelihood of the rural farmers. The farmers who are interested in participating the project would obtain the access to good quality seed material, inputs and technical

assistance provided by JKPL and assured of a generated market for their hard-wood output. In addition to that the farmers are entitled to get 80% of the gross carbon revenues to be paid under ERPA (Emission Reduction Purchase Agreement). The decrease of GHGs due to carbon sequestration induced by the project is estimated at 1615525 t Carbon Dioxide of which 276000 t Carbon Dioxide is contracted for, with an option for an additional 370000 t Carbon Dioxide.

It is an eye opener for other industry to reduce Green House Gases through forestry by involving local community

working for their mutual benefits. Main activity of Bio-carbon fund is to deliver the cost effective emission reductions and in the same time promoted biodiversity conservation and poverty alleviation. The effort of JKPL is noteworthy because of linking of small and marginal farmers in one of the poorest region of India to the global carbon markets through this project.

This project follows a stringent process like identification of the individual plots of farmers through GPS, collection of revenue records, collection of identification details, monitoring of the progress from starting of plantation activities till distribution of carbon credits to farmers and get it dully validated by a third party to be appointed by world bank from time to time as well as approval of the project from the Designated National Authority as well as the CDM board. Its main objective is to encourage small and marginal farmers to raise plantations of tree species with high rates of carbon sequestration and fast growing species in the farmland. It is to provide additionality (extra monetary benefits in terms of carbon revenue) through the plantations of farmers. The figure shows the beneficiary details according to the land holding pattern.

Technical aspects of the project

The establishment of plantations on the most degraded lands is based on the technical and practical experience of JKPL in association with participation of small and marginal farmers. It is envisaged with a mix of species comprising of Eucalyptus, Casuarina, Subabool and a combination of miscellaneous fruit bearing species such as mango, Jamun etc. Out of these the major component of the plantation areas comprises of Eucalyptus in Orissa and Casuarina in Andhra Pradesh.

Planting material is either developed from either candidate plus trees located in local stands in case of seedlings which are located in the project area and in case of clonal planting material the candidate plus trees of Eucalyptus and Casuarina being selected from the states of Orissa and Andhra Pradesh and multiplied in the research facilities of JKPL after extensive evaluation of their promising traits. The clones, which demonstrated high productivity, tolerance to pests and diseases and drought resistance are short listed for multiplication. Then these proven trees



JK Super Clone- plantation soil working at Bhawanipatna, District Kalahandi, Orissa. Technical guidance rendered by JK. Paper Ltd. Plantation Area: 11 acres, age: 4 months.

are being supplied to growers and have a proven potential of being genetically superior, fast growing and ensuring uniform growth besides being disease and pest resistant. The stands could be profitably maintained over a period of 2-3 rotations.

The main threats to the standing trees are grazing, fires, insects and pests. These threats can be dealt with adequate action. To avoid grazing farmers are expected to provide necessary support and protection through adequate fencing in the potentially threatened areas. For the pests control, pest management strategies can be applied which will integrate adequate cultural practices as well as chemical control on a limited scale. In order for prevention of the

fires, fire lines can be drawn in areas prone to fires and farmers will constitute monitoring patrols.

Leakage due to shifting of activity, if any is being addressed in the project methodology. In the context of the propose A/R CDM project activity, fossil fuel combustion from vehicles used for transporting seedlings, fertilizer, harvest products etc to and/or from project sites will emit green house gases and is being estimated as leakage and is being deducted from the acquired carbon sequestration.

Institutional Arrangement

The primary agencies and stakeholders in the project are J.K.Paper Limited, VEDA Climate Change Solutions

Limited, agro-forestry farmers and the Bio Carbon fund of the World Bank. Alongside this there are other agencies such as designated National Authority (DNA), the designated Operational Entities (DOE) and the CDM executive board, which performs their individual roles in converting the emission reductions into a tradable commodity. The roles and responsibilities of the primary agencies involved in the in the project are summarised below.

JK Paper Limited: JKPL is actively participated in this project, which is to be implemented through consortium approach. Under this project JKPL has been working with farmers (maximum of which are small and marginal) to motivate them to raise plantation of tree crops on their wastelands and providing of quality planting stock along with buy-back arrangements for pulpwood. Along side this JKPL is working as provider of technical assistance and knowledge transfer. It has also agreed to provide supplier's credit and arrange tie-ups with the banking sector for financing of the working capital. It also assists the agro-forestry farmers to ensure environmental management in accordance with stipulated mitigation measures in the EMF. JKPL will also keep record of data and information required to quantify the ERs, as per the agreed monitoring plan.

VEDAMACS Limited: It basically provides the technical input for the preparation of the project and will be enabling the transfer the Ers to bio-carbon fund and distribution of carbon revenue to the farmers through consortium approach.



World Bank officials like Mr. Martin Van Neuwkofe, Ms.Saima Quadir, Mr.P.R.Meherda, IAS DIST collector RAYAGADA, Mr M.Satyannarayana, Advisor Vedamacs Ltd/and Mr A.K Sharda , V.P.(P& RM), JK.Paper Ltd, Rayagada, Orissa, addressing on the occasion on 30th October 2005



Dr. P.R.Meherda, IAS, District Collector, Rayagada, Orissa; Sri Ranjan Samantray, Environmental Specialist, World Bank and Sri A.K Sharda, Vice President (PI & RM.) JK Paper Ltd, Rayagada, Orissa, addressing on the occasion on 10th of September 2006

Bio-Carbon Fund (BCF): The Bio-Carbon Fund of the World Bank will purchase the ERs generated from the plantation activities. It will sign an agreement with JKPL where in it commits to purchase the ERs at an agreed price. Bio-CF will hire a DOE to verify the emission reductions generated by the project, which will form the basis for payments to the various entities.

Agro-Forestry farmers: They will participate in the project based on expressed interest. Along side the support provided by JKPL, they are responsible for proper utilization of finances obtained through micro-credits for setting up of agro-forestry plantations. They would also need to implement the agreed mitigation measures specified in the EMF in order to claim the benefits against ERs produced by them.

Financial Aspects:

The project involves setting-up of agro-forestry plantations on about 3500 hectares of land which is privately owned by interested farmers in six districts, 3 districts in Orissa namely Rayagada, Koraput, Kalahandi and three districts in Andhra Pradesh namely Visakhapatnam, Vizianagaram and Srikakulam.

Agro forestry plantations will be established from the finances provided by the banking sector where needed, mainly for meeting the requirement of the working capital. Due to the buy-back arrangement with JKPL, the company has been able to facilitate access to credit for small farmers who otherwise might have had difficulties in accessing these sources. But most of the farmers may meet the expenditure on plantations from their own resources in addition to contributing in the form of labour.

Milestones in JKPL'S CDM Project:

- Project Idea Note (PIN) submitted to the world-bank bio carbon fund in 2003 by J.K.Paper Limited, Rayagada.
- PIN is approved and subsequently Designated National Authority (DNA) called for presentation at MOEF, New Delhi on 11th may 2005 represented by A.K.Sharda.

- JKPL/VEDA presented paper in the meeting of BIO-CARBON fund in USA on 10th of September 2005.
- World Bank team consisting of Ms. Saima Quadir, expert in carbon finance business, Washington DC, Mr. Martein Van Niewkoop, Lead Rural Development specialist, World Bank, New Delhi visited Rayagada for field visit and discussions with JKPL officials from 28th October 2005 to 30th October 2005.
- Sensitization work shop held at HRD Center, JKPM on 29th October 2005 in which collector Raygada along with senior district officials, representatives of Banks and invited farmers from Orissa and Andhra Pradesh participated apart from representatives of world bank, VEDAMACS and JKPL.
- MOU signed between VEDAMACS and JKPL for project implementation on 17th December 2005.
- Environmental specialists consisting of Ms. Priti Kumar and Mr. Ranjan from World Bank, New Delhi visited Rayagada from 5th January 2006 to 7th January 2006 for field visits and discussions.
- Signing of Letter of Intent (LOI) during JANUARY 2006 with Bio-Carbon Fund of World Bank.
- LOI signed between JKPL, VEDAMACS and World Bank on 3rd February 2006.
- Project Design Document (PDD) submitted to World Bank for approval.
- Center for Environment (CEE), Hyderabad came for preparation of EMF and its representatives visited the project site in Orissa and Andhra Pradesh.
- E M F (E n v i r o n m e n t a l Management Framework) disclosure workshop being

organized by JKPL involving VEDAMACS, World Bank, Govt. officials, NGOs and farmers on 10th October 2006.

- ERPA negotiations held on 20th December 2006 at World Bank, New Delhi.
- The World Bank's Bio-Carbon Fund signed an Emission Reduction Purchase Agreement (ERPA) on 8th may 2007 in New Delhi. Sri Nitin Saha, acting country director, World Bank, Sri A.K.Sharda, Vice President (P & RM), JK PAPER Limited, and Sri T.R.Sanmukha, Chief Executive, VEDAMACS jointly signed the ERPA in presence of Ms. Saima Quadir, Bio- Carbon Fund Manager, World Bank, Washington DC.

CONCLUSION

By introducing a market for CERs associated with carbon sequestration benefits generated by agro-forestry plantations, the project aims to widen the appeal of such plantations to small and marginal farmers who up until now have not been able to move into this arena. Doing this would increase carbon sequestration capacity there by generating global environmental benefits. Now that the basic framework and methodology is in place and the project has been able to satisfy the rigorous norms of the World Bank it will serve as an example for replication and subsequent scaling-up for afforesting denuded forest areas and vast stretches of wastelands in the country and open up new vistas for farmers to earn carbon revenue through internationally acclaimed CDM mechanism and will be an effective source to increase the green cover in the country. This will be a very good tool through which we can achieve the requirement of forest and tree cover of 33% nation wide by implementing similar projects all over India. Along side this, these kind of project can be very much helpful in meeting the raw material requirement of the pulp and paper industry as the demand of paper industry is growing day by day and to meet that short fall these kind of innovative approach can motivate the farmers to go for pulpwood plantation.