PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE

Project Name	Improving Watershed Management Practices and Rural Livelihoods through Carbon Sequestration Project – A Bio-Carbon Sub-Project of Mid Himalayan Watershed Development Project
Region	South Asia
Sector	Watershed / Forestry
Project ID	P104901
Borrower (s)	N.A.
Implementation Agency	Mid-Himalayan Watershed Development Project (MHWDP) in partnership with the Forest Department (FD) and Gram Panchayat (GP)
Environment Category	B
Date PID Prepared	October 30, 2007
Estimated Date of Appraisal Authorization	February 2008
Estimated Date of Board Approval	ERPA Signature –March 2008

1. Key development issues and rationale for Bank involvement

The following Bio-Carbon Sub-Project (BC Sub-Project) is proposed as an additional component of the Mid-Himalayan Watershed Development Project (MHWDP). The projects (MHWDP & BC) focus on different approaches and implemented on different lands – at the same time complement each other in all respects. The MHWDP focuses on soil and moisture conservation in arable agriculture land and in village common land through field bunding, terracing, check dams, gully plugging, development of grass-lands and providing support for high value agriculture production with forward and backward market linkage support. However, afforestation work did not become an integral part of MHWDP because villagers in MHWDP areas neither received any cash incentive for afforestation work nor timber rights. Whereas in BC project, the focus is only on afforestation for which the farmers will receive cash incentive (by being a potential seller of carbon credit) on three types of lands; (i) non-arable agriculture waste land, (ii) degraded forest land, and iii) degraded common property land. In brief, MHWDP supports soil and moisture conservation work and grassland development, and the BC Sub-project intends to support pure commercial afforestation program.

This project is in line with the 2004 -08 Country Strategy (CS) for India and more specifically with measures envisaged in the Partnerships for the Global Environment. The interventions proposed under the BC sub-project make the villagers a strategic seller of carbon credits under the Kyoto Protocol as well as in response to global demand for Certified Emissions Reductions (CERs) under the Clean Development Mechanism. It also supports the Millennium Development Goal (MDG) No 7, ensuring Environmental Sustainability. The proposed project not only helps in creating carbon sink but also aims to develop innovative cost effective ways to minimize climate change risks. Apart from extending global environmental benefits, it provides multiple benefits to the poor farmers through meeting their needs of timber, pulpwood, firewood, minor forest produces along with carbon credits (as cash incentive).

2. Proposed objective(s)

The broad objective of the BC projects is to sequester Green House Gases (GHG) by expanding forestry plantations on mostly degraded lands owned by small farmers. The BC sub-project will be jointly implemented by the Mid-Himalayan Watershed Development Project, the Forest Department (FD), and the Gram Panchayat (GP). The three guiding principles of the project include: i) identification of locally grown and accepted species in the Project areas; ii) involvement of small and marginal farmers in plantation activities that will bring value addition to the ongoing watershed interventions/activities; and iii) plantation activities for supporting livelihood enhancement.

The proposed BC sub-project activity will also facilitate in exploring and demonstrating the technical and methodological approaches related to credible carbon removal process. This will be first of its kind pilot initiative that aims at improving rural livelihood through "carbon sequestration" by adaptive environment friendly technologies based on watershed treatment practices. The BC sub-Project will be undertaken in about 12,000 Ha (in 602 GPs) of non-arable and degraded common/forest land that is already prioritized for watershed interventions under the MHWDP. Total project cost for the MHWDP is $100 million of which the Bank contributions through an IDA grant of $60 million, and the remainder being financed by the Government of Himachal Pradesh (GoHP) and community contributions.

3. Project description

The proposed project will mobilize resource poor farmer (especially women and the objective of the Project is to restore degraded land and make them functioning ecosystems while enhancing the sustainability of the watershed interventions and peoples' livelihoods options and maximizing carbon sequestration. The project will conduct reforestation and afforestation activities with two primary objectives: i) degraded natural forest corridors that fall within the catchment treated by the Mid-Himalaya Watershed Development Project – that will establish viable biological connectivity among several currently isolated forests and protected areas; ii) this will be undertaken in coordination with the efforts of the MHWDP on sustainable cultivation systems in order to increase soil fertility, protect watersheds and stabilize land-use. These activities will significantly increase tree cover and turning a source of CO2 emissions into a carbon sink in 12,000 Hectares of land (8,000 Ha degraded forest and common land + 4,000 Ha of non arable agriculture waste land).

Activities generating Certified Emissions Reductions include the following components:

A. **Reforestation** is the principal carbon sequestration activity, integrating rehabilitation of degraded village common land, revenue waste land and non-arable agricultural land (mostly denuded prior to 1990) into permanently protected natural forest buffer zone for the 600 GPs involved in the MHWDP (12,000 hectares).

B. **Sustainable Eco-system** will provide a potential alternative use of degraded lands – especially upper catchments and the Inter-GP areas (common land) that are degraded to a maximum extent and that are no longer useful to the local population, and it risks further degradation through soil erosion and land slides. Both, biotic and a-biotic pressure on the natural forest will significantly reduce with the bio-carbon project interventions. Such plantation will create self-supporting ecosystems that provide a significant percentage of critical ecosystem services including hydrological stabilization, nutrient recycling and soil generation. Apart from the cash incentive to the local people, these plantation pockets would

simultaneously provide products of value to people (NTFPs), especially food and income, to support local livelihoods and significantly reduce the fuelwood and fodder dependency on the forest in 600 GPs (in 12,000Ha).

4. Technology to be used

Technical specifications pertaining to site selection, land treatment, nursery rising, plantation procedures, protection measures, biomass management, open and closed range land management and soil conservation are already developed by the Forest Department and used in their ongoing plantation activities. The entire plantation will follow approved Clean Development Mechanism (CDM) Methodology in compliance with World Bank Safeguard Policies. The Remote sensing technology will be used for creating a baseline at 1989/90. GPS/GIS technology will be used for process monitoring. The data generated is proposed to be linked with other details in appropriate GPS/GIS software.

5. Environmental Benefits

The BC project is likely to bring several environmental benefits.

1. Reduce the current rate of top soil loss (45 -55 t/ha/year) in these degraded land due to run off
2. Increase soil carbon
3. Increase the overall biomass productivity
4. Natural regeneration of medicinal plants within the planning areas.
5. Improve local biodiversity conservation.
6. Help in recharge capacity of downstream springs and streams.
7. Based on the earlier project experience, it expected that the current MHWDP will increase recharge capacity of local aquifers by 20%. This is also likely to increase further with the addition of BC project.

6. Socio – Economic Benefits

The BC project will primarily provide livelihood options to the rural poor by making them a strategic seller of carbon credit. The Self Help Groups (SHG) and Water User Groups involved in MHWDP will be directly responsible in implementing the BC project. The BC project will have direct impact on enhancing household level food security. It will also have an indirect impact on women's empowerment as most of the SHG group members are women (under the MHWDP). **This will be the first project in the country where catchment area of a watershed is proposed to be stabilized using revenue from carbon sequestration**. This can be a way forward model for many watersheds in other States of India as well as outside the country. While the BC project only focuses on the carbon sink through plantation alone, the Government of HP also plans to estimate the soil carbon benefits received under the project.

7. Risks

Technical risk: The risk identified pertains mainly to grazing, fire, and pest attacks. These will be dealt with the following manner. The MHWDP has adequate provision for providing fencing support to the farmers. Various models of fencing depending on the grazing pressure of the region are developed under this project. The support for fencing will be extended depending on the socio-economic condition of the farmers. While the past experience on pest attack in the mid-Himalayan region has not been significant, the BC project has developed an integrated pest

management strategy to prevent such rare incidence. The pest management strategy envisaged under the Project Design Document (PDD) has integrated adequate cultural practices as well as chemical control on a limited scale in line with the provisions of the environmental management framework. For fire protection and prevention, extensive training will be provided to the farmers. The FD has already developed area specific fore protection and prevention procedures. The BC project has kept provision to sensitize the communities on these fire protection measures. Greater emphasis is placed on physical improvements of the plantation sites with enhancement of community participation on all these risk related issues.

Financial risk: Plantation activities in valley and hilly regions of MHWDP areas are capital intensive. Small and marginal farmers may not afford such plantation cost. Therefore, MHWDP has agreed to make the seed capital provision needed for the entire 12,000 Ha plantation. The farmers are not required to borrow money from any financial institutions. However, the Operation and Maintenance (O&M) cost is the responsibility of the beneficiary groups. In case of any failure for the O&M cost, the PRI will be authorized to deduct 20% of the carbon credit money from the beneficiaries. This will be an integral part of the agreement between FD, GP and the beneficiaries through which the carbon credit benefits will be shared.

Implementation risk: The initial commitment to the farmer for carbon credit under the BC sub-project is for 10 years with a possible extension upto 30 years. In order to have a successful implementation during the first ten years, there is a need for effective cooperation between MHWDP, FD, GP and communities. The MHWDP being an external aided project may withdraw after 5 years completing its present project cycle. Considering that the MHWDP play a major catalytic role in initiating and implementing the BC sub-project, it may pose some implementation risk. In order to address this risk, it was agreed with the Government of HP that the Climate Change and Carbon Finance unit of the FD will take over the entire responsibility of supervision and management of the BC Sub-project. The same unit of the FD is also now helping MHWDP in setting up the BC project so that continuity is maintained as part of the implementation process.

8. Safeguard policies that apply

The BC sub-project is a community driven initiative that is designed and developed with active participation of the community. Environmental benefits and social issues were discussed at all stages of project preparation. Every aspect of the project and documents were disclosed to stakeholders. The project does not foresee any negative impacts; instead, it is likely to bring positive benefits to the community livelihood enhancement and to the eco-system in the MHWDP region. Considering that this project is part of MHWDP, the Environmental Social Management Framework (ESMF) and the Environmental Social Guidelines (ESG) already developed for the MHWDP will be applicable under the BC sub-project. In addition, an extensive environmental and social analysis has been undertaken as part of the PDD preparation process. This also includes a brief fertilizer and pest management strategy. The plantation in common land will follow inclusive criteria as part of the benefit sharing mechanism. The project has been categorized as C-category for the safeguard management.

9. Tentative financing

Contribution sought from Bio Carbon Fund of the World Bank	US $ 200,000 (Project preparation cost, Consultancy and Training)
Contribution from MHWDP (already available	US $ 6.50 Million (Establishment cost of

for plantation)	Plantations already a component of MHWDP)
Indicative lCER price	US $ 4.00+ per tCO2
Tentative Emission Reduction Value for 10 Years	US $ 17.426 Million

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