

**INTEGRATED SAFEGUARDS DATA SHEET  
APPRAISAL STAGE**

Report No: **38624**

**Date ISDS Prepared/Updated:** 2/7/07

**I. BASIC INFORMATION**

**A. Basic Project Data**

Country: NEPAL	Project ID: P095978	
	Additional Project ID (if any):	
Project Name: VILLAGE MICRO HYDRO CARBON OFFSET PROJECT		
Task Team Leader: MUDASSAR IMRAN		
Estimated Appraisal Date: 03/20/07	Estimated Board Date: N/A	
Managing Unit: SASDD	Lending Instrument: CARBON OFFSET	
Sector: Renewable Energy (100%)		
Theme: Rural services and Infrastructure (P), Climate change (P)		
IBRD Amount (US\$m.):	0.0	
IDA Amount (US\$m.):	5.5	
GEF Amount (US\$m.):	0.0	
CDCF Amount (US\$m.):	2.3	
Other financing amounts by source:		
Government of Nepal	2.3	
Domestic borrowings/equity investment	26.9	
UNDP	1.6	
DANIDA/NORAD	14.3	
Financing gap	4.4	
TOTAL	57.3	
Environmental Category: B		
Simplified Processing	Simple [ ]	Repeater [ ]
Is this a transferred project	Yes [ ]	No [X ]

**B. Project Objectives:**

Project objectives are to: (a) reduce global emissions of carbon dioxide; and (b) increase access to modern energy from renewable energy sources.

The Carbon Offset project complements the World Bank Power Development Project, and will provide additional support for the achievement of its objectives, in particular the objective of improving access of rural areas to electricity services. The overall development objectives of the Power Development project are: (a) develop Nepal's hydropower potential in an environmentally and socially sustainable manner so as to help meet electricity demand, (b) improve access of rural areas to electricity services, and (c)

promote private participation in the power sector as a way to improve sector efficiency and to mobilize financing for the sector's investment requirements.

### **C. Project Description:**

This Carbon Offset project will facilitate greenhouse emission reductions and support the development of the international market mechanism for trading Emission Reductions (ERs) developed in the framework of the Kyoto Protocol. The Nepal Village Micro Hydro project consists of sale of ERs to the Community Development Carbon Fund (CDCF) which provides carbon finance to small-scale CDM projects in the least developed countries and poorer areas of all developing countries. The CDCF actively seeks to reach countries and communities that are neither presently benefiting from development through carbon finance nor are likely to benefit greatly from it in the future. The CDCF also seeks to support projects which include, as a measurable output, the provision of goods and services that will lead to improvement in the social welfare of the communities involved in the projects.

The sale of ER credits to the CDCF will allow for full implementation of the Nepal Village Micro Hydro Program by ensuring that there are sufficient resources available to expand coverage of the program from 25 districts to 40.

The Project will support the development of micro-hydropower mini-grids to meet the electricity and motive power needs of the rural people of Nepal through provision of subsidy assistance and program technical support. The project will build on the successes achieved under the UNDP Rural Energy Development Program (REDP) by extending electrification activities to 40 districts, including 15 that were not covered under the first phase of that program. It will also bring together the rural electrification activities supported through the micro-hydro component of the World Bank Power Development Project and the donor-financed Energy Sector Assistance Program (ESAP II) to expand the total target level of new micro-hydro installations by 15 MW by utilizing the CDM revenues to help meet un-financed program implementation and subsidy costs.

The project seeks to develop a viable off-grid micro-hydropower market for villages which will not be served by the national grid for at least 5 years. It would offer support on both the demand and supply sides by providing information and social mobilization support, technical training, and investment subsidy (~40% - 70% of initial investment) to communities, and market information and business development support services to micro-hydro construction and supply companies. The micro-hydro plants will be installed by pre-qualified private sector companies who will receive subsidy payments, technical assistance and credit support. The plants will be managed by the communities themselves or by the private sector providers. Meters will be installed on each unit, and operating costs will be recovered through tariffs based upon installed demand for residential users and energy use for larger rural enterprises.

The program will scale-up the promotion of off-grid micro-hydropower plants less than 100 kW utilizing Peltic systems (up to 3 kW) which are self contained electricity generating units which will be used to supply power for domestic and institutional lighting, and larger micro-hydro systems which can power agro-processing mills, saw mills and other electric machinery for small cottage industries. It is anticipated that 15,000 kW (142,000 households) from 750 micro-hydropower plants will be installed between 2003 and 2010. Thirty four schemes generating 589 kW have already been commissioned under this program, although these schemes are not eligible for early start crediting and will thus not claim early start emissions reductions under the carbon offset project.

This project falls under the small-scale CDM project activity with total electricity generation within the limit of 15 MW. The project will lead to reduced GHG emissions by:

- Replacement of kerosene for lighting;
- Replacement of diesel fuel used for agro-processing units.

Average household electricity consumption post installation of the micro-hydro units is estimated to be 27 kWh/month, of which 18 kWh will be used for lighting and 9 kWh will be used for productive uses.

The total project cost is estimated at US\$ 57.3 million. Of this, the Bank will provide IDA funding of about US\$ 5.5 to finance GoN subsidies for construction of micro hydro schemes, and support training/capacity building. The remainder will be financed by UNDP (US\$ 1.6 million), DANIDA/NORAD (US\$ 14.3 million), Carbon Finance (US\$ 2.3 million) and the remainder from HMGN (US\$ 2.3 million) and domestic borrowings/equity investment (US\$26.9 million). Additional financing is being sought from multilateral sources to meet the financing gap of 4.4 million.

**D. Project location and salient physical characteristics relevant to the safeguard analysis (if known):**

The project area essentially covers Nepal and any rural household in Nepal is a potential beneficiary. The project will not result in resettlement of people, it is anticipated that there will be no segment of the population that will be adversely affected.

**E. Environmental and Social Safeguards Specialists on the Team:**

- Sumith Pilapitiya (SASES)
- Afshan Khawaja (SASES)

**II. KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT**

<b>Safeguard Policies Triggered (please explain why)</b>	<b>Yes</b>	<b>No</b>	<b>TBD</b>
<b>Environmental Assessment (OP/BP 4.01)</b>	<b>X</b>		
<b>Natural Habitats (OP/BP 4.04)</b>	<b>X</b>		
<b>Forests (OP/BP 4.36)</b>	<b>X</b>		
<b>Pest Management (OP 4.09)</b>		<b>X</b>	
<b>Cultural Property (OPN 11.03)</b>		<b>X</b>	
<b>Indigenous Peoples (OP/BP 4.10)</b>	<b>X</b>		
<b>Involuntary Resettlement (OP/BP 4.12)</b>		<b>X</b>	
<b>Safety of Dams (OP/BP 4.37)</b>		<b>X</b>	
<b>Projects on International Waterways (OP/BP 7.50)</b>		<b>X</b>	
<b>Projects in Disputed Areas (OP/BP 7.60)</b>		<b>X</b>	

**F. Summary of Key Safeguard Issues**

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

The use of renewable energy technology such village hydro projects will yield net positive environmental impacts. Rural consumers from approximately 40 Districts in Nepal will benefit from access to micro

hydro based village electrification. These consumers, who currently use kerosene and other fuels for lighting, will benefit from reduced indoor air pollution levels. Based on the experience from the micro hydro village electrification components of the Nepal Power Development Project and UNDP's Rural Energy Development Program (REDP), it is very unlikely that the adverse environmental impacts due to micro hydro village electrification project will be significant and/or irreversible.

The end use activities to be financed under the project will be restricted to agro processing (cereal milling, rice husking and oil processing) where electrical power will replace the current use of manual or water power as well as small scale carpentry workshops. These micro enterprises cater to local community needs. The agro processing schemes to be financed will largely reduce the drudgery by replacing manual milling by machine grinding, reduce cereal losses and increase yield in the case of oil expellers. These plants will be small with plant capacities in the range of 100 kW.

With regard to the small scale carpentry workshops, the project will result in replacement of manual implements that are being presently used in existing carpentry workshops by electrical machines or tools. The source of timber will be from community forests. The timber required for the carpentry workshops will be brought by prospective clients, who are members of community forestry user groups. These groups provide each member with a specified timber allocation based on domestic needs such as building/repairing houses and personal furniture requirements. The community forestry user groups closely monitor the use of timber by its membership. This monitoring mechanism, which is currently in existence, has proved to be very effective in ensuring sustainable timber use. The enforcement of the "timber quota's" by the community forestry user group will be used under this project to ensure sustainable use of forestry resources. Nevertheless, in order to ensure that excess quantities of timber will not be used, it has been agreed with AEPC that the carpentry workshops will use only the authorized allocation of wood provided to the community by the respective community forest user group. It has also been agreed that their project finances cannot be used for funding saw mills.

The project is not expected to result in any adverse social impacts. Land acquired for the construction of the canal, penstock, powerhouse and distribution line poles, is to be donated voluntarily by each participating community. As is the practice in the ongoing Power Development Project, micro-hydro schemes will be development only in those communities where land is voluntarily donated. Therefore, all land required by the project will be on a voluntary basis. In addition if any loss of income or physical displacement is envisaged the community based Micro-Hydro Functional Groups (MHFGs) will verify the voluntary acceptance of community-devised mitigation measures by those affected. The construction of micro-hydro schemes is not expected to result in physical or economic displacement.

## **2. Describe any potential cumulative impacts due to application of more than one safeguard policy or due to multiple project component:**

Considering the types of micro hydro village electrification projects that will be supported under this project, it is anticipated that there will be no cumulative adverse impacts. Multiple safeguard policies have been triggered largely as a precautionary measure, to focus attention on potential safeguard issues during implementation monitoring. This is especially with regard to the safeguard policies on Natural Habitats and Forestry so that special attention can be paid to ensure that there will be no damage to forest resources and natural habitats. In addition, no cumulative social impacts are expected either. Regardless, all sub-projects will be subject to an environmental analysis according to the Environmental Policy Framework and Operations Manual agreed with GoN for the Micro Hydro Village Electrification (MHVE) Component of the IDA financed Power Development Project (PDP). As in the MHVE Component of the PDP, Environmental Management Plans will be prepared for each individual sub-project to mitigate any possible adverse environmental and social impacts.

3. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

Overall social impacts are expected to be positive in the long term, especially from the economic and social uplift of the project area. Environmental impacts in small, run of the river type micro hydro village electrification projects (MHVEP) are minimal. The record of AEPC in implementing both the UNDP funded Rural Energy Development Project and the IDA financed Power Development Project has been exceptionally good. Excellent, proactive environmental measures are incorporated into all MHVEP and it is not anticipated that there will be potential long term impacts from future activities in the area.

4. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts:

A screening exercise will determine the most appropriate site for the respective MHVEPs. Therefore, alternative sites will naturally be evaluated prior to final site selection. The technology selection will be determined based on current experience of the on-going MHVE program. Therefore, appropriate alternatives will be evaluated prior to final decisions are made.

5. **Describe arrangement for the borrower to address safeguard issues.** Provide an assessment of borrower capacity to plan and implement the measures described:

Although GoN Environmental Regulations do not require micro hydro village electrification projects below 1 MW to seek environmental clearance, GoN has decided that all such projects will be required to undertake a simple environmental analysis and prepare an Environmental Management Plan on the basis of the findings of the environmental analysis. This will be reviewed, cleared and subsequently monitored by AEPC, on behalf of GoN. In addition, during sub-project approval and supervision, AEPC will ensure that carpentry workshops will use timber only from entitled quotas from the respective community user groups. AEPC has demonstrated the institutional capability to undertake this task effectively and in accordance with IDA requirements, under the on-going Power Development Project, where safeguards compliance is being monitored by AEPC and supervised by IDA.

Land acquired for the construction of the micro-hydro schemes, including for canal, penstock, powerhouse, and distribution line poles, is to be donated voluntarily by each participating community. Micro-hydro schemes will be developed only in those communities where land is voluntarily donated. As in the practice under the Power Development Project, Memorandum of Agreements have been established by community functional groups as a means of recording the location and size of land being donated as well as the written consent and names of local witnesses for those community members voluntarily donating land. In addition to the Memorandum of Agreements, which will continue to record and verify the voluntary nature of land donations by each community member, specific provisions will be added to current Memorandum of Agreements to record that the land being donated is free of squatters, encroachers or other claims or encumbrances. If any loss of income or physical displacement is envisaged, MHFGs will verify the voluntary acceptance of community-devised mitigation measures by those impacted. These will also be recorded in the revised Memorandum of Agreements. MHFGs will identify the land required for the micro-hydro schemes. However, project authorities will confirm whether land identified by MHFGs is suitable for the scheme. The construction of micro-hydro schemes is not expected to result in physical or economic displacement.

Indigenous and ethnic groups may be present in communities where micro-hydro scheme will be constructed. Given the successful social mobilization activities currently being carried out by AEPC,

especially the inclusion of disadvantaged groups in the formation of self-governing community organizations (MHFG's), the policy requirements of OD 4.20 to ensure the participation of these groups throughout the planning and implementation phases of the micro-hydro schemes and that these groups are provided assistance in accordance to their priorities are addressed by the design of the project. In addition, the small size of these run of river micro-hydro schemes are expected to result in minimal adverse social impacts, if any, to vulnerable populations. Therefore, Vulnerable Communities Development Plans will not need to be prepared.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people:

Participatory monitoring will be undertaken by community members for those sub-projects that directly affect them. Since this project is community driven, the participation of local NGOs and civil society organizations to support the mobilization and formation of community based organizations is fully integrated into its design. The social mobilization strategy adopted for the program will include participatory monitoring involving the community functional groups in assessing the results and impacts of the schemes and the inclusion of vulnerable groups in decision making. The monitoring and evaluation program established at the community level will also be reflected in the monitoring and evaluation programs being established by AEPC. The Safeguards Framework used for this project is the Environmental Policy Framework and Operations Manual agreed with GoN for the Micro Hydro Village Electrification (MHVE) Component of the IDA financed Power Development Project (PDP). Public disclosure of this has already taken place.

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#### *A. Disclosure Requirements Date*

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**\* If the project triggers the Pest Management and/or Cultural Property, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.**

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**If in-country disclosure of any of the above documents is not expected, please explain why:**

Not applicable

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#### *B. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)*

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##### **The World Bank Policy on Disclosure of Information**

Have relevant safeguard policies documents been sent to the World Bank's Infoshop? Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs? Yes

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##### **All Safeguard Policies**

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies? Yes

Have costs related to safeguard policy measures been included in the project Yes

cost?

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies? Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents? Yes

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#### ***D. Approvals***

<b><i>Signed and submitted by:</i></b>	<b><i>Name</i></b>	<b><i>Date</i></b>
Task Team Leader:	Mr. Mudassar Imran	02/07/2007
Environmental Specialist:	Mr. Sumith Pilapitiya	
Social Development Specialist Additional Environmental and/or Social Development Specialist(s):	Ms. Afshan Khawaja	
<b><i>Approved by:</i></b>		
Regional Safeguards Coordinator:	Mr. Frederick Edmund Brusberg	02/08/07
Comments:		
Sector Manager:	Mr. Salman Zaheer	02/09/07
Comments:		