



Community Rural Electrification with Pico-Hydro or IWM technology and Micro Enterprise Development in Nepal

Energising Development

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EnDev promotes sustainable access to modern energy services that meet the needs of the poor - long lasting, affordable, and appreciated by users.

Project Description

People in rural areas of Nepal have been using water mills for centuries. Water mills are one of the most ancient technologies used in Nepal. Even through with growing demand and increasing need for modern energy these water mills still now depend on primitive technology. In this regard, the Pico-Hydro/IWME Programme has been working for modernization/improvement of water mills for the generation of electricity in isolated rural communities and has been able to improve the livelihood of the communities by providing basic electricity services and new employment opportunities with establishment of small scale business schemes like poultry farming, tailoring, carpentry, paddy hulling, spice grinding, oil expelling, shops, restaurants etc.

This programme 'Rural Community Electrification with Pico Hydro or IWM technology and Micro-enterprise Development in Nepal' is implemented by SNV-Netherlands Development Organization with the financial support from GIZ/EnDev. The main objective of the programme activity is to improve the function and productivity of water mills in the rural part of the country. The field level project

implementation for SNV is executed by Rural Energy and Technology Service Centre Pvt. Ltd. (RETSC) and is working as the Local Capacity Builder (LCB).

The proof of concept and pilot phase which was initiated in 2013 demonstrates that diversified use of electricity at household and rural micro-enterprise level is crucial for making a community electrification project effective and widely accepted by communities. The developed business model introduces a credit component; a tariff payment system; mechanical use of power at the water mill site and proper market linkages for micro-enterprises. This way, a self-sustaining revenue model and a commercialisation process can be introduced in the intervention of community electrification and micro-enterprise development with IWM technology. This business model has initiated the up-scaling process of IWM/Pico Hydro electrification through a complete rural community electrification project in selected districts of Nepal.

This project aims to sustainably improve the lives of rural people living in remote communities by:

- i) Increasing access to lighting facility and thereby minimising the health, environmental and financial problems arising due to the use of traditional and expensive fossil fuels (push factor).
- ii) Enterprise development (match factor), in growth sectors that have the concrete potential for employment creation and minimising drudgery (pull factor).

Sustainability for clean lighting facilities and enterprise development at scale will conclusively identify growth both in the agricultural and renewable energy markets, and promotes green enterprise development in multiple renewable energy supply chains and agricultural commodities.

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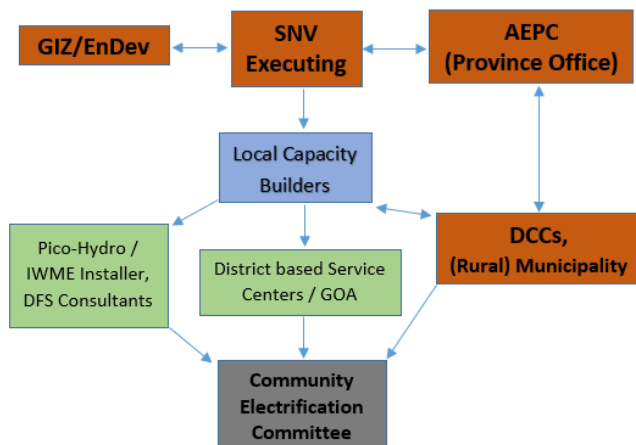
Innovative about the project:

The innovation of this project is its implementation modality of empowering community and local level stakeholders for sustainable use of the project and a strong quality assurance system. The project implementation will allow having more sites with access to microfinance (already tested as successful tool) as this option can be presented as a potential source of funding. The completed projects are running successfully providing all possible benefits to the community people.

The quality of lighting facility has been improved and people can have more access to other electrical needs to step up their energy use ladder and thereby improving their living standards. The project involves active participation of local people from inception to completion; this creates the sense of ownership and makes for an easy working environment. This is also a fundamental part of capacity building at the end mile which SNV espouses.



Project Governance



Project Approach

The project aims to use IWM Long Shaft (LS) and Cross flow technology to generate electricity for village electrification with the potential for communities to take on a larger loan for installing a cross flow turbine. Electricity generated from Pico-Hydro/IWM electrification will be used for household lighting and for small, rural micro enterprises. Households that have no access to grid electricity rely on substitutes such as kerosene oil for their lighting needs. Kerosene lamps are not only a poor source of illumination, but are also polluting, unsafe and subject to irregular and unreliable supply. Pico-Hydro/IWM electrification will provide a clean source of household energy to the community. Selected project villages currently do not have access to the electricity grid and there exist no concrete plans for future connectivity.

Project Implementaiton Strategy

Phase-I: Demand Collection

Phase-II: Pre-feasibility Survey

Phase-III: Detailed Feasibility Survey

Phase-IV: Community Mobilization

Phase-V: Fabrication & Installation

Phase-VI: Capacity Building & Handover

Results and Impacts

Under this intervention 39 IWME projects generating 133.2 kW of electricity has been installed. At household level, the project has provided access to clean and safe lighting solutions to 1898 households, thereby reducing indoor air pollution, caused by the use of kerosene lamps. Access to electricity for lighting has increased time for productive activities. In addition, with higher efficiency and services from IWM electrification 90 micro-enterprises have been installed including 43 mechanical based enterprises, providing employment to 34 female entrepreneurs. Additionally, with the implementation of the project in total 9490 men and women are directly benefited.

As capacity building, ownership and technology transfer are major features of the project our intervention has brought tangible benefits to communities and help to create better employment and income generating opportunities for households and small businesses. Creating buy-in and ownership, including in the operation and maintenance of Pico-Hydro/IWM units, helping to create a market and ensures long term sustainability of the sub-sector.

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