

# Project Progress

PROMOTING INNOVATIVE ENERGY SOLUTIONS WITH ULTRA LOW HEAD MICRO-HYDRO POWER TECHNOLOGY IN INDIA

*Increasing Access of Rural Communities to Renewable Energy for Productive Purposes in India*

## Successful Performance of first pilot site as per AHEC-IIT, Roorkee Report



The regular monitoring of first demonstration site IRI, Bahadarabad was done by Alternate Hydro Energy Center (AHEC), IIT Roorkee. It aimed to collect high quality data for the assessment of performance of machine, diagnose the issues,

improve machine performance, implement preventive measures and rectify design issues to minimize unplanned/ forced outage in practice. During this monitoring, suitable design changes were incorporated in the system as a part of adaptation to local site conditions. The overall performance of the machine was found satisfactory by the monitoring team and the six-monthly report has been submitted to Government of Uttarakhand. To maximize the benefits of produced electricity and optimize the benefits of production the owner IRI-Irrigation Research Institute has decided to connect the hydro system to the electricity grid to sell surplus electricity. For this, a Power Purchase Agreement (PPA) will be signed by IRI with Uttarakhand Power Corporation Ltd. (UPCL).

## State Master Plan Survey Underway



Uttarakhand, one of the mountain states of India has 11,588 km long irrigation canal system which are ideal for generation of hydro based renewable energy using low head based falls. Uttarakhand has an estimated potential of 3500 MW power from small, mini and micro hydro, while it could just achieve 170 MW hydro installation till today. No comprehensive survey has been done to assess the potential specifically of low and ultra-low head based hydro projects in these canals. A survey jointly supported by Ministry of New & Renewable Energy (MNRE) and UNIDO is underway in the state by the state agency UREDA, and is expected to be complete by November 2015. The report thus generated will be submitted to the Government of Uttarakhand to develop a long term Master plan for the development of green energy through micro hydro development in the existing canal networks.

## Community Decision Making-Meetings

Starting from January 2015, regular communities meeting were organized by the group members at both project sites Ambadi (Dehradun) and Kaladhungi (Nainital) to discuss various project aspects and involvement of each group member in the activities. The meetings were related to community contribution for processing shed construction and productive asset machine procurement, baseline surveys of the villages, involvement of community in ULH-Machine installation, roles of group members in business development, marketing, financial and account management, participation in training, planning for exposure visits, etc. Meetings were also organized by group members with UNIDO team, SBI Japan (manufacturer) team and officials from Irrigation Department.



▶ IRI MONITORING..... 1



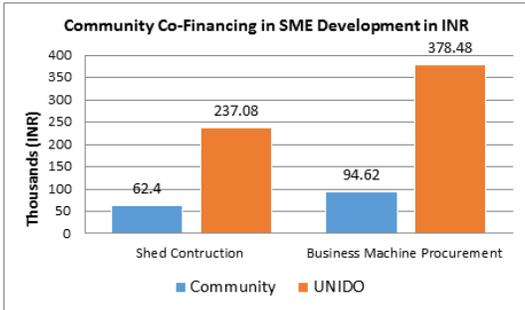
▶ MASTER PLAN SURVEY . 1



▶ COMMUNITY CO-FINANCING..... 2



▶ RE-INVEST 2015 .....2



As the project sites Ambadi and Kaladhungi were selected based on three important criteria of need and willingness of community for use of energy in small enterprise development, considering geographical balance and on technical feasibility. Further, the communities of both the sites were facilitated with the help of local NGOs to organize enterprises in order to utilize the energy for productive use. These groups have now been registered as 'cooperatives' with the government and can enter in small scale business. Both the group members from project sites co-financed 20 percent funds which amounted to INR 1,57,000 with 80 percent contribution from UNIDO in setting up their enterprise to construct the place for business

## Villagers Co-Finance 20% Funds

*In local enterprise development: villagers co-finance 20% funds with UNIDO's 80% support*

activities, procurement of business machines and ULH-MHP machine installation by manufacturer. A total of seven capacity building trainings have been provided to these community members on entrepreneurship and marketing development, finance, bookkeeping and exposure visit to other business setup.



*'the community members contributed 20% costs towards business shed construction and productive use machine procurement apart from contribution in kind in ULH-MHP machine installation...'*



As part of advocacy effort of UNIDO in the field of micro hydro power generation through canal falls, the Government of Uttarakhand has declared its Policy on the 'Development of Micro & Mini Hydro Power Projects upto 2 MW-2015' in May 2015. This will improve the overall quality of life in rural Uttarakhand by addressing issues of access to energy through decentralized electricity generated from micro/ mini hydro power projects that will further lead to grid-compatible power generation to strengthen the quality and reach of rural grid. The Chief minister of state said that emphasis will be given to encourage local industrialists and local governments (Panchayats) for setting up micro power projects, while the policy will ensure transparency and adequate participation local communities in power generation by establishing small micro hydro systems across the state

## 30 Community Members Trained

*Green Enterprise Development from renewable energy of ULH-MHP System*

30 Community members from two project sites got training on various aspects of the project. The community groups from the sites –Kaladhungi (Nainital) and Ambadi (Dehradun) have been provided with training on 'Entrepreneurship Development' to use the renewable energy generated from ULH-MHP units for various productive purposes.

These participatory trainings included selection of products that could be processed and marketed by the user group members and finalization of marketing strategy and business models. The groups formed at both sites have registered themselves as community enterprise with government and are now linked to the banks. At both the sites, they have procured processing units like rice de-husking/sheeling, spice grinding, oven system and packaging machine. As the ULH-MHP machines are installed during July 2015, the groups will start their business of processing agro-products and marketing them.



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