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Newsletter

# 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*

## MNRE Publishes on ULH-MHP in 'Energy Next' Magazine

The Energy Next magazine supported by IREDA of Government of India, in January 2015 published an article on the efforts in decentralized clean energy development through ultra low head micro hydro promotion in India. It says that India is world's fourth largest energy consumer in the world and has initiated steps to promote innovative energy solutions through ultra low head based micro-hydro and pico hydropower technologies to combat the rising pollution and overcome the acute shortage of power. The author, Dr. B. K. Bhatt, Director, Small Hydro Division (SHP), MNRE opines that the use of ultra low head technologies will be very helpful in providing electricity to different parts of rural India by adopting a community based approach in project implementation. He also mentioned that such systems have significant impact on farmers and villagers to get access to electricity. Link: <http://bit.ly/1NGBYEE>

OPPORTUNITY

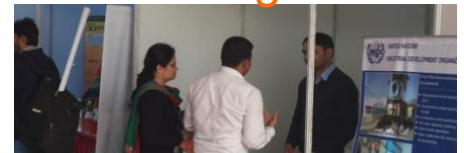


### Water for clean energy

India is the world's fourth largest energy consumer with the total primary energy consumption of 621 million tons oil equivalent in 2008. In order to combat rising pollution and overcome the acute shortage of power, steps have been initiated to promote innovative energy solutions with pico hydro & with ultra low head micro-hydro power technology in India. **BK Bhatt** takes a look at the use of ultra low head technology, which has helped in providing electricity to different parts of rural India

**I**t can be foreseen that India is expected to be the second largest contributor to the increase in global energy demand by 2035, accounting for 36 per cent of the rise in global energy consumption. Currently, more than 50 per cent of the population has little or no access to modern energy services for their survival. The United Nations Secretary-General, Ban Ki-moon had said, "By 2030 we will need 30 per cent more wind, 50 per cent more water and 50 per cent more energy". In order to combat rising pollution and overcome the acute shortage of power, steps have been initiated to promote innovative energy solutions with pico hydro & with ultra low head micro-hydro power technology in India. **RURAL ENERGY AN AREA OF CONCERN IN INDIA** While there has been impressive progress in increasing the installed capacity for electricity generation and extension of the grid in rural areas, the availability of electricity and other modern energy supplies continues to remain a concern. A recent study undertaken by the World Bank reports that diesel generators ranging from 5-10 kW portable systems to MW capacity power plants have been the traditional solution to decentralized electrification needs in many parts of India including in the state of Uttarakhand. **DECENTRALIZED ENERGY SOLUTIONS THROUGH ULTRA LOW HEAD TECHNOLOGY** The untapped potential of water resources that flow through various existing manmade channels in the state of Uttarakhand could be used widely to an eco-friendly manner to generate power. This power can be used by the people of rural areas for various livelihood purposes. With such a mandate UNIDO had signed a cooperation agreement with the Government of India in 2013 for the promotion of an innovative Ultra Low Head based Micro-Hydro Power (ULH-MHP) technology that can be installed in the areas where manmade canal systems exist and community is devoid of electric energy for

## Exhibition in State Science Congress-2015



UNIDO team participated and exhibited in an annual Science congress organized by Uttarakhand State Council for Science and Technology (UCOST) of Government Uttarakhand that was organized during 26-28 February 2015 in which the action groups, scientists, research institutions, government agencies and academia participated and exhibited their scientific innovations. UNIDO highlighted the innovative ULH-MHP technology, scope of such innovation and replication in the state of Uttarakhand. Awareness generation and showcase of turbine technology through audio visuals and literature was done by the PEU team from UNIDO.



## Hands on Training of Operators

During the month of April 2015, a detailed training of operators and user community members (two each) from Bahadarabad (Haridwar), Ambadi (Dehradun) and Kaladhungi (Nainital) site on the Operation & Maintenance of ULH-MHP system was conducted by the technology manufacturer SeaBell International (Japan) in association with UNIDO, at Irrigation Research Institute (IRI) campus. These participants were provided with training material and certificate by SBI Japan for their successful participation.



## Organic Farmers and Eco-Tourism Promoted

*Green Enterprise development by promoting organic farmers and eco-tourism promotion through ULH-MHP*

Initiating the community enterprises development process since January 2015, two community energy user groups have been formed at Kaladhungi and Ambadi sites in this ULH-MHP project. These groups will use the electricity generated in milling and grinding process of their farm produces and will further market them to secure livelihood. The Ambadi group consists of 11 farmers involved in organic farming and will process and sell their produce like rice-

wheat flour and spices in nearby markets of Dehradun and plans to export them. The Kaladhungi group is formed by the villagers from 'Corbett National Park' area and they focus on eco-tourism based activities. This group will process the local spices and sell through their 'Nature Shop' near the project site. The Kaladhungi group has started their activities with the installation of ULH-MHP machine in July 2015 and

already got orders from market and tourists coming to visit the national park area.



*'the entrepreneurs use green energy generated from ULH-MHP technology for their green business promotion through organic farm processing and eco-tourism based products...'*



The Ministry of New and Renewable Energy (MNRE), Government of India organized the first Renewable Energy Global Investors Meet & Expo (RE-Invest), as a follow-up to the 'Make in India' initiative launched by the Prime Minister of India in Feb 2015. UNIDO's ULH-MHP team presented a case from pilot state Uttarakhand (India) on the opportunities in ULH-MHP in rural electrification highlighting untapped energy in the existing canal falls, use of low head based low carbon emission technologies, mainstreaming decentralized power generation, ULH-MHP as an emerging sector and emphasis on local skill & enterprise development.  
Link: <http://www.re-invest.in/>

## Sustainable Hydro Development- 2015

*UNIDO Supports International Conference on Sustainable Hydro Development 2015*



UNIDO partially funded an international conference that was organized by state Nodal agency UREDA with AHEC, IIT Roorkee and Ministry of New and Renewable Energy (MNRE), Government of India during 5-7 Feb 2015. In this conference, UNIDO generated awareness on project actions through exhibition and paper presentation by the Project Execution Unit (PEU) and UNIDO Head Quarter (Vienna) team members. The papers presented by UNIDO team covered the topics on low carbon emission and usability of ULH-MHP technology, scope and comparison with existing ULH technologies, role of media in the propagation of ULH-MHP technology and green energy and ULH-MHP based Enterprise Development. Over 500 delegates from different parts of India and across the world attended the conference. Link: [http://www.ahec.org.in/ICHSD\\_2015/index.html](http://www.ahec.org.in/ICHSD_2015/index.html)

### United Nations Industrial Development Organization (UNIDO)

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## Training on STREAM Technology

*Manufacturing Training of Stakeholders on STREAM (ULH-MHP) technology*

In May 2015 a three days practical training on various processes of manufacturing and exposure to different parts of the ULH-MHP machine was conducted by state nodal agency UREDA-Uttarakhand Renewable Energy Development Agency for 12 participants from the user groups, technicians, officials of Irrigation Department and UREDA in association with technology manufacturer of SeaBell International, Japan. The training was financially supported by UNIDO in the manufacturing unit of Indian counterpart of SBI Japan located at Faridabad in Haryana state of India.

