



Summary of LIRE Pico-Micro Hydropower Programme

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Together, in partnership with ETC Energy, the Lao Institute for Renewable Energy (LIRE) conducted a 2 years programme called "Pico-hydropower innovation and capacity building programme".

Lao PDR is a landlocked country that is among the Least Developed Countries (LDCs) worldwide. The population of Lao PDR is around 6.13 million in 2009, the population density of 23 persons per square kilometer is the lowest in the region. Overall electrification rates have increased from 16% in 1995 to 72 % according to the latest source¹. Although about 80% of the population lives outside the towns, the rural electrification rate remains at just 38%. It is expected that as much as 20% or more of the population will remain beyond the reach of the grid for the foreseeable future. In this context pico-hydropower systems come as a suitable alternative for remote populations. An estimated 60,000 low-head pico-hydropower units provide electricity for about 90,000 households, making it the most important renewable energy technology in the country, especially in the northern part of the Lao PDR thanks to the mountainous terrain and numerous watercourses. Nevertheless, small and very small hydropower has received much less attention from the government, multilateral organizations and NGOs.

During 2 years, LIRE's team has strived to bring new impetus to this neglected sector. The actions focused on the one hand on a sustainable development of pico-hydropower use through improving access to reliable pico-hydropower services, accessories and information, on the other hand the establishment of the first shared pico-hydropower system in Lao PDR. Finally, LIRE aimed at raising international recognition of the importance of small-scale hydropower for rural livelihoods.

¹ Department of Electricity (DoE), Presentation of the draft decree on the implementation of the renewable energy strategy, 25-26 July 2011



The first component of the pico-hydro programme has been the results of the fruitful partnership with ETC and aimed at improving the supply chain and enhancing knowledge. It has been noticed that many problems have been overcome by innovation of actors in the pico-hydropower supply chain: users, village technicians, shopkeepers, traders and producers. The programme proposed to train shop keepers and technical advisors to best advice their clients, to develop quality/safety standards as well as to disseminate users information material of pico-hydropower systems. During 18 months LIRE conducted and followed up the below activities in three Northern provinces, Xiengkhouang, Huaphanh and Phongsaly.

LIRE - ETC activities:

- Dissemination of pico-hydropower installation and user manual in Lao language and non-writing support
- Training of technical advisors
- Training for staff from private sector
- Introduction of ELC load controller in supply chain
- Workshops for shopkeepers
- Technical market assessment
- Introduction to new products and new suppliers/ traders



The second component of LIRE's pico-hydropower programme was supported by BORDA. It aimed at the demonstration of a shared pico-hydropower system which provides power to the 24 households of the village and 4 communal buildings. The shared pico-hydropower project aims to demonstrate how a rural community can use pico-hydro in a collective environment, sharing the financial costs and workload in order to provide a safer and more reliable service. The system is operated as a community based service, with village technicians responsible for maintenance as well as collecting fees and a village community to manage and coordinate the service. Local authorities and LIRE providing guidance, support and capacity building until independency is achieved. The households are divided into two different tariffs reflecting the different energy needs; a low tariff provides only lighting (30W limit) and a higher tariff is introduced for those users who require power for TV's and stereos (100W). This best practice demonstration site has been a success viable model for already one year and half.



LIRE's pico-hydropower programme engaged with a broad range of technical, operational and social issues. LIRE owns in house skills and is still very keen to pursue development of small scale hydropower sector and to propagate its best practices models. LIRE would be pleased to welcome new partners to further expand its activities on this technology, in recognition of its continuing importance for the Lao PDR, especially rural people.

Further, the institute runs currently 3 programmes where challenges are as stimulating as hydropower programme. The bio-energy programme is a rich mix of research activities and pilot projects. The solar programme gives endless potential applications due to significant sun radiation. As for the waste water programme (DEWATS), the dedicated team has received a positive response from local targets and will likely multiply site implementations of this cost-efficient and sustainable wastewater treatment system. Finally, LIRE still works closely with local stakeholders and partners to share its knowledge and position itself with comprehensive and genuine renewable energy solutions for Lao PDR.

