



Snapshot 2008

The Lao Institute for Renewable Energy

LIRE is a non-profit organisation dedicated to the sustainable development of a self sufficient renewable energy sector in the Lao PDR. The institute offers agronomical, technological and socio-economic research services, and works to provide free public resources. LIRE strives to support the development of the country by exploring commercially-viable means to establish long-term alternatives to conventional practices.

The renewable energy solutions developed at LIRE represent a catalyst to development in rural communities. They can deliver direct improvements to the health and welfare of villagers whilst additionally protecting their environment. Moreover, by removing time-consuming activities such as the collection of firewood, and by enabling people to be more active after daylight hours, people are empowered to pursue an education and new ways to generate revenue for their households, hence bringing greater prosperity to their families.

A Lao Institute founded by Lao members

LIRE was founded in October 2006 by Lao companies, organisations and agencies with the common vision to establish a platform for renewable energy research in Lao PDR. LIRE is a government-authorized Non Profit Association (NPA) operating under the Lao Union of Science and Engineering Associations (LUSEA), the umbrella organisation set up by the Lao National Science Council (NSC) in 2001.

The principal founding member of LIRE was Sunlabob Renewable Energy Ltd, a highly successful Lao company that has won several international awards in recent years for its efforts in providing off-grid rural electricity solutions. Other founding members include the National University of Laos (Faculty of Engineering and Architecture); XAO BAN Group; Lao Association of Organic Products Promotion (LAOPP); Geo - Systems International Ltd; Technology Research Institute (TRI); and the Lao Renewable Energy Services Development Association (RESDA).

Renewable Energy in the Lao context

The Lao People's Democratic Republic (Lao PDR) is a landlocked nation in the centre of Southeast Asia. The country benefits from a wealth of natural energy resources, and in particular large-scale hydropower. However, with 85% of the population living in sparsely populated rural communities, the largely mountainous terrain and monsoonal climate put most households beyond the reach of the national grid. In these circumstances decentralised solutions are favoured, and not only for electricity, but also for fuels, clean drinking water and sanitation.

Central to the national agenda, the National Poverty Eradication Programme (NPEP) aims to raise the Lao PDR out of the UN list of Least Developed Countries by 2020. Within this time frame, the government is dedicated to achieving 90% electrification, and to bring clean drinking water to 100% of the population. Renewable energy technologies can provide safe, clean and reliable means to achieve these targets, and it is LIRE's mission to help realise this potential.

Capacity Building

The institute recognises that, in order for renewable energy technologies to offer a long-term solution for the Lao PDR, it is essential to establish local expertise for operation and maintenance. The institute develops training and resources for the end-user, and promotes renewable energy technologies as alternatives to traditional practices through educational initiatives.

Much of the research undertaken at LIRE is performed by Lao nationals, with the support of visiting researchers from overseas. In addition to facilitating the transfer of expertise to permanent staff, projects also benefit from first-hand insight into the Lao context, which is especially advantageous for field research.

Research activities in 2008

A list of the projects currently underway is given below. For more information regarding the ongoing research activities and for free access to project reports, please refer to the institute's website.

Jatropha research programme

LIRE is engaged in a full development programme of biofuel production using Jatropha, ranging from agricultural studies to oil extraction, fuel processing and applications. At present the research is focused upon plantation management, breeding activities, and monitoring of existing Jatropha plantations in the Lao PDR.

Water purification

LIRE provides technical research services to Sunlabob to support the development of solar-powered water purification systems for clean drinking water to rural communities in the Lao PDR. The research is supported by the Bremen Overseas Research and Development Association (BORDA).

Biomass gasification

The institute is evaluating the potential for this technology in the Lao PDR. The investigation centres on surveying the availability of different feedstocks and determining the viability of systems to provide a sustainable decentralised electrification solution on village and industrial scales.

Biogas

LIRE is engaged in a broad biogas research programme in partnership with SNV. The current drive of the programme is to support the implementation of small-scale digesters to provide household cooking gas as an alternative to firewood.

Picohydro electricity

Small turbines to supply the electricity needs of individual households are in widespread use in the Lao PDR. However, due to a lack of technical support and information for the end-user, installations typically underperform, are unreliable and unsafe. LIRE is developing public resources that will enable rural communities to make better use of this technology. To this end the institute will trial available turbine models, whilst performing technical research on load controller systems.

Ways to get involved

Partnership opportunities

The institute can form partnerships with any national or international organisations that share the common goal of supporting sustainable development through renewable energy technology. The institute is keen to cooperate with partners to enable people to make use of safer, cleaner, and more reliable alternatives to current sources of energy and energy-consuming appliances.

As a centre of technical expertise, LIRE is able to provide research support to projects anywhere in the world. The institute can provide supervision, training, and access to resources. Additionally, LIRE offers consultancy on the Lao PDR to organisations wishing to assess the viability of future initiatives in the country. The institute is uniquely qualified to offer such services, being an experienced local organisation with a well-established network through its existing operations. The institute welcomes specific enquiries, and will issue tailored proposals of services upon request.

Corporate responsibility package

At present LIRE is financed through direct funding for projects. The institute is also seeking to establish long-term relationships with organisations that support the general aims of the institute. In combining poverty eradication, health, sustainable development and protection of the environment through renewable energy technology, the institute's portfolio of activities represent an ideal opportunity for corporate responsibility sponsorship. A unique support and publicity package can be arranged to meet the particular interests of a sponsor.

Guide to Services

Through its internal capacity, and its network of members and partners, LIRE is able to offer the following portfolio of services. The list is intended to provide an indication of possible activities for potential partners, but should not be considered exhaustive.

Renewable energy development in the Lao PDR

The institute is uniquely positioned to undertake technical, agronomic and socio-economic research projects in the Lao PDR. From its office in Vientiane, LIRE can coordinate research activities in any province. In addition to laboratory tests, the institute carries out field trials of technology in rural communities.

Research support services

Through ongoing research programmes in the Lao PDR, LIRE continues to expand its capacity to offer expert technical support to renewable energy technology projects both locally and in other regions of the world.

Consultancy and nationwide information

Organisations may contract LIRE for consultancy services in the Lao PDR. These include socio-economic analyses and impact assessments; detailed geographical analysis using GIS (with the

cooperation of Geo-Systems International Ltd.); the generation of feasibility reports; and the institute can liaise with local organisations and authorities.

Platform for renewable energy interests in the Lao PDR

LIRE can extend its national network of partners and members to international organisations seeking to operate within the Lao PDR. The institute can liaise with local groups to facilitate the involvement of international bodies.

Educational outreach

The institute works in partnership with the Faculty of Engineering, National University of Laos (NUOL) to build a national capacity for renewable energy technology. The institute assists the educational programme of the faculty through student exchange, technical assistance, and seminars. LIRE can offer a platform for international organisations seeking to support education in the Lao PDR from university to elementary school level.

Training materials and services

Central to all of LIRE's research programmes is the involvement of local communities in the installation and maintenance of renewable technology solutions. The institute provides training and produces manuals (in Lao) for village technicians. Hence the team at LIRE can implement training initiatives for partner organisations and provide translation services for existing technical documentation into Lao.

International Intern Programme

The institute welcomes applications from individuals seeking to make a real contribution to the sustainable development of the Lao PDR, and to gain new skills and research experience through the process. Placements can be self-contained assignments, or tailored to form part of a Masters programme from a sending institution.

LIRE staff provide full local supervision of interns from overseas. Interns at LIRE can expect academic and pastoral support from qualified research professionals, whilst making a real contribution to the sustainable development of Lao PDR.

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*Thai-Lao Road, km3,
Wattanak village, Vientiane, Lao PDR
P.O. Box 9077*

Tel: +856 21 353 430. Fax: +856 21 314 045.

Email address: contact@lao-ire.org.

Web-site: www.lao-ire.org