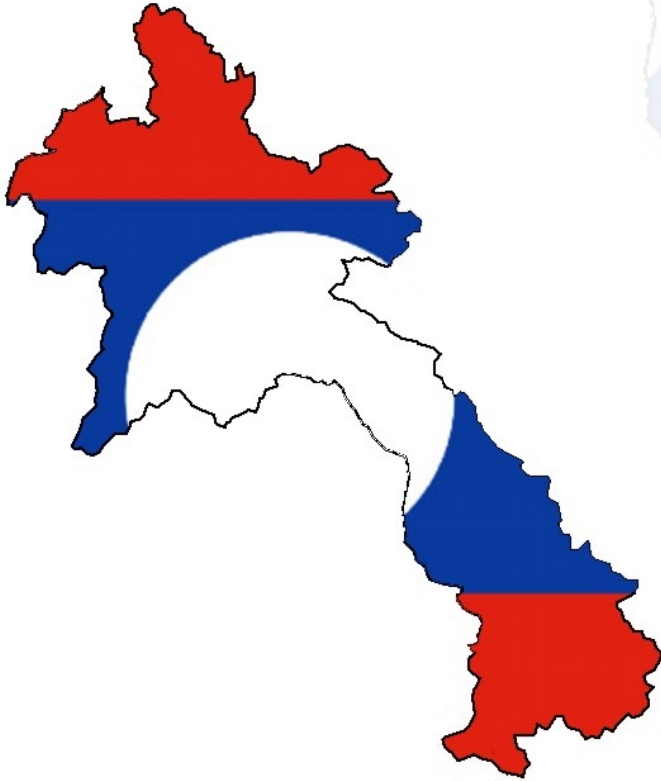


Bioenergy and Renewable Energy

for Rural Development and Poverty Reduction
in **Lao PDR**



Supported by:



Department of
Electricity
ກົມໄຟຟ້າ

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Introduction

Between August and October 2009, the Food and Agriculture Organisation's Regional Office for Asia and the Pacific (FAO) and the Netherlands Development Organisation (SNV) established a partnership to investigate opportunities to better utilise bioenergy and renewable

energy for rural development and poverty reduction in the People's Democratic Republic of Lao (Lao PDR). In collaboration with local partner organisation, the Lao Institute of Renewable Energy (LIRE), and with the support of the Lao PDR Ministry of Energy and Mines, FAO and SNV:

1. Established a Renewable Energy Activity Database (READ);
2. Documented the experience of a number of local bioenergy and renewable energy projects in Lao PDR to highlight best practices and challenges for bioenergy and renewable energy;
3. Organised a Practitioner's Meeting for representatives from the Lao PDR Government, private sector providers of small-scale renewable energy providers and development organisations to share experiences and consider possibilities for future action.



This booklet provides a brief overview of the findings of these activities and possible avenues for future action to integrate small-scale, community based bioenergy and renewable energy solutions into energy and poverty reduction policies in Lao PDR.



More detailed information including the preliminary READ, complete individual case studies and a summary of proceedings from the Practitioner's Meeting is available on the CD included in this booklet.

General Overview

More than 80 per cent of the population of Lao PDR lives in rural areas, with the vast majority relying on traditional fuel wood for lighting, cooking and heating. It is a fact often overlooked, but access to efficient, reliable, and clean energy services is a basic requirement for social and economic development. While Lao PDR plans to rapidly expand electricity access in the near to medium term, a significant proportion of the population will continue to rely on traditional biomass energy for the foreseeable future; particularly in rural and remote areas of the country. While a number of projects have had some success in harnessing renewable energy technologies, delivering these technologies on a large scale, in a way that will benefit the vast majority of Lao people living in rural areas, still presents a significant challenge.

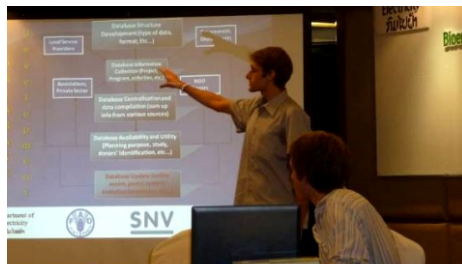


The Lao PDR Government has tasked the Department of Electricity (DOE) under the Ministry of Energy and Mines to develop a national policy for renewable energy; including bioenergy and biofuels. Greater leadership and coordination from the Lao PDR Government through DOE is a crucial step towards realizing the potential of these technologies for rural development and poverty reduction.

This initiative aims to inform the policy development process started by DOE and help bring relevant issues from the private and development sector to its attention.

Renewable Energy Activity Database (READ)

The Lao PDR READ was established to provide a clear snapshot of the small-scale, bioenergy and renewable energy situation in Lao PDR. It identifies key players and programmes originating from both the private and public sectors. If maintained, READ could present a very useful tool for decision makers and donors looking to identify needs, avoid duplication, and create complementarities in programme implementation.



According to the Lao PDR READ there is currently 73 bioenergy and renewable energy projects underway or under development in Lao PDR worth around USD290 million. A summary of READ by sector is shown in **Figure 1**.

Figure 1 - Summary of Renewable Energy Activity Database (READ)

Sub-sector	Investment in Million US\$	Number of Projects/activities
Biofuel	73	19
Biogas	17	14
Biomass	Not Identified	6
Solar	47	17
Pico-micro Hydro	163	17
Total	290	73

Renewable Energy Case Studies

As illustrated by READ, there are already a number of bioenergy and renewable energy projects underway or being developed in Lao PDR. Five case studies were selected by FAO, SNV and LIRE to demonstrate the potential of small-scale technologies to contribute to rural development and highlight the challenges of realising their potential in the Lao PDR context.

1. Developing household biogas in Laos with access to carbon finance

This case study assessed the potential of using carbon financing such as Clean Development Mechanism and voluntary standards to support the dissemination of household-level, clean energy solutions in Lao PDR. It was found that there are a number of obstacles at present to using carbon financing mechanisms to support renewable energy projects in Lao PDR such as insufficient project size and the

complexity of the project application and stewardship process.



2. Solar recharging stations: Selling hours of solar lighting

Sunlabob is the provider of an award winning solar energy service to rural and remote households in Lao PDR. This case study provides a technical and operational description of its rechargeable battery lantern and solar charging station and rental scheme, which is currently at pilot implementation stage in six villages. It highlights the difficulty in convincing consumers to adopt new technologies

and how existing government incentives for other energy sources can obstruct new renewable energy technologies' access to markets.



3. Biomass gasification

This case study reviewed the recent experience of LIRE with biomass gasification technologies in Lao PDR and highlights the opportunities and requirements for the sustainable use of this technology in the Lao PDR context. While opportunities exist, the case study identifies a number of constraints to future uptake. Constraints identified include high investment costs, low energy demand in rural areas compared to generating capacity, low grid tariffs and high technical requirements for operation and maintenance.



4. Improving the utilisation of Pico-Hydropower (PH) in Lao PDR

The pico-hydro case study examines LIRE's experiences with implementing micro hydro technology in rural communities in Lao PDR. The case study details some of the bottlenecks encountered in distributing the technology and interventions that were employed to improve the uptake, quality and safety of pico-hydro systems.



5. Recycling of agricultural residues for biomass energy production in rural communities

This case study examines the potential for biomass gasification technologies to make use of Lao PDR's abundant supply of agricultural wastes. Similar

to the LIRE example, this case demonstrates that this technology faces a number of barriers; particularly in the Lao PDR context.



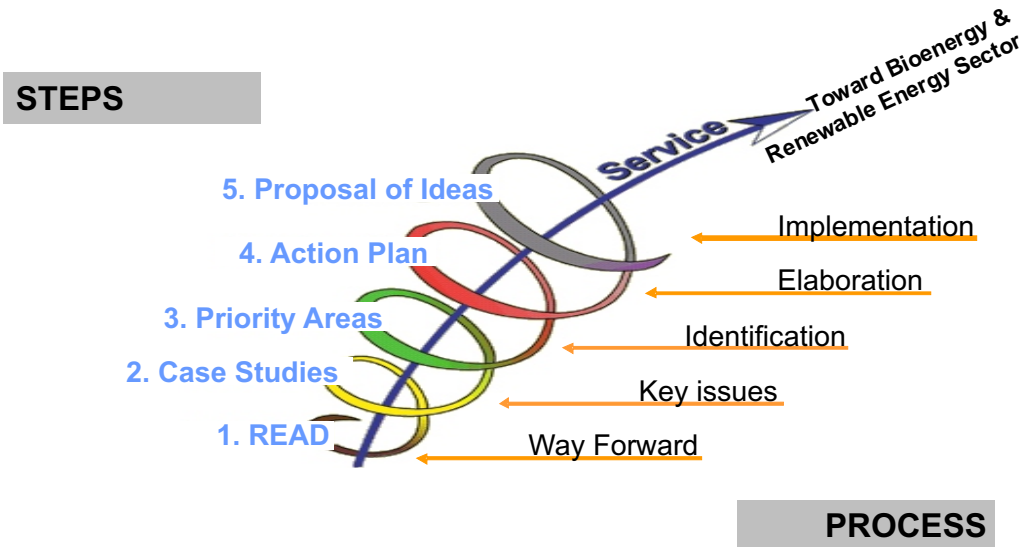
Case Studies - Summary Findings

A common theme of the case studies is that initiatives to scale up these technologies face a number of significant hurdles. The various cases show that although bioenergy and renewable energies are proven and available, enabling the wide spread adoption of these technologies in Lao PDR is difficult. An issue identified in each case was that leadership from the Lao PDR Government is required to remove barriers and identify the best opportunities for bioenergy and renewable energy technologies in Lao PDR.

Practitioners' Meeting

The Lao PDR Practitioner's Meeting was held in October 2009 and involved 32 participants from the public, private and development sectors. The main objective of the meeting was to develop a plan of action to enhance and expand the delivery of efficient, reliable, and clean bioenergy and renewable energy technologies in Lao PDR for the benefit of rural communities; particularly the rural poor. The event brought together the other elements of the project, while also providing an opportunity for knowledge sharing and networking among key practitioners in the field in Lao PDR. The meeting process is outlined in **Figure 2**.

Figure 2 - Practitioner's Meeting: Process



A Plan for Future Action

From the discussion at the meeting participants created a plan for future action to better integrate bioenergy and renewable energy into Lao PDR energy and rural development policies. The plan identifies a number of priority areas for action that require further immediate attention from government and private sector bodies. An overview of the plan is shown in **Figure 3**. The more detailed plan is included in the booklet CD.

Figure 3 - Practitioner’s Meeting Plan of Action: Bioenergy & Renewable Energy

Priority Area	Key Goals	Key Future Actions
1. Environment & Social	a) Minimise negative social and environmental impacts of renewable energy development	<ul style="list-style-type: none"> • Apply suitable standards to Lao PDR renewable energy projects • Improve government capacity to and evaluate renewable energy projects
2. Financing	a) Increase private and public sector investment b) Access opportunities for CDM funding	<ul style="list-style-type: none"> • Investigate opportunities for micro-financing rural renewable energy: studies & pilot projects • Conduct study on how to link opportunities for renewable energy and CDM
3. Public Sector Ownership & Coordination	a) Develop a whole-of-government policy for bioenergy and renewable	<ul style="list-style-type: none"> • Establish dedicated unit within Lao PDR Government to coordinate renewable energy policy
4. Data Management & Capacity Building	a) Improve data & information sharing amongst key public and private stakeholders b) Improve public awareness of renewable energy c) Build local capacity to manage renewable energy technologies	<ul style="list-style-type: none"> • Lao PDR Government adopt and manage READ • Develop public education initiatives to promote bioenergy and renewable energy
5. Technology	a) Develop appropriate technologies for rural communities in Lao PDR	<ul style="list-style-type: none"> • Establish series of farm-site technology demonstration projects

Partner Organisations



FAO works with governments, civil society and the private sector to promote food security in ways that aim to bring about durable improvements in the lives of the poor while protecting the region's natural resource base and ensuring that men and women have equal opportunities to benefit from agricultural and rural development. FAO undertakes many interrelated activities in support of food security, rural poverty alleviation, and institutional and human capacity building mainly through meetings, publications, and by serving regional technical commissions and FAO-sponsored regional bodies.

SNV Netherlands Development Organisation is a Netherlands based international NGO that delivers capacity development services to over 2,000 clients in 33 countries in Africa, Asia, Latin America and the Balkans. In Asia, SNV supports (local) government, civil society and private sector organisations in Nepal, Bhutan, Vietnam, Cambodia, Lao PDR, Bangladesh, Pakistan and Indonesia, as well as to a number of regional organisations and networks. SNV is dedicated to a society where all the people enjoy the freedom to pursue their own sustainable development. SNV contributes to this by strengthening the capacity of local organisations. In Asia, SNV is active in 5 sectors: Renewable Energy, Forestry Products, Water, Sanitation and Hygiene, Pro-Poor Sustainable Tourism and Small Holder Cash Crops. Governance for Empowerment, Pro-poor Carbon Funding and Access to Finance are cross cutting themes.



LIRE is a Lao Non-Profit Association founded in 2006 with the core purpose of developing commercially-viable renewable energy solutions as long-term alternatives to conventional practices. In addition to expertise in renewable energy technologies, LIRE combine an in-depth understanding of the Lao context with analytical economics to provide operational models tailored for rural development. Based in Vientiane, LIRE employs 20 highly experienced national and international experts, supported by a network of national members, international associates, and partner institutions. Through these means, LIRE enjoys the dynamism of an international team, whilst maintaining a local perspective. LIRE has maintained a strong relationship with local, provincial, and national authorities since its founding.

Overall responsibility for Energy and power sector development rests with the Department of Electricity (**DoE**) within Ministry of Energy and Mines (**MEM**). DoE formulates policies and strategies for Small Power Producers (SPP) and Independent Power Producers (IPP). MEM more broadly has the main duties of preparing strategic renewable energy and power sector plans; collecting and processing data on energy and electricity generating potential; preparation of regulations regarding renewable energy, energy efficiency and conservation, electricity generation and transmission development; preparation of recommendations on tariff levels for submission to Government of Lao PDR; administration and inspection of electricity enterprises; and liaison with "local and foreign parties" in seeking funding for energy and electricity sector development.

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CD Content

- Workshop Proceedings Report
- Renewable Energy Activities Database (READ) - Lao PDR
- Renewable Energy Case Studies
- Workshop Materials
- Pictures
- Contact List



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