

Vocational Technical Training for Cambodia and Laos rural electrification SMEs (VTCL)



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Project Context

Currently, the provision of rural electricity service in Cambodia and Laos is largely left to small private entrepreneurs with no formal training in power generation, distribution or business. Consequently the rural consumers face some of the highest electricity prices in the world (average around US\$0.50/kWh). This situation is a significant barrier to development because households are spending limited income on energy costs, rather than food, shelter or education; and many potential income generating opportunities are not feasible due to the high power prices.

There is urgent need improve the quality, safety and affordability of rural electricity services in Cambodia and Laos by training the rural power providers in the skills and knowledge they need. The activities should include assessment of the needs of the rural electricity providers in both countries, designing a curriculum to meet those needs, incorporating relevant stakeholders' comments, training local trainers to teach this curriculum, and then delivering a pilot course in each country to ensure its suitability.

Sustainability will be fostered by the fact that the project partners are premier institutions in Laos and Cambodia, who will then mainstream the courses in their curricula. The need includes activities for promotion of the courses and developing their business case.

Based on these assessments and evaluations, EU-ASEAN Energy Facility (EAEF) has accepted to provided funds for

implementation of the vocational technical training for energy services providers in Laos and Cambodia

Objectives

The overall objective of this project is to improve the affordability, quality, safety and sustainability of rural electricity in Cambodia and Laos.

Rural electricity services play a key role in rural development. So the specific objectives of this project are to establish a high quality vocational technical training courses specially designed for the rural electricity operators, existing and potential, in Laos and Cambodia on the subjects:

- Business management for energy service companies
- Generator types and fuel sources
- Energy efficiency, technical standards and government licensing requirements
- Diesel generator sizing, operation and maintenance.
- Design and maintenance of distribution network
- Practical skills and techniques for O&M and Safety

Project Partners

1. **IED** (Innovation Energie Development) – French engineering and consulting firm, Project' Leader. www.ied-sa.fr
2. **ETC / TTP** – Technical Training Programme functioning within ETC Energy unit of the ETC Foundations,

Netherlands non-profit organisation.
www.etc-energy.org

3. **ITC** (Institut de Technologie du Cambodge) – Highly professional and well-regarded education institution in Cambodia under the Ministry of Education. www.itc.edu.kh
4. **NUOL** (National University of Laos) – National High education institution in Laos formed in 1995 when 10 existing institutions were merged, including technical college of electronic and electro-techniques. It is under the Ministry of Education. www.nuol.edu.la

Project Activities

Kick-off Meeting – November 2005



Figure 1 : Project's partners at kick-off meeting

The VTCL project was officially kicked-off on Tuesday, November 22nd, 2005 at the ITC campus, Phnom Penh. This meeting was attended by 15 delegates representing the project partners, plus the Electricity Authority of Cambodia, Ministry of Industry, Mining and Energy (as important stakeholders in the project). The meeting delegates also visited ITC teaching facilities at the campus and EDC training center.

The main outcome of the kickoff meeting was a good understanding among all partners of the project requirements, schedule and responsibilities. These were documented in a confirmed project schedule, partner responsibilities, budgets and consortium agreement.

At the kick-off meeting, the participants from ITC and NUOL presented the first

preliminary results of the context study. These results show that there very few training opportunities for REE in Cambodia and for PESCO in Laos but there big potential market for rural training organizations and facilities. The government requirements for vocational training and approval are straight forward and simple.

The survey form was prepared and discussed actively between partners during the kick-off meeting. It was decided to do the survey for about 150 (REE + other stakeholders) in Cambodia and 50 (PESCO + other stakeholders) in Laos. The survey modalities and plan were discussed and agreed upon.

In order to obtain good results from the survey, the project's team has conducted a survey-test for two REEs during the field technical visit. Corrections have been made to adapt to the REE contexts and real conditions.



Figure 2 : survey test in one REE in Cambodia

Survey of the needs in Cambodia and Laos – December 2005 – February 2006

A basic survey was conducted among a sample of licensed REEs in Cambodia and PESCO in Laos to determine various aspects of their technical and management capacity, education background, past training experiences, motivations for learning, time availability and willingness to pay.... This was conducted by ITC in Cambodia and by NUOL in Laos using both direct questionnaire and telephone interview. The sample size cover a wide representative from REE and PESCO, including small, medium size REE, licensed and non licensed, and therefore provided valuable data needed to design appropriate training program and

materials. The information ranged from the educational backgrounds, existing managerial knowledge, O&M skills and ownership through to the procedures and systems used to manage customers and generations equipment. The main outputs of this survey were survey reports on REE and PESCO and a presentation of the results to delegates at the review workshop in February 2006.



Figure 3 : REE genset

Curriculum guideline and business case development – 2006

In order to ensure that the curriculum and training program developed would indeed be appropriate and effective, a draft of curriculum guideline and business case were developed by IED and ETC with input from partners in Laos and Cambodia, based on the results of the context assessments in both countries. The survey has given clear indications on the needs to give attention to knowledge on management, energy efficiency, licensing, O&M, network and safety issues. However the target groups for the course vary per country (managers, technical operators, students in Cambodia, ESCO owners/managers, NGO employees, EdL employees in Laos were mentioned). For these groups, curriculum guidelines should give attention to basic theoretical knowledge on electricity, genset, PV, O&M.

The curriculum guideline were presented in a format that specifies how much time for each subject would be needed and in what way the different subjects should be treated (training mode). For each of the classroom sessions a time indication was given per subject.

It was agreed between curriculum developers that more emphasis has to put on the practical

aspects. A one-day fieldtrip was seen as very useful. About the differentiation of learning needs in Cambodia and Laos, it was agreed that they should not differ too much but some adjustments are needs.



Figure 4 : Price list of battery charging

Project next steps

- Finalize curriculum guidelines and business case, April – May 2006
- Review workshop in Phnom Penh, July 2006
- Curriculum development – manuals and teaching materials, May – August 2006
- Training-of-Trainers in Cambodia and in Laos, September 2006
- Pilot training in Cambodia and in Laos, September – October 2006
- Follow-up and finalization of training program (teaching materials, program, business case..., October – November 2006
- Final Workshop and Final Report, November 2006

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