

1. Outline of the Project	
Country: Lao PDR	Project Title:Lao Electric Power Technical Standard Promotion Project
Issue/Sector: Electric Power	Cooperation scheme: Technical Cooperation Project
Division in charge: Laos Office	Total Cost:
Period of Cooperation: 18 January 2005 – 17 January 2008 (3years)	Partner Country's Implementing Organization: Department of Electricity and Electricity of Laos, Ministry of Energy and Mines
	Supporting Organization in Japan: Japan Electric Power Information Center (JEPIC)
Related Cooperation:	
<p>1-1 Background of the Project</p> <p>Electric power sector in Lao PDR faces a problem of lacking human resources necessary for improving electrification rate and earning foreign currency by sales of electric power to neighboring countries. Another problem is inefficient operation of electric facilities, such as generators, transmission lines and distribution lines, built by foreign investors. Since many facilities comply with technical standards which are different from each other it is difficult to manage and operate them.</p> <p>In response to the request made by the Government of Lao PDR JICA has conducted technical cooperation project for Lao Electric Power Standard Establishment, from May 2001 to April 2003 to train officers who would be able to develop and administrate an electric power technical standard suiting actual situation of electric power sector in Lao PDR. The project assisted the Government of Lao PDR to establish the Lao Electric Power Technical Standard (LETS) as well as human resources development of electric power sector in Lao PDR. LETS has been legislated as ministerial decree of Ministry of Energy and Mines in February 2004.</p> <p>Currently a three year-long technical cooperation project by the Government of Japan which started January 18th 2005 is in progress as the second step of the previous technical cooperation project to strengthen overall capacity of electric power sector in Lao PDR to administer and enforce LETS. The project has been implemented by Department of Electricity (DOE) and Electricity of Laos (EDL), Ministry of Energy and Mines (MEM).</p> <p>The project aims at developing capacity to train officers and engineers who is competent in six technical areas of electric power (namely, civil engineering, hydro-power, substation, transmission, distribution and user's site). Three long-term term experts (expert to DOE, expert to EDL and coordinator) and short term experts in the six technical areas has been dispatched to support the project.</p> <p>According to JICA Guideline for Project Evaluation stipulating that the terminal evaluation shall be carried out six months prior to the project termination, the Joint Terminal Evaluation Team was organized to carry out tasks of evaluating the achievements of the Project from 5 to 15 of June 2007.</p>	

1-2 Project Overview

1-2-1 Overall Goal

Power sector's activities and power facilities' safety are improved.

1-2-2 Project Purpose

The LETS is enforced within public and private sectors.

1-2-3 Output

- (1) Complementary guideline and manuals relating to the LETS is drawn.
- (2) Through on the job training, knowledge and training skills of counterparts of DOE and EDL as trainers are upgraded.
- (3-1) DOE staffs obtain necessary knowledge and skills as inspectors and transfer those knowledge and skills to PDIH staff.
- (3-2) EDL engineers obtain necessary knowledge and skills in order to apply the LETS to their works
- (4) Management structure for the LETS is formulated.
- (4-1) Responsible division for the LETS is established.
- (4-2) Mechanism for monitoring and evaluating implementation of the LETS is formulated.
- (5) Awareness on the LETS of public and private sectors is increased

1-2-4 Input

Japanese side:			
Long-term Experts	3 (Total of 108M/M)	Equipment	Total amount of
Short-term Experts	Total of 42 experts have been dispatched	Local Cost	Disbursed US\$126,677 to cover the local cost
Trainees received	11 trainees have received	Note:	JICA supported US\$50,000 to construct 115kV transmission towers for training at the EDL training centre, and US\$68,700 for training facilities for distribution lines and user's site.
Lao Side:			
Counterparts	F/T C/P: 11	P/T C/P: 8	
Land and Facilities	Land, building, rooms and other facilities for the Project were provided by DOE and EDL.		
Local Cost	(1) Expenditure for the renovation of EDL training centre=US\$18,000 (2) Expenditure for workshops (per-diem EDL participants)=US\$3,700 (3) Expenditure for OJT (in-kind basis) =US\$400 Total Expenditure=US\$22,100		

2. Evaluation Team			
Members of Evaluation Team	Responsibility	Name	Affiliate/Title
	Team Leader	Kaoru SUZUKI	Department of Economic Development, JICA HQ
	Electric Power Technology	Hideki NARUMI	Japan Electric Power Information Center (JEPIC)
	Evaluation Planning	Sota SEKINE	ARR of JICA Laos Office
	Evaluation Analysis	Masato ONOZAWA	Pionnier Research, Inc.
Period of Evaluation	June 5 – September 15, 2006		Type of Evaluation: Terminal Evaluation
3. Result of Evaluation			
3-1 Summary of Evaluation Results			
(1) Relevance			
<p>STEP II is compatible with Power Sector Policy Statement of Lao P.D.R. published in March 2001.</p> <p>The need of LETS in the electric power sector is high. Legislation of LETS and its enforcement are expected to resolve current problems associated with lack of electric power standard for installation of power facilities, and assure improvement of safety and quality of electric power supply. The Project would strengthen DOE and EDL's overall capacity to implement developing projects. This may help the Lao Government ensure high-quality power supply and socio economic development. Furthermore, the Project is consistent with the Japanese government's Country Assistant Plan for Lao PDR published in September 2006. Therefore relevancy of the project is considered high.</p>			
(2) Effectiveness			
<p>The effectiveness of the Project is high because the Project has fulfilled its outputs stipulated in the PDM. C/Ps have conducted inspection, examination and giving comments for 14 IPP projects to acquire necessary skills and knowledge for their work. Furthermore the LETS training has been carried out at the EDL Training Center as one of the center's training program. Moreover LETS documents including the guidelines and the manuals have been developed and enacted as the government decree in May 2007. LETS regulatory unit, which is a preparatory unit for "Electricity Management and LETS Regulatory Division" of DOE is expected to be established by December 2006.</p>			
(3) Efficiency			
<p>Based on the input record of both sides, overall quality and quantity of inputs to the Project were appropriate. Both sides have carried out activities as scheduled by the agreement in R/D signed on December 7, 2004. Most of Outputs have been fulfilled and all outputs are expected to be fulfilled by January 2008 as scheduled.</p>			
(4) Impact			
<p>Some tangible positive impacts have been observed at the time of the evaluation. First, the number of new project complying with LETS is significantly increasing. Currently 14 projects are carried out following the</p>			

standard. Second, enactment of LETS document can be considered to bring about institutional impact to Lao power sector.

(5) Sustainability

The Evaluation result shows that establishment of a regulatory division which becomes the authority to conduct all the regulatory works associated with LETS is necessary to make the project outputs sustainable. Institutional establishment such as enactment of LETS document enforce safety and improvement of the electric power activities in Lao PDR. Such institutional enactment ensures DOE to properly manage, operate and regulate the power sector. It also brings about a favorable investment condition for domestic and international investors.

3-2 Factors that promoted realization of effects

(1) The synergy made between preparation of LETS documents and technical training provided by short term experts

The basic design of the project aims at capacity development of C/P personnel through preparation of complementary guidelines and manuals for LETS and the technical trainer training for inspectors and engineers. The project has carried out by the initiatives of Lao side with supports from long and short-term experts. Now C/Ps have comprehended deeply each article of LETS through localization process such as translation and interpretation to local situations. The project is expected to integrate C/Ps' knowledge and skills through applying LETS in examination of documents for power facilities development projects, inspection of the on-going projects and technical training for engineers.

(2) Legislation of LETS

Legislation of LETS carried out after termination of STEP I contribute to implementation of the Project. The guidelines and manuals for LETS developed through the Project were also enacted as the ministerial decree in May 2007. The project activities were fully supported by such legislative arrangement of Lao PDR. Such legislation will help DOE to administer IPP projects, for example, to comply with LETS. Therefore, it is expected that LETS would be effectively administered and managed after the project completes.

3-3 Factors that impeded realization of effects

(1) Factors concerning planning

Not identified.

(2) Factors concerning the Implementation Process

Not identified.

4. Conclusion

The Project has been implemented successfully according to PO, and has achieved most of outputs as planned. The team concluded that the Project will terminate on January 17, 2008 as scheduled. However it is recommended to extend the cooperation period by approximately 2 months to support the C/Ps to apply LETS to the on-going

JBIC transmission project to enhance achievement of the Project. JBIC project will be the first one to which LETS is applied from the beginning and therefore will be appropriate on the job training for C/Ps.

5. Recommendations

The Team recommends the following measures to be taken to ensure the successful implementation of the Project:

5-1 Enforcing EDL and other electric facility operators to submit accident report (To DOE and EDL)

Serious accidents taking place in the country have not been reported to DOE although LETS and its Guidelines requires such reporting and stipulates reporting procedures. It is necessary for DOE to dialogue with EDL and other operators to enforce the reporting system.

5-2 Establishment of Regulatory Division in DOE (To DOE)

Both sides have recognized that the regulatory division will have a crucial role to enforce LETS, and to regulate and properly direct the power sector's activity. The Team expects DOE to make every effort to establish the regulatory division deploying inspectors under a division head and having its own budget that enable it to work effectively after the Project terminates.

5-3 Reviewing F/S Submitted by IPP (To JICA)

Applications and preliminary appraisals submitted by IPP hydropower projects has been increasing in number. The Team suggests that reviewing F/S reports submitted by ongoing IPP projects prior to application or preliminary appraisals with support by short-term experts will be effective to ensure the overall goal of the Project.

5-4 Enforcing LETS to EDL Projects (To EDL)

EDL should take necessary measures to apply LETS to all projects including power facilities under operation. Currently, LETS is not likely to be applied to EDL power facilities except for JBIC transmission project, although LETS including the Guidelines and Safety Rules already come into effects as the Ministerial Decree.

5-5 Dissemination of LETS to Whole Country (To DOE and EDL)

Dissemination of LETS is also important issue to be carried out. It is recommended that DOE and EDL take action as soon as possible to disseminate LETS across the country.

5-6 Extension of the Project (To JICA)

The JBIC project is the first case with which LETS will be applied from the early stage. Both sides reconfirmed that STEP2 project would be extended approximately two months in order to support the examination of the detailed design regarding the JBIC Project for the construction of transmission lines and substations.

6. Lesson Learned

6-1 Organizational Establishment Cannot Be an Indicator for the Project Design

“To establish the Regulatory Unit” is an indicator for the Output of the Project but it was extremely difficult for

the Project to deal with such recipient government's internal matter which involves significant personnel matters. Consequently, the Project has wasted so much time and energy to persuade the government and MEM to establish the unit through the Project.

According to the criteria stipulated in the JICA PCM manual, organizational establishment should be defined as Important Assumption for the Project not as an indicator. This experience of the Project tells that having consultation and recommendation may be appropriate approach for dealing with organizational issues in project activities.

6-2 Issuing Certification by Examination

Examination for the C/Ps and issuing the certification to the qualified C/Ps based on the standard set by an examination committee consisting of JICA experts were effective.

The purpose of the examination was to monitor their achievement through the Project activities. Certificates were awarded to those who are qualified to be the LETS trainers. Those examination and award were included in the project design from the beginning. It has become strong incentives for the C/Ps.

As a result, 23 C/P have successfully certified as qualified LETS trainers who will conduct training for local administrator and engineer with confidence and will enhance the training system of the power sector in Lao PDR as well.