

# Terminal Evaluation

## Asia

### 1. Outline of the Project

**Country:**

Laos

**Project title:**

The Project on Electric Power Technical Standard Establishment

**Issue/Sector:**

Electricity

**Cooperation scheme:**

Project-type Technical Cooperation

**Division in charge:**

Second Technical Cooperation Division,  
Mining and Industrial Development Cooperation  
Department

**Total cost:**

approximately 371 million yen

**Period of  
Cooperation**

1 May 2000 - 30 April 2003

**Partner Country's Implementing Organization:**

Ministry of Industry and Handicrafts (MIH), Department of Electricity  
(DOE), Electricity of Lao (EDL)

**Supporting Organization in Japan:**

Japan Electric Power Information Center. INC.

**Related Cooperation:****1-1 Background of the Project**

Laos has promoted hydropower energy development using affluent water resources by introducing foreign investment. However, the power plants, the power transmission and the transformation facilities were designed and constructed by developing bodies (foreign capitals) with different power technology standards, which created some problems with electric power system management and maintenance. Under these circumstances, the government of Laos requested to the government of Japan for project-type technical cooperation to develop an electric power technical standard suitable to Laos and to develop human resources sufficiently capable to apply the standard efficiently.

**1-2 Project Overview**

In order to develop an electric power technical standard in Laos, the project implemented such technical cooperation on the instruction of management and operation of electric power technical standard and on drawing of the draft of an electric power technical standard to the administrative staff of the Ministry of Industry and Handicrafts (MIH).

**(1) Overall Goal**

Lao Electric Power Technical Standard (LEPTS) is enacted.

**(2) Project Purpose**

Necessary human resources to be able to establish and maintain LEPTS are developed.

**(3) Outputs**

- 1) Necessary information for LEPTS is collected.
- 2) Necessary techniques for establishing/maintaining LEPTS are mastered.
- 3) Necessary contents of LEPTS are grasped by the officials of MIH.
- 4) Interests in LEPTS are increased.

#### (4) Inputs

Japanese side:

Long-term Experts	6	Equipment	approximately 33 million yen
Short-term Experts	23	Local Cost	approximately 26 million yen
Trainees received	8		

Laos Side:

Counterparts	17		
Land and Facilities			
Local Cost			approximately 77 million kip (approximately 1 million yen)

## 2. Evaluation Team

### Members of Evaluation Team

Team Leader: Yusuke MURAKAMI, Deputy Director, Second Technical Cooperation Division, Mining and Industrial Development Cooperation Department, JICA  
Technical Cooperation Planning: Toshiaki KOBORI, Electric Power Safety Division, Nuclear and Industrial Safety Agency, Ministry of Economy, Trade and Industry  
Electric Power Engineering: Toshinao MIZUGAKI, Deputy Assistant Manager, Administration Department, International Cooperation Center, Japan Electric Power Information Center. INC.  
Project Management: Naohisa YOSHIFUJI, Second Technical Cooperation Division, Mining and Industrial Development Cooperation Department, JICA  
Evaluation Analysis: Ichiro TOYODA, Toyo Engineering Cooperation

### Period of Evaluation

3 February 2003 - 20 February 2003

### Type of Evaluation:

Terminal Evaluation

## 3. Results of Evaluation

### 3-1 Summary of Evaluation Results

#### (1) Relevance

The Electricity Law in 1997 defined the establishment of LEPTS. The enactment of LEPTS is an urgent task to avoid establishing various different standards in future electricity development. The enactment of LEPTS secures stability and credibility of electricity and enhances convenience of the people in Laos. The enactment of LEPTS also contributes to the improved productivity in the industrial world. In the ODA policy of Japan to Laos, the Japanese government puts emphasis on the capacity building of human resources who contribute to infrastructure development. Judging from above, the relevance of the overall goal and the project purpose is very high.

#### (2) Effectiveness

The project is the only project which is related to the electric power standard in Laos. The four outputs: "necessary information for LEPTS is collected," "necessary techniques for establishing/maintaining LEPTS is mastered," "necessary contents of LEPTS are grasped by officials of MIH," and "awareness to LEPTS are enhanced" have been accomplished without any interference of external conditions, and the project purpose of technical transfer and organization of draft LEPTS has been accomplished. Therefore, the Effectiveness of the Project was extremely high.

#### (3) Efficiency

The dispatch of the Japanese experts proceeded timely as scheduled. The expertise of the experts was highly practical backed by their respective experiences. The counterparts' training in Japan was very much appreciated among the counterparts

because they could learn new techniques, had site survey and they actually observed the latest power system operation with high safety and stability under the Japanese power technology standards.

All the equipment and books the Japanese side offered were well managed and utilized, and all the equipment was utilized as originally planned.

The qualification of the counterparts was well considered on their allocation. As technical sections were divided into four, and the respective work responsibilities were made clear, developing the draft for LEPTS and the technical transfer related to the maintenance and management of the draft were efficiently implemented in the two years.

Judging from the above, the efficiency of the project was enormously high.

#### (4) Impact

The overall goal of the enactment of LEPTS has not been accomplished yet, however, after LEPTS is translated into Laotian, it will be enacted after necessary procedures such as discussion with related ministries including the Ministry of Justice and Science Technology and Environment Agency. In case the safety electricity supply is realized through the enactment of LEPTS, productivity of the industry will be increased, and the accidents and disasters such as electrification accidents or fire will be decreased. There were other positive impacts as follows.

- 1) The draft of LEPTS was explained to related organizations in Laos and presented at the final seminar held to attain consensus, attracting specialists of various different sectors, thereby those specialists are well motivated to standardize the fields they are specialized in by establishing similar standards for their own fields.
- 2) The establishment of the draft of LEPTS made a positive impact to neighboring countries, especially Cambodia, to realize the importance of organizing electric power technical standards. The Cambodian government began to prepare their own standard with the cooperation from the Japanese government.

As regard the negative impacts, it is expected that the implementation of LEPTS will increase the construction cost of power facilities. The price of electricity is defined by the balance of efficiency of the electric system, risk reduction and construction cost. The effects to the price of electricity were not measured at the terminal evaluation.

There were positive and negative impacts observed by the implementation of LEPTS. However, if the implementation of LEPTS leads to a price rise of electricity, as mentioned above, positive impacts are expected, the social and economical benefits by LEPTS implementation is much larger than the negative impacts.

#### (5) Sustainability

The draft of LEPTS will be approved as an official electric power technical standard after the translation into Laotian. The draft is to be commented on by related ministries and agencies and proposed to the cabinet council. The procedure may take about one year, but related personnel of the project estimate that there would be no huge hampers.

Implementation, maintenance and management of LEPTS will be conducted by the Control and Monitoring Division of Department of Electricity (DOE), and the counterparts joining the project will be engage in the department. Therefore, the project has institutional sustainability.

At the terminal evaluation, the counterparts had already acquired the necessary knowledge and techniques for implementation, maintenance and management of LEPTS. Further improvement of capability of the counterparts is expected through their management experiences from now on. As the counterparts have pride as staff of DOE or Electricity of Lao (EDL) and strong willingness to achieve their tasks, it is considered that they would not leave their workplaces. Therefore, the technical sustainability of the project was high.

Meanwhile, DOE declared that it would assure the necessary budget for implementation, maintenance and management of LEPTS, and so the financial sustainability of the project was assured. As the major equipment delivered consists of books and reference materials such as IEC standard, the maintenance and management cost of the equipment delivered would not become a burden.

The project director and project manager recognized that LEPTS was essential for the development of an electricity sector in Laos for the future. Therefore after the termination of the project, they will focus on its enactment. The Laotian side has remarkably strong initiative.

### **3-2 Factors that promoted realization of effects**

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#### (1) Factors Concerning the Planning

N/A.

#### (2) Factors concerning the Implementation Process

- 1) As counterparts and experts sufficiently communicated, the technical transfer was smoothly and efficiently implemented.
- 2) As all the counterparts were involved in the process of translating the draft of LEPTS to Lao from English, they attained deep understanding about the contents.
- 3) The timing of expert dispatch and experts' techniques and knowledge based on their experiences met the needs of the Laos side.

### **3-3 Factors that impeded realization of effects**

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#### (1) Factors Concerning the Planning

N/A.

#### (2) Factors concerning the Implementation Process

As the Laos side did not manage the documents very well; it was difficult to collect data on existing electric power facilities.

### **3-4 Conclusion**

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Based on the policies of the Laos government of promoting an electric power technical standard development, the counterparts and the Japanese experts promoted the project with strong willingness, and the inputs were implemented timely, which meant the project purpose of drafting the LEPTS and conducting the technical transfer to the counterparts were accomplished.

### **3-5 Recommendations**

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- (1) DOE and EDL should organize a group which establishes, maintains, and disseminates the LEPTS.
- (2) DOE and EDL should cultivate trainers who train the officers and engineers in rural areas for dissemination of LEPTS.
- (3) DOE should monitor the process for enactment and take necessary measures, for the smooth progress of the official procedure for the enactment of LEPTS.
- (4) DOE and EDL should collect statistical data and information of accidents and troubles related to the electric power system and analyze the data and information to improve the standard to be more complete.
- (5) DOE and EDL should establish regulations and guidelines of LEPTS for maintenance, management and dissemination.
- (6) DOE and EDL should effectively utilize equipment, books and standards provided by the Japanese side for the establishment and maintenance of LEPTS.

### **3-6 Lessons Learned**

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- (1) In the case of an institutional assistance project for a specific sector, the Japanese side should clarify the relevance of the policy of the sector under the governmental development plan of the recipient countries. At the same time, the priority of the sector and the timing of the project implementation are essential for successful project management.
- (2) To transfer techniques with high quality within a limited period, a management system of regularly monitoring activities and effects should be established.
- (3) To allow the counterparts to understand the electric power technical standard thoroughly, they should be in charge of translation of the standard into their own language.
- (4) The achievement of the project was ensured by close intensive support from the members of the supporting committee mainly consisting of the Japanese electric power companies. Furthermore, the Nuclear and Industrial Safety Agency of the Ministry of Economy, Trade and Industry provided additional technical advice. The secretariat of the committee, Japan Electric Power Information Center, coordinated related parties and facilitated support to implement the project. Therefore, to accomplish the achievements of the project, a supporting committee should actively support the project.

### **3-7 Follow-up Situation**

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N/A.