Japanese ODA Loan

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country:	Lao People's Democratic Republic (Laos)
Project:	Southern Region Power System Improvement Project
Loan Agreement:	March 20, 2012
Loan Amount:	4,173 million yen
Borrower:	The Government of Lao PDR

2. Background and Necessity of the Project

(1) Current State and Issues of the Power Sector in Laos

Electric power consumption in Laos is surging, in line with the country's rapid economic growth and the advancement of rural electrification. Improvement of special economic zones and development of the mining and other industries is being advanced in the area surrounding southern Savannakhét Province, through which the East-West Economic Corridor (National Road No. 13 and the Second Mekong International Bridge) runs, meaning that to achieve further economic growth going forward it will be necessary to cover the power demands of the region in a stable manner.

The main power system connecting the north with the south in Laos is disjointed, resulting in a portion of the power in the country bring exported to neighboring countries while power is being imported in areas where it is lacking. In the area surrounding southern Savannakhét Province in particular, despite the fact that it is being supplied with power through accommodation from the north and central regions and importation from Thailand, the anticipated additional growth in demand going forward is an urgent matter to be addressed.

Currently power source development is being advanced in the north, central, and southern regions near Salavan Province, addressing domestic demand and yielding power exports, in the north and central regions there will be a need to address the growth in power demand in the capital city of Vientiane and other areas of the central region going forward, and it is difficult to divert the power used for exportation to domestic consumption needs in a flexible manner due to long-term fixed contracts. The power imported from Thailand is mainly thermally generated using fossil fuels, and is therefore relatively expensive compared with domestic power.

At the same time, a power source development plan for domestic consumption is being advanced in the area surrounding southern Salavan Province that will increase the area's power generation capacity from 498 GWh (2010) to 6,279 GWh (2015) and is expected to result in surplus power going forward. It is therefore necessary for the realization of additional improvement of the investment environment and economic growth in the region to improve the national power grid of Laos and secure a stable power supply in the area surrounding Savannakhét Province by connecting the area around Savannakhét Province to the area around Salavan Province with transmission lines to link up their disjointed power systems.

(2) Development Policies for the Power Sector in Laos, and Priority of the Project

The government of Laos places high priority on the Project, as its 7th National Socio-Economic Development Plan (NSEDP) spells out a target of "linking up the domestic power grid using a 115 kV transmission line" by 2015 in order to realize the expansion of the power transmission grid. The government also has the goal of electrifying 90% of households nationwide by 2020, and the new construction of the Taotan Substation (Salavan Province, where the electrification rate is 63% versus a national average of 73% (2010)) in the Project is also expected to have the effect of promoting rural electrification in the area surrounding the substation.

(3) Japan and JICA's Policy and Operations in the Power Sector

Support for the power sector is one pillar of "encouraging balanced economic growth through improvement of economic and social infrastructure" that is the focus area of the country-specific aid policy for Laos. Aid results in the power sector from Japan in recent years include the Greater Mekong Power Network Development Project (Yen Loan, Signing of L/A: March 2005)) (to be connected with the Project), as well as the Project for Improvement of Power Sector Management (Technical Cooperation) (August 2010 to February 2013) and the Power Policy Advisors (Individual Experts) (2006 Onward).

(4) Other Donors' Activities

The World Bank and the Asian Development Bank (ADB) are implementing support for power generation and transmission, as well as rural electrification, for the power sector in Laos.

(5) Necessity of the Project

The Project is consistent with Laos' challenges and its government's development policy, as well as with Japan and JICA's aid policy. Consequently, it is highly necessary and relevant that JICA should support implementation of the Project.

3. Project Description

(1) Project Objective

The object of the Project is to integrate the disjointed main domestic power system and achieve a stable power supply for Savannakhét Province and surrounding areas by constructing 115 kV transmission lines and related facilities in southern Laos, thereby contributing to the promotion of economic development in the country.

(2) Project Site/Target Area

Savannakhét Province and Salavan Province

(3) Project Components

1) Construction of transmission lines (115 kV; approximately 200 km)

2) Improvement of substations (four locations)
3) Consulting services (detailed design, bidding assistance, supervision of works, etc.)

(4) Estimated Project Cost (Loan Amount)

4,660 million yen (yen loan amount: 4,173 million yen)

(5) Schedule

Planned for the period from March 2012 to August 2017 (66 months in total). The Project will be completed at the service opening of the facilities.

(6) Project Implementation Structure

1) Borrower: The Government of Lao PDR
2) Guarantor: None
3) Executing Agency: EDL
4) Operation and Maintenance System: Same as above

(7) Environmental and Social Considerations/Poverty Reduction/Social Development

1) Environmental and Social Considerations

(i) Category: B

(ii) Reason for Categorization: The Project is deemed not to have major unfavorable impact on the environment because the sector and characteristics are not among those considered to cause impact readily, nor is the region considered among those readily subject to impact, in the JICA Guidelines for Environmental and Social Considerations, put into effect in April 2010.

(iii) Environmental Permit: The Initial Environmental Evaluation (IEE) for the Project is expected to be approved pursuant to the internal laws of Laos. Note that creation of an Environmental Impact Assessment (EIA) report for the Project is not required by the internal laws of Laos.

(iv) Anti-Pollution Measures: Measures are expected to be taken at the work site to minimize the level of impact from scattered water, noise, vibration, etc., such as avoidance of night work, for air pollution (particulate matter, etc.) during the work

(v) Natural Environment: Since the project area is not in or near a national park or other area readily subject to impact, it is envisioned that the unfavorable impact on the natural environment will be minimal.

(vi) Social Environment: The Project involved the acquisition of 2.89 hectares of land (for construction of steel towers), which will be advanced in accordance with the internal procedures of Laos. No transfer of residents is anticipated to occur.

(vii) Others/Monitoring: A project environmental management committee consisting of related agencies, as well as the EDL, will monitor noise, etc. for the Project.

2) Promotion of Poverty Reduction: In south-central Laos, the World Bank is carrying out a rural electrification project (REP2), and the Project will contribute to the reduction of poverty through rural electrification by stably supplying power to the REP2 power distribution grid.

3) Promotion of Social Development: Stipulations on HIV/AIDS measures are planned to be incorporated into the special measures in the standard bidding documents.

(8) Collaboration with Other Donors: Collaboration with JICA technical cooperation with the abovementioned World Bank support and Laos's Ministry of Energy and Mines, entitled the Project for Improvement of Power Sector Management (2010 to 2012), and the individual experts Power Policy Advisors (2006 to Present) is anticipated.

(9) Other Important Issues: The Project will contribute to the reduction of greenhouse gases (GHG) because it will reduce power transmission losses, among other benefits. The climate change mitigation effect of the Project is the equivalent of approximately 219,652 tons of CO_2 per year.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline (Actual Baseline in 2010)	Target (2018) [2 years after project completion]
Maximum power flow (MW)	-	100
Annual power generated at sending end (GWh)	-	613.2
Power transmission loss rate (%)	-	7.0

2) Internal Rates of Return: Based on the foregoing assumptions, the economic internal rate of return for the Project will be 13.0%.

[EIRR] Costs: Project costs (excluding tax), operating, maintenance, and management costs; Benefits: Reduction of power supply disturbances, reduction in government outlay; Project life: 25 years

(2) Qualitative Effects: Stabilization of the domestic power supply, promotion of rural electrification in southern Laos, encouragement of investment/vitalization of industry, mitigation of climate change

5. External Factors and Risk Control

Rising project costs due to material price increases and exchange rate fluctuations.

6. Results of Evaluations and Lessons Learned from Past Projects

(1) Results of Evaluations of Similar Past Projects

In the ex-post evaluations of Vietnam's Phu My to Ho Chi Minh City 500kV Transmission Line Project (Signing of L/A: 2001) and similar projects, it was learned that coordinating the technical specifications in connecting with existing facilities among persons in charge of existing facilities during the preparatory stages for the bidding documents is important for smooth project implementation.

(2) Lessons for the Project

In the Project as well, in light of the above lesson, JICA plans to incorporate support for coordination with the authorities in charge of existing facilities as part of the job description of the consultants in order to ensure connection of the transmission lines to be constructed in the Project with existing facilities.

7. Plan for Future Evaluation

(1) Indicators to be Used

1) Maximum power flow (MW)
2) Annual power generated at sending end (GWh)
3) Power transmission loss rate (%)
4) Economic internal rates of return (EIRR) (%)

(2) Timing

Two years after project completion