

# **Transmission Line and Substation Project in Luzon**

Loan Agreement No. : PHL-003-1994

Year Month Date : 1995. 6. 28

Country : Philippines

The Export-Import Bank of Korea  
(Government Agency for the EDCF)

EDCF Operations Evaluation Team  
(Evaluated by Korea Institute for Industrial Economics & Trade)

# I. Overview of the Evaluation Project

## 1. Project Background

- The infrastructure of the Philippines is generally considered inadequate to support its social and economic development. In particular, its power sector suffers from significant power shortages due to a lack of power facilities and the deterioration of existing facilities. These conditions disrupt economic activities and inhibit industrial production.
- In order to stabilize the power supply, the Philippine government initiated effort to increase capacity and improve efficiency of its power sector as a part of the national development agenda. In response, EDCF approved a loan amounting to USD10.2 million in 1994 to finance a transmission and distribution project in Mindanao.

Division		Content		
<b>Project</b>	Korean	필리핀 루손 지역 송전설비 확장 사업		
	English	Luzon Power Transmission Project		
<b>Project Goal</b>		Installation of power cable & construction of substation to provide sufficient power supply in Mindanao Island as part of plan to improve serious power shortage in the Philippines		
<b>Cost</b>	<b>Korea</b>	14,000 (in US dollars)	<b>Total</b>	19,009
	<b>Philippine</b>	5,900		
<b>Area</b>		Albay in Luzon island, Isabela		
<b>Scale/Period</b>		-20km 69KV Installation of power cable -Increase of substation capacity	1995.6. Loan Contract - 2008.5. Completed (Total 151 months, 45 months after initial budget execution)	
<b>Effectiveness</b>	<b>Korea</b>	<input type="checkbox"/> Contribute to extension of other similar project in the Philippines for domestic companies • Contribute to improving the awareness/reliability of domestic companies in the Philippines and other countries • Contribute to strengthening the international competitiveness of Korean consulting companies		
	<b>Philippine</b>	• Contribute to stabilizing the power-supply by increasing power-capacity in the project area • Contribute to attracting other project investment due to the presence of a stable power-supply • Contribute to increasing the income from local companies (construction, heavy equipment) engaged in the project • Contribute to increasing local taxes from other project, strengthen local industries • Contribute to jobs creation for local residents (completion report p.9)		
<b>Execution Agency</b>	<b>Korea</b>	EDCF		
	<b>Philippine</b>	National Power Corporation		

- The scale of the project was ultimately reduced due to the economic crisis in Southeast Asia 1998 as well as the privatization of TransCo/NGCP, and there was also a request to change the materials. Therefore, Luzon's project was completed to construct 20km power cable in between the section of Santiago and Alilcia and install 50MVA transformer additionally.

## 2. Field Map



### 3. Evaluation Outline

#### Evaluation Goal

- It is necessary to understand the effectiveness and impact on the local community and to analyze the main factors. Moreover, it is necessary to draw an adaptable recommendation for the planning similar projects and their execution.

#### Evaluation Method

- It is necessary to evaluate the project's relevance, efficiency, effectiveness, impact and substantiality according to OECD/DAC evaluation guideline.
- It is necessary to definitize the evaluation criteria focused on the detailed content of the project and apply this information in a matrix.
- It is necessary to improve the objectivity of the evaluation results and hold a joint evaluation workshop with the main stakeholders of the recipient country to strengthen capability/ownership.

#### Evaluation Framework

- Process evaluation: It is necessary to analyse the project relevance, efficiency, substantiality during the process.
- Outcome evaluation: It is necessary to analyse the overall output, outcomes and impacts of the project.
- Recommendation for improving project: It is necessary to summarize the lesson learned from the process and outcomes and to then highlight actual recommendations that can be adapted to future similar projects in the power and infrastructure sector planned by EDCF.

#### Evaluation Team Organization

- The set-up of the evaluation team was reflected the feature of evaluation project and the members are as follows: specialist in power transmission, Prof. Lee Heung-Jae from Gwang Woon University, evaluation specialist, Dr. Kim Aron from GDC Consulting and fellows experienced in ODA and evaluation projects.

#### Evaluation Process

- Evaluation design according to phased evaluation process → Domestic research (desk review & interview with domestic stakeholder) → On-site inspection (workdown, interview with local stakeholder, questionnaire with beneficiaries) → Analysis and evaluation results → Joint evaluation workshop (discussion & recommendation with Philippine stakeholder) → Report

## **II. Evaluation Criteria**

### **1. Evaluation items and results**

- Considering the project features and factors, this evaluation was set up to focus mainly on an evaluation of the process and outcomes. Each core evaluation item was divided into a detailed evaluation items. The evaluation was conducted to derive results by analyzing/collecting 'references', 'related quantitative data', 'questionnaires with beneficiaries', and 'interview'.
- In this evaluation, the project's relevance, efficiency, effectiveness, impact and substantiality were evaluated, based on the five OECD/DAC criteria. Using these criteria, the evaluation matrix was then derived.
- In order to produce the final evaluation results, it was necessary to apply the same importance to the evaluation results of the five criteria according to EDCF ex-post evaluation guidelines.
- In the joint evaluation workshop, the Philippine stakeholders in the project evaluated the output as 3.5 out of 4 points with other stakeholder attending this joint evaluation sessional so expressing very positive comments. This joint evaluation results reflected 30% of the overall evaluation results, the details of which are shown in the table below (refer to Appendix 5).
- Overall a score of 3.5 out of 4 points were acquired as the result of this evaluation: thus, the project was evaluated as a "successful project". The project was also evaluated as a contributor to development in the Philippines due to its effectiveness.

Criteria	Item	Detailed Evaluation Item	Mark	
			Team	Other
Relevance	Policy & Strategic Relevance	Conformance with EDCF Assistance Strategy	3	
		Conformance with Partner Country's Development Policy	4	
	Relevance of Plan	Goal Setting	2	
		Project Plan	3	
	<b>Overall - 3.3</b>		<b>3</b>	<b>3.8</b>
Efficiency	Execution	Actual Time	3	
		Actual Cost	4	
	Structural Factor	Impediment Factor	3	
	<b>Overall - 3.3</b>		<b>3.33</b>	<b>3.3</b>
Effectiveness	Output	Power Cable Construction	4	
		Substation Facilities Expansion	3	
	Short-Term	Stable Power Supply	3	
	Mid-Term	Increase of Local Power Supply	3	
		Improve of Power Service	2	
	<b>Overall - 3.3</b>		<b>3</b>	<b>3.8</b>
Impact	Long-term Outcome	Sector Outcome	4	
		Local Economic Outcome	4	
		Other Impact	4	
	<b>Overall - 3.8</b>		<b>4</b>	<b>3.3</b>
Sustainability	Sustainability	Human/Institutional Sustainability	4	
		Financial Sustainability	4	
	<b>Overall - 3.8</b>		<b>4</b>	<b>3.3</b>
<b>Total Overall</b>			<b>3.5</b>	

## 2. Relevance Evaluation

### Policy & Strategic Relevance

- (Conformance with EDCF assistance strategy) There didn't find out specific strategy from the power transmission and distribution sector of EDCF found. It was evaluated that the project was conducted as a request by the recipient country. Nevertheless, it was found that some parts were in conformance with EDCF mid-term working strategy. Therefore, it was evaluated as '3points'.
- (Conformance with development policy of recipient country) Considering the development needs and strategy in the Philippines, in which there has been a noted trouble ensuring a stable power supply, the project was evaluated as having "high conformance" (4points).

#### Plan Relevance

- (Relevance of Goal Setting) It was found that in practical term, it was difficult to achieve all goals in this project, when all input were compared. Therefore, the project was evaluated as '2 points'.
- (Relevance of Project Plan) The project area was selected appropriately and it was evaluated to utilize the technical input considering its environment and climate. However, there was need to further consider the actual prior preparation time required, especially in terms of securing the right of way (one of main reasons for projects delay) for conducting the project (3points).

#### Overall Total

- The project was evaluated as being "relevant" in terms of relevance (3points).

### **3. Efficiency Evaluation**

#### Execution

- (Actual time) Due to internal/external factors such as the economic crisis in Korea and the reorganization of power industrial structure in the Philippines, the construction of the project was postponed and accordingly the period of the project was extended. Furthermore, due to securing the right of way for conducting project, the construction performed by the Philippines side took more time than the expected. However, in the case of the materials for the transmission supplied from EDCF's fund, it was produced and delivered within 14months since the contract signed (2004.4). It was evaluated as being "efficiency"(3points).
- (Actual Expenditure) Ultimately, the project used 52% of the loan allocated provided by the estimated expenditure of government assistance-policy and 64% of revised loan assistance amount. It was thus evaluated as being 'efficiency'(4points).

#### Structural Factors

- There was a complicated system used for financial management and policy decision were controlled segregated institutions regarding the power production, power transmission,

power sales and service for end-user. Due to hindrances in the structural efficiency, the project given '3points'.

Overall

- Overall, this project was evaluated as being 'efficient'(3points) according to the efficiency criteria.

#### **4. Effectiveness**

Scope of Effectiveness Evaluation

- In order to evaluate the outcomes, the outcomes were divided into output, short-term, mid-term and long-term outcomes by selecting an evaluation index for each. The long-term evaluation, however, was separated as the socio-economic impact and is reviewed in the next chapter. In this chapter, the output and short/mid-term outcomes are evaluated in terms of their effectiveness.

Output

- (Power cable & substation facility expansion) The power cable was installed and operated according to the final contract criteria and plan so, it was evaluated as being 'high effectiveness'. But in the case of the 50MVA transformer installed in Daraga substation, the following issues were found that: several operation stoppages due to early replacement of 'vashing part' 3 times in a year and trouble with gas pressure after its initial operation, no fixing of defects, not enough training for technician and lack of ex-post management. Therefore, in terms of the substation, the output evaluation was "efficient".

Short & Mid-Term Outcome

- (Stable power supply & increase local power capacity) The goal of providing a stable power supply was achieved. For instance, there was no power failure of over 30min from the power plant to substation supply line.
- However, circulating blackouts in residential and industrial areas still existed after the project was completed requiring that large buildings such as plants and huge warehouses use self-powered generators.
- These issues could be estimated in two way which are the faulty of equipment maintenance

and imbalance of demand and supply. But in case of the maintenance, it was verified that TransCo & NGCP try to make sure the best maintenance is provided. Only in case of the circulating blackouts for load-control and the operation of self-powered generators, it was considered as in the imbalance of demand and supply due to the increase of power consumption. Therefore, it was evaluated to achieve the goal of the increase of local power supply-capacity because the increase of power consumption comes from the increase of power supply-capacity.

- As a result, the project was evaluated as being 'effectiveness' in terms of the stable power supply and the increase of power-capacity.

#### Mid-term outcome

- (Improvement in power service) Basically, due to the lack of awareness of the end-beneficiary(local resident) change because of the project and the issue of goal-scope setting, the project was evaluated as being 'partly effective'(2points).
- Due to the rudimentary financial condition, enforcement agencies in this project such as NGCP/TransCO and other isolated agencies (that provide power to resident) provide power using old-facilities and equipment. Therefore, it was found that there was no big difference from prior to the project in the provision of service and a stable power supply.

#### Overall Evaluation of Effectiveness

- Based on the above evaluation of each items, the project was evaluated as being 'effectiveness'(3points).

## **5. Impact**

#### Long-term outcome & impact

- (Sector outcome) Compared to 2008, the time of the project was completed, every indicators such as power production/sales, loss rate of power system, and power supply rate were clearly improved. Thus the project was evaluated as having 'high impact'.
- (Local economic development) It was observed that fundamental indexes such as local total product, local income per household, and employment were clearly improved. Through interviews and questionnaires, it was verified that there was a change in local

resident. For this reason, the project was evaluated as having 'high impact'. Note that this change was not merely the direct result of the power transmission project, but was the overall results of various efforts for local development.

- (Other impact) Due to increase in power-supply capacity, improvements in the quality of life could be verified. For example, there was an increase in the use of home electronics and an increase in the economic cooperation with Korea. Therefore, the project was evaluated as having a 'high impact'.

#### Overall

- If there continuous power-demand growth and appropriate investment for vigorous economic activity consistently exist, this project should have a big impact and create ripple effect. Thus, the project was evaluated as having 'high impact'(4points).

## **6. Sustainability**

#### Human/Institutional Sustainability

- Ownership of the power transmission facilities belongs to TransCo and NGCP has the operational rights. The human/institutional system was prepared for the actual inspection and ex-post investigation of its supervision and facility management according to the contract. Overall, it was evaluated as being 'very sustainable'.

#### Financial Sustainability

- The cost for power transmission was stably paid by the Electric Cooperative according to the contract. In the case of loss from natural disaster, there was stable cooperation with TransCo. It was observed that the agencies for power transmission were financially healthy. As a result, the project was evaluated as being 'very sustainable'(4points).

## **III. Lesson Learned and Recommendations**

### **1. Lessons**

## 2. Recommendations

- It is recommended to strengthen preliminary studies for future projects.
- In the past, line agencies recommended the projects and development partners (who would finance the projects) of their choices to the National Economic Development Agency (NEDA), which then held the authority of approval. Recently, the process and role of each player has changed. Currently, NEDA selects development projects and the Ministry of Finance (MOF) decides how to fund those projects. If financing is necessary, the MOF finds appropriate development partners.
- Due to the changed role of the agencies involved, EDCF would need to conduct in-depth studies to identify projects appropriate for cooperating with Korea. Such preliminary studies should be carried out long before potential projects reach a desk in the MOF. Based on these facts and findings, EDCF should be able to present the advantages that EDCF may give the Philippines in order to effectively persuade decision-makers there to choose EDCF over other donor agencies.
- For instance, preliminary studies should investigate: 1) Korea's competitive advantage in different development sectors, 2) project context and issues (i.e., governance and system of power sector, organizational structure of major players, major problems and issues in power sector, etc.), 3) interrelations among stakeholders and key players 4) national and regional development strategies and plans, and 5) regions of developmental needs.
- In the project planning & design processes, it is recommended to specify more practical and achievable goals and objectives within the scope of the project.
- In the early phase of a project, specific goals and objectives should be set by considering the characteristics and limitations that concessionary loan may have. Since the recipient country assumes more control over the scope of the project, in most cases development partners such as EDCF are only able to make decisions within the project scope.
- For example, one of the objectives of this project was to stabilize the power supply in the region assuming that the main beneficiary group is the local residents. However, the residents still experience daily brownouts as well as frequent blackouts because they are serviced by a separate entity called the 'Electric Cooperative (EC)' that was not a part of the EDCF project. Due to EC's deteriorated and outdated equipment and facilities, EDCF-made improvement could not deliver the intended impact to the target.

○ Thus, such objectives should be set when they are regarded as practical (manageable and measurable) by EDCF or an EDCF partner agency during the project planning and design phase.

□ It is recommended to develop a more thorough risk management plan for the future projects.

○ The prolonged project duration was mainly attributed to external factors such as power sector restructuring and the financial turmoil in Asian countries in late 1990's.

○ As a result, the project scope and loan amount was significantly modified during the long period of time required for completion.

○ Considering the unexpected events and unknown factors that are typical in international development projects, a detailed and practical risk management plan should be implemented.

□ It is recommended to develop practical follow-up plans for the future projects.

○ Infrastructure projects such as those in the power sector may require a long-term commitment for maintenance to ensure effective and sustainable utilization. Often, recipient country's institutional and financial capacity leads to a poor sustainability grade.

○ Currently, EDCF's project follow-up plan usually includes defect repairs(A/S) for 2 years after the completion of a contract. However, in order to help produce the intended mid-term and long-term effects (impacts) of projects, continuing the monitoring for a longer period and providing appropriate follow-up activities are desirable such as by providing additional training and consulting services.