

## Simplified Ex-Post Evaluation for Grant Aid Project

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Project Name	The Project for Rehabilitation of Power Supply in Dili	February 2010 – December 2010

### I Project Outline

Country Name	The Democratic Republic of Timor-Leste	
Project Period	March 2003-February 2006	
Executing Agency	Electricidade De Timor Leste (EDTL)	
Project Cost	Grant Limit: 528 million yen	Actual Grant Amount: 525 million yen
Main Contractors	ITOCHU Corporation	
Main Consultants	Yachiyo Engineering Co., Ltd.	
Basic Design	The Basic Design Study on the Project for Rehabilitation of Power Supply in the Democratic Republic of Timor-Leste, JICA, August, 2003	
Related Projects (if any)	JICA, Power Station Maintenance Advisor at Comoro (2000, UNDP), Rural Power Station Rehabilitation (2000, UNDP), Project for Rehabilitation of Power Distribution Network in Dili (2003)	
Project Background	<p>The citizens of the Democratic Republic of Timor-Leste chose independence from Indonesia in a national referendum held in August 1999. As a result of the disturbances that immediately followed the referendum, approximately 70% of infrastructure facilities, including power-supply facilities nationwide, were damaged. Since immediately after the disturbances, recovery of damaged infrastructure facilities has advanced, with the cooperation of donors including Japan and UN agencies.</p> <p>However, recovery of power-supply facilities, which constitute an important category of infrastructure facilities, has been delayed, impeding the supply of electric power to users. Furthermore, the increasing power demand due to rapid rehabilitation has been forcing planned power cuts in the capital city Dili and full-time operation of generating units designed to meet peak demand at the Comoro Power Station, and as a result it has remained impossible to conduct the necessary maintenance work.</p>	
Project Objective	The purpose of the project is to ensure a highly reliable, economical, and stable power supply in Dili through the rehabilitation of generating facilities at the Comoro Power Station.	
Output[s] (Japanese Side)	<p>A. Procurement and installation of No. 5 generating unit for Comoro Power Station</p> <ol style="list-style-type: none"> <li>(1) Procurement and installation of a Diesel Engine Generator (DEG), Output 4.0 MW (outdoor type)</li> <li>(2) Procurement and installation of auxiliary mechanical equipment/systems for the DEG</li> <li>(3) Procurement and installation of auxiliary electrical equipment for the DEG</li> <li>(4) Common power equipment</li> <li>(5) Common equipment for the DEG</li> <li>(6) Civil engineering work, etc.</li> <li>(7) Procurement of spare parts necessary for two (2) years operation and maintenance tools</li> <li>(8) Procurement of operation and maintenance manuals (including textbooks for OJT) and implementation of OJT</li> </ol>	

### II Result of the Evaluation

Summary of the evaluation
<p>In this project, a new generating unit was procured for rehabilitation of the generating facilities whose operation had been suspended due to damage at the Comoro Power Station. The generating unit procured has been in operation without any problem from when its operation began through today, securing reserve power supply capacity at the power station, and as a result it has been confirmed that this unit is playing an important role in providing a stable power supply to Dili. While the implementing agency has secured the number of personnel needed for operation maintenance, since it is difficult to carry out maintenance on its own due to the lack of skilled expert engineers, there are issues regarding technical sustainability.</p> <p>In light of the above, this project is evaluated to be satisfactory.</p> <p>&lt;Recommendations&gt;</p> <p>As recommendations for the implementing agency, in order to enact transfer to engineers at Comoro Power Station of skills related to operation maintenance focusing on planning and implementation of periodic inspections, through consultants who have concluded management contracts on management of Comoro Power Station, it would be desirable to assign engineers to receive transfer of skills from the consultants and to implement training and other activities to develop engineers capable of serving in the role of the consultants. In addition, it would be desirable to improve the capability of planning through creating the medium- and long-term plan for development of power supply in Dili by studying the factor such that how long the current power supply capacity of Comoro Power Station is projected to comply with the increasing demand of electricity in recent years.</p> <p>&lt;Constraints of this evaluation study&gt;</p> <p>Details of the state of new improvements to generating units conducted by the implementing agency following implementation of this project, are unavailable from the answers to questionnaires from the implementing agency. For this reason, while indicators such as annual hours of power cuts, which is an operation and effect indicator, and reserve power supply capacity, which is an indicator of</p>

impact, also include the effects of the generating units newly improved outside of this project, clear distinction of the contributions of the generating unit procured with this project has not been given consideration in evaluation of these.

## 1 Relevance

### (1) Relevance with the Development Plan of Timor-Leste

Since the field of electric power is identified as an area of focus in the National Development Plan (2000-2003) as well as the current draft Strategic Development Plan (2011-2030), this project is consistent with development plan in that it concerns increasing Timor-Leste's self-sufficiency in power generation and improving its power grid.

### (2) Relevance with the Development Needs of Timor-Leste

Since demand for electric power has continued to increase since the time of planning, and it is important to secure a stable power supply to respond to such growth, the project is recognized to be consistent with the development needs of Timor-Leste.

### (3) Relevance with Japan's ODA Policy

Since this project involves enhancement of the electric-power infrastructure in infrastructure rehabilitation and improvement, it is consistent uniformly with Japan's ODA policy.

This project has been highly relevant with the country's development plan, development needs, as well as Japan's ODA policy, therefore its relevance is high.

## 2 Efficiency

### (1) Project Outputs

Outputs on the Japan side were as planned.

### (2) Project Period (Project Inputs)

Since the actual project period was 16 months, vs. a planned period of 19 months, the period was three months shorter than planned (84% of the planned period).

### (3) Project Cost (Project Inputs)

While the planned cost was 528 million yen, the actual project cost was 525 million yen, within the plan and 3 million yen lower than planned (99% of planned cost).

Both project period and project cost were within the plan, therefore efficiency of the project is high.

## 3 Effectiveness / Impact

### (1) Quantitative Effects

The target figure has been achieved on base load generating capacity, an operation and effect indicator of this project.

While annual hours of power cuts showed no decrease immediately following this project, the addition of the results of new generating units installed in fiscal 2009 results in a decrease of approximately 30% vs. fiscal 2003.

### (2) Qualitative Effects

According to the implementing agency, periodic inspections are conducted. However, implementation tends to be delayed in comparison with planned schedules, and while periodic inspection of the generating unit installed in this project had been scheduled for August 2010, at present only the budgeting for this inspection has been secured, with implementation planned for completion during fiscal 2011. It was difficult to identify in this survey the cause of this delay in implementation.

### (3) Impacts (Impacts on the natural environment, Land Acquisition and Resettlement, Unintended Positive/Negative Impact)

Since there was a marked increase in power demand immediately following this project, the equipment has continued to operate under conditions of excess load. However, these excess-load conditions have been resolved as a result of installment of new generating units in addition to the generating unit procured with this project, thereby reserve power supply capacity is secured in fiscal 2008 and later.

Since small-scale generating units with relatively low levels of efficiency also are in operation to respond to rapidly growing power demand, no improvement in fuel-consumption efficiency has been recognized.

There has been no impact on the natural environment or adverse impacts such as relocation of residents or land acquisition.

This project has somewhat achieved its objectives, therefore its effectiveness is fair.

## 4 Sustainability

### (1) Structural Aspects of Operation Maintenance

Since there has been no change in the agency in charge of operation maintenance and the planned number of personnel has been secured, it is thought that there is little concern in areas such as outflow of engineers.

### (2) Technical Aspects of Operation Maintenance

Since there are not enough engineers to handle operation maintenance, only the minimal training needed is conducted.

Effectively, activities such as maintenance planning and proposing purchase of spare parts are conducted by engineers who have concluded management contracts. As such, it would be difficult to say that engineers with the experience and skills needed for operation maintenance as EDTL employees have been trained and secured.

### (3) Financial Aspects of Operation Maintenance

Regarding the financial conditions of EDTL, while details of financial data have not been obtained, efforts are being made to increase the rate of collection of electricity tariff from users, and an increase in revenue has been confirmed. The budget for the Ministry of Infrastructure, which has jurisdiction over EDTL, is in an increasing trend in recent years, and under the government budget for fiscal 2010 budgeting has been secured for EDTL management contracts as well. For these reasons, there are no particular financial problems regarding EDTL operation maintenance.

### (4) Current Status of Operation Maintenance

While the periodic inspection of the generating unit procured in this project scheduled for August 2010 has been delayed, prior

periodic inspections were conducted, and the unit is operating without any problems.

Effectively, drafting of maintenance plans including those for periodic inspection is conducted by consultants who have concluded management contracts with EDTL. As such, it is conceivable that there is a need for transfer of skills to EDTL employees and engineers.

Some problems have been observed in terms of technical aspects of the maintenance, therefore sustainability of the project effects is fair.