

Ex-ante Evaluation

1. Name of the Project
Country: The Republic of Cape Verde Project: Power Generation, Transmission and Distribution Capacity Building Project on Santiago Island Loan Agreement: March 25, 2008 Loan Amount: 4,468 million yen Borrower: The Republic of Cape Verde
2. Necessity and Relevance of JBIC's Assistance
<p>In 2006, the total installed electricity capacity in Cape Verde was 70.4 MW (thermal power: 67.2 MW; wind power: 2.4 MW; geothermal power: 0.8 MW) and in Santiago Island, where the capital city of Praia is located, it was 28.7 MW (thermal power: 27.8 MW; wind power: 0.9 MW). Centering on the tourist industry, Cape Verde has exhibited rapid economic growth, with a GDP growth rate of 4–6% in recent years, and the power demand is expected to grow on average by 6–10% over the next five years. Further, in the island, which is poorly endowed with fresh water resources, drinking water is secured through the desalination procedure (90% of the country's water supply as of 2005). Thus it is crucial to ensure a stable and sufficient power supply to secure water sources.</p> <p>Meanwhile, since power plants face progressing wear and tear, and importing electricity from neighboring countries is unthinkable, it is crucial for Cape Verde to enhance its power supply facilities to meet the growing power demand. Up to now, since each local government maintained its own small-scale power generation facilities and distribution network, there is no high-voltage long-distance transmission and distribution network. Thus development of not only power generation facilities but also power transmission and transformation facilities is urgently needed.</p> <p>Santiago Island, the target area of this project, is the center of Cape Verde's economy where the capital city of Praia is located. With nearly 54% of the entire population, Santiago is the biggest island in Cape Verde (area: 991 km² accounting for about 25% of the country's total area), but because of lack of a transmission and distribution network the percentage of households with access to power services stood at 60.4% (2006) across the island, and even lower at 28.1% (2005) in northern Santiago, and both were below the national average of 70.5% (2006). In Santiago, where electrification rates are still low, not only facilities for desalinating saltwater to drinking water, which is a basic need, but also facilities for providing health, medical, and social services do not receive a sufficient volume of power, and the water supply is available only for limited hours. Moreover, as a result of rapid growth of the service industry and population increase, the demand for electricity in Santiago is expected to increase from the present 149.8 GWh per year to 195.9 GWh by 2010, and the gap between the supply and demand of electricity, which was 12.4 GWh in 2007, is projected to increase yearly, to 23.4 GWh in 2008.</p> <p>In the Cape Verde National Strategic Plan (2003–2012), the government of the Republic of Cape Verde aims to promote economic growth and raise people's standard of living by supplying electricity in appropriate amount and quality to meet the demand for electricity made by the economy and people. Priority issues cited by the government are: (1) building infrastructure for power generation, transmission and distribution; (2) improving people's access to power services; (3) establishing a legal system; (4) stabilizing power supply; (5) strengthening economic competitiveness; and (6) reducing the environmental load. Above all, construction of power generation facilities and medium and</p>

high-voltage transmission lines in Santiago is considered an urgent, top-priority project.

In JBIC's Medium-Term Strategy for Overseas Economic Cooperation Operations (April 2005 March 2008), a priority area for assistance is "foundation for sustained growth," and an emphasis is put on the promotion of economic growth through the development of economic and social infrastructure including electric power. Additionally, in the joint initiative with African Development Bank (EPSA for Africa), priority areas for assistance are "development of economic and social infrastructure" and "promotion of trade and direct investment," and the project is consistent with the said initiatives. Thus JBIC's assistance for this project is highly necessary and relevant.

3. Project Objectives

To stabilize electricity supply and reinforce access to energy by constructing a diesel power plant and transmission and distribution lines in Santiago Island, thereby improving the economy and living environment of Cape Verde.

4. Project Description

(1) Target Area

Santiago Island, the Republic of Cape Verde

(2) Project Outline

The project is designed to construct and rehabilitate a diesel power plant and transmission and distribution facilities on Santiago Island, the Republic of Cape Verde.

- (a) Expansion of the diesel generator at the Palmarejo Power Plant
- (b) Construction, rehabilitation and expansion of transmission and distribution lines
- (c) Construction, rehabilitation and expansion of transformation facilities
- (d) Consulting services (construction monitoring and supervision)

(3) Total Project Cost / Loan Amount

5,812 million yen (Yen Loan Amount: 4,468 million yen)

(4) Schedule

May 2007–April 2010 (36 months).

(5) Implementation Structure

- (a) Borrower: The Republic of Cape Verde
- (b) Executing Agency: Ministério de Economia, Crescimento e Competitividade (MECC)
- (c) Operation and Maintenance System: Empresa de Electricidade Água (ELECTRA)

(6) Environmental and Social Consideration

(a) Environmental Effects / Land Acquisition and Resident Relocation

(i) Category: B

(ii) Reason for Categorization

This project is not likely to have significant adverse impact on the environment due to the fact that the project does not fall under the category of large-scale thermal power generation sector under the "Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations" (established in April 2002), as well as the fact that project characteristics are not likely to exert impact and the project is not located in a sensitive area under the said Guidelines. Thus this project is classified as Category B.

(iii) Environmental Permit

The Environmental Impact Assessment (EIA) report related to the project's transmission and

distribution portions was approved by the Ministry of Environment and Agriculture in May 2006. For the power generation portions, the EIA report is currently in the approval process.

(iv) Anti-Pollution Measures

In the project, the emission levels of atmospheric and water contaminants are expected to meet the World Bank's effluent standards.

(v) Natural Environment

The project site is not located in or around sensitive areas, such as national parks, and so adverse impact on the natural environment is assumed to be minimal.

(vi) Social Environment

The construction of transmission lines will require acquisition of 0.1 ha of land on which to build the foundation for an iron tower, which will be carried out in accordance with the domestic procedures of Cape Verde. Resident relocation is not expected.

(vii) Other/Monitoring

Since the small-scale power generators currently running will be stopped when the project is completed, their impact on the environment is expected to be alleviated. The executing agency will monitor the air quality and noise level.

(b) Promotion of Poverty Reduction

Support is expected to be provided for supplying power to households in poor districts in the capital city of Praia and the surrounding area.

(c) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including AIDS, Participatory Development, Consideration for the Handicapped, etc.)

The project will ensure stable supply of drinking water and provision of power services to educational, health and other facilities; thus raising hopes of providing better social services to local residents. Additionally, implementation of an awareness campaign on safety measures and infectious disease (HIV/AIDS, etc.) is being planned for local residents and others.

(7) Other Important Issues

None

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2006)	Target (2012, 2 years after completion)
Fuel consumption rate(g/kWh)	221	**214
Electricity production (GWh/year)	125	225
Network output (%)	71	88
Power shut-off period (hours/year)	752	**102
Fuel cost (CVE/kWh)	*13.99	9.29
Electricity access rate (%)	61	95

* 2007 is the benchmark year.

** 2010 is the target year.

(Note) Indicators are based on an appraisal report of African Development Bank.

(2) Number of Beneficiaries

About 230,000 (all inhabitants of Santiago Island)

(3) Internal Rate of Return (Financial and Economic Internal Rate of Return)

Base on the following conditions, the economic internal rate of return (EIRR) and financial internal rate of return (FIRR) of the project is 29.8% and 17.6%, respectively.

(EIRR)

- (a) Cost: Project cost, operation and maintenance expenses (excluding tax)
- (b) Benefit: Reduction in fuel cost at existing small-scale power plants; stable power supply
- (c) Project Life: 20 years

(FIRR)

- (a) Cost: Project cost, operation and maintenance expenses
- (b) Benefit: Income from selling electricity
- (c) Project Life: 20 years

6. External Risk Factors

None

7. Lessons Learned from Findings of Similar Projects Undertaken in the Past

In the ex-post evaluation of past projects, it has been learned that in cases where JBIC co-finances a project, the executing agency itself needs to take the initiative to adjust and monitor the entire project. In this project, based on the ACFA framework, efforts will be made to execute it as smoothly as possible by sharing information fully with the AfDB and the executing agency.

8. Plans for Future Evaluation

(1) Indicators for Future Evaluation

- (a) Fuel consumption ratio (g/kWh)
- (b) Electricity production (GWh/year)
- (c) Network output (%)
- (d) Power shut-off period (hours/year)
- (e) Fuel cost (CVE/kWh)
- (f) Electricity access rate (%)
- (g) Internal rates of return: FIRR, EIRR (%)

(2) Timing of Next Evaluation

2 years after project completion