Japanese ODA Loan

Ex-Ante Evaluation (for Japanese ODA Loan)

Africa Division 4, Africa Department, JICA

1. Name of the Project

Country: The Republic of Cameroon
Project: The Project to Strengthen and Extend the Electricity Transmission and Distribution Networks
Loan Agreement: March 4, 2011
Borrower: The government of the Republic of Cameroon

2. Background and Necessity of the Project

(1) Development History (Current State) of the Electrical Power Sector and Issues in Cameroon

Cameroon has large-scale resources for generating hydroelectric power. At 20 GW, it is estimated to have the second largest potential source of developable hydropower in Africa, although only 5% is currently being utilized. In the electrical power sector, the development of power resources has not made the advancements necessary to keep up with demand, which continues to increase. Additionally, delayed investments have led to the deterioration of power distribution facilities including transmission networks. This has resulted in a low supply capacity and poor supply reliability, which are two major issues.

The electrification rate in Cameroon is 22% nationwide and as low as a mere 3.5% in rural areas. In agricultural regions, population density is low, there is limited purchasing power, and the average volume of energy consumption is low. With these structural problems, the electrification development of rural areas by private companies without an initial investment from the national government would be difficult.

(2) Development Policies for the Electrical Power Sector in Cameroon and the Priority of the Project

In 2009, the Government of Cameroon formulated the Document for Growth and Employment (DSCE), which followed the Poverty Reduction Strategy Paper (PRSP). For the 10-year strategy beginning in 2010, the energy sector was positioned as the key to economic growth and attracting investment. Through priority investment planning for rural areas, the government aims to electrify 660 rural villages by connecting to existing transmission networks, as well as to restore or install diesel power facilities and small hydroelectric facilities. The Government of Cameroon has also set objectives to raise the domestic electrification rate to 48% and the regional rate to 10% by 2020. This project is positioned to contribute to these objectives.

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

In the Yokohama Action Plan formulated at TICAD IV held in May 2008, Japan offered “boosting economic growth” as a priority issue. As a specific field of aid for this, infrastructure development is vital. In the development plan for Cameroon, “economic development” is also a priority assistance area and includes “installation of basic infrastructure” as a development issue. This is consistent with assistance policies of Japan and JICA as pertaining to this project.

(4) Other Donors’ Activity

In particular for the electrical power sector, support is provided by the World Bank, African Development Bank (AfDB), the EU, the Islamic Development Bank, and Spain, etc. They have been involved in the formulation of the Rural Electrification Master Plan and construction of the Mape Dam.

(5) Necessity of the Project

As noted above, the Government of Cameroon has formulated a long-term development plan for the electrical power sector, and is working to raise low electrification rates while ensuring that all citizens are able to use electricity at a reasonable price. This project supports the government policies involved, contributes to boosting Cameroon’s economic development, and also contributes to the reduction of poverty and improvement of the lives of citizens. Thus, the necessity and relevance of the project is high.

3. Project Description

(1) Project Objectives

This project will strengthen energy distribution capabilities and improve access to electrical power for homes that are not yet electrified in Cameroon through the installation of electricity distribution facilities, including substations and medium- and high-voltage transmission lines. This will contribute to the stimulation of Cameroon’s socioeconomic

activities, as well as to the improvement of its citizens' standard of living.

(2) Project Site/Target Area

Eight regions (Center, Far North, Littoral, North, Northwest, West, South, and Southwest) of the 10 regions in Cameroon.

(3) Project Components (including procurement method)

1) Civil works (items ①~④ are targets for JICA financing)

①Installation of a 90kV/30kV medium- to high-voltage substation in Ebolowa, South Region

②Installation of 90kV high-voltage transmission lines (approx. 122 km) between Mbalmayo, Center Region and Ebolowa, South Region

③Installation of 30kV medium-voltage transmission lines (approx. 1,200 km) and low-voltage lines (approx. 800 km) in 8 target regions

④ Installation of transformers (50kVA and 25kVA) in 8 target regions

⑤ Installation of connecting lines, power meters, and public light fixtures in 8 target regions

2) Consulting services

3) Procurement method (planned)

①Civil works: international tendering

②Consultant selection: shortlist method

(4) Estimated Project Cost (Loan Amount)

8,258 million Yen (Loan amount: 2,939 million yen)

(5) Schedule

Planned for December 2010 ~ May 2015 (54 months total). The project will be complete when the facilities are put into service (May 2014).

(6) Project Implementation Structure

1) Borrower: The Government of the Republic of Cameroon

2) Executing Agency: Electricity Development Corporation

3) Operation and Maintenance System: AES SONEL

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

1) Environmental and Social Consideration

① Category: B

② Reason for Categorization: Since the impact of this project is not in a sensitive sector, has no sensitive characteristics, and is not located in a sensitive area as stipulated by the Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations (established April 2002), and is judged not to have a significance adverse impact on the environment, it is classified as Category B.

③ Environmental Permit: A report of environmental impact assessment conducted with AfDB funds was approved by the Ministry of Environment.

④ Anti-Pollution Measures: During construction of substations, plastic sheets, etc. will be used to prevent harmful materials from entering into groundwater. To combat noise, planned measures include regular maintenance of construction machinery and strict adherence to scheduled construction times. For any waste materials that may be generated, a disposal company will collect the materials and transport them to a waste disposal site as directed by the local government.

⑤ Natural Environment: The target area for this project is not on a national park or located in or near a sensitive area, and adverse impact to the environment is presumed minimal. Additionally, with the installation of transmission lines and steel towers, it is envisaged that large bird species may be impacted through collisions or electrocution. However, this impact on bird species will be minimized by insulating distribution lines and preventing the birds from flying near the towers by installing ball-shaped markers.

⑥ Social Environment: In Ebolowa, it is expected that three hectares of land (owned by the national government) will be acquired for medium- and high-voltage substations, but no residents will need to be relocated. However, since crops are farmed in the area surrounding the planned site, compensation to residents is planned, to be paid at market price.

⑦ Other/Monitoring: For this project, monitoring will be conducted during the construction period on air quality,

water quality, soil, ecosystems, and land acquisition, etc. This will done mainly by the project's executing agency.

2) Promotion of Poverty Reduction: Approximately 87% of the nation's impoverished people live in the 8 target regions for this project. Therefore, this project is relevant to poverty.

3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Handicapped, etc.): Through electrification, household appliances can be introduced, which will lessen the burden for women in their daily housework.

(8) Collaboration with Other Schemes/Donors: ODA loans for this project will be co-financed (EPSA) with AfDB. (4,414 million yen provided by AfDB)

(9) Other Important Issues: In this project, along with the loss reduction of the transmission network, electrification will bring a decrease in the consumption of fuel wood. Since this will lead to less deforestation, the project thus contributes to the reduction of greenhouse gas (GHG) emissions.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator)

Indicator [1]	Baseline (Actual Value in 2007)	Target (2014) (At Project Completion)
Nationwide electrification rate (%)	22	25
Transmission/distribution loss rate (%) (technical aspect)	10.5	9
Transmission/distribution loss rate (%) (commercial aspect)(%)	7	5

2) Internal Rate of Return

Based on the following perquisites, the Economic Internal Rate of Return (EIRR) is 20.99% and the Financial Internal Rate of Return (FIRR) is 15.02%.

【EIRR】

Cost: Project costs, operation and maintenance costs

Benefit: Reduction of loss, fuel consumption savings (with the shutdown of 2 thermal power plants operating on diesel fuel that are not connected to the distribution network).

Project Life: 25 years

【FIRR】

Cost: Project costs, operation and maintenance costs

Benefit: Revenue from sales of electric power

Project Life: 25 years

(2) Qualitative Effects

Improvement of living conditions (improved nighttime safety, better educational environment, improved health and hygiene, reduced housework, etc.), stimulation of socioeconomic activities.

5. External Factors and Risk Control

(1) Implementation system: EDC, the executing agency, is a new organization that was established in November 2006 and is wholly-owned by the government. There has been no change in the policy to proceed with the implementation system, including securing labor.

(2) Land Acquisition and Resident Relocation: Land acquisition has not diverged greatly from the plan. There have been no new incidences of resident relocation.

[1] For areas targeted for power distribution.

6. Lessons Learned from Past Projects

In ex-post evaluations of past similar project, it has been pointed out that when JICA provides financing for a portion of the project through co-financing, it is necessary for JICA to ask the project executing agency to take the initiative in the overall supervision of the project and in coordinating with the consultant and construction companies. In past ESPA/ACFA project, delays in construction work are seen over and over, creating the need not only for constant follow-up through progress reports, but also by scheduling meetings, etc. as necessary. Together with AfDB, the state of the executing agency should be verified and advice should be given.

7. Plan for Future Evaluation

(1) Indicators to be Used

1) Facility operation ratio (%)

2) Annual accidental power outage hours (minutes/year)

3) Number of power outages (incidences/year)

4) Power transmission loss rate (%)

5) Transmission end (net) electricity output (GWh/year)

6) EIRR (%)

(2) Timing: Two years after project completion