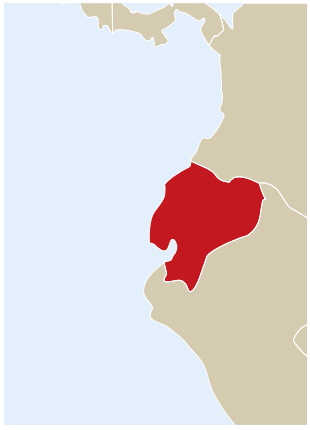
External Evaluator: Masafumi Ikeno

Overall Rating B

Poverty Reduction
A Foundation for Sustained Growth



34 Ecuador

# Transmission (Phase D) Project and Sub-Transmission (Phase B-2) Project

Contributing to the realization of a stable power supply and helping to improve electrical power services

| | |
|---|---|
| **Loan Amount / Disbursed Amount** | 17.489 billion yen / 16.127 billion yen |
| **Loan Agreement** | November 1990/July 1996 |
| **Terms & Conditions** | (1) 2.9% interest rate, 25 year repayment period (7 year grace period)<br>(2) 3.0% interest rate, 30 year repayment period (10 year grace period), General untied |
| **Final Disbursement Date** | January 1999 / January 2002 |
| **Executing Agency** | Transelectric S.A.<br>(http://www.transelectric.com.ec) |

## Project Objectives

The objective of this project was to assist Ecuador in meeting the demand for electric power by constructing and installing transmission lines (for the mainline transmission system) and transformer stations, and by installing a sub-transmission system to connect the mainline transmission system and the power distribution network, and thereby contribute to stabilization of the power supply and improvement of the rate of rural electrification.

## Effectiveness and Impact

Rating b

The transmission loss rate goal of 4.5% set before project implementation was lowered to 2.8% for FY2005 as result of ensuring the volume of power transmission and improving the operation and maintenance capabilities of the power transmission company through implementation of this project. Moreover, net energy electric production, which is the amount of electric power actually sent out of the power plant, increased from 7,701 GW in 1999 to 10,262 GW in 2005. Thus, the transmission system installed through the project seems to be meeting the increasing demand for electric power in Ecuador and has contributed to stabilization of the power supply and improvement of the rate of rural electrification. On a beneficiary survey given to 190 people, over 70% of respondents gave a positive assessment of the power stabilization and appreciated the improved quality of life afforded by the use of electrical products.

On the other hand, while the electric power supply has expanded to rural areas, there are numerous cases where time is required for operation and maintenance and to make repairs when accidents involving transmission lines occur. Thus, a situation has developed in which there are an increased number of outage hours and supply problems occur. Therefore, this project has brought certain effects, and its effectiveness is moderate.

A beneficiary (store)
Improvement in the rate of rural electrification through installation of the transmission network contributed to alleviating poverty caused by social unrest and promoted the development of social infrastructure and the improvement of community standards in rural areas.

## Relevance

Rating a

This project has been highly relevant with Ecuador's national policies both at the time of the appraisal and at the time of the ex-post evaluation.

## Efficiency

Rating b

The project period greatly exceeded the planned period (181% of planned period) due to delays in securing the domestic currency allowances from the Ecuadorian government and the project costs were almost as planned; therefore the evaluation for efficiency is moderate.

## Sustainability

Rating a

No major problem has been observed for capacity of the executing agency nor the operation nor its maintenance system, therefore, sustainability of this project is high. There are no technical problems with the executing agency, which operates the transmission network, and the local electric power companies, which control the local distribution networks and substations. A system is in place for the local electrical power companies receive technical assistance from the executing agency and from equipment suppliers.

## Conclusion, Lessons Learned, Recommendation

In light of the above, this project is evaluated to be satisfactory. As a recommendation, it is advisable that the Ecuadorian government developed social infrastructure such as roads together with supporting rural electrification in remote areas in order to implement efficient operation and maintenance.

## Third-Party Opinion

The transmission network installed through this project has become the foundation for the supply of power to rural areas. The expansion of transmission lines and networks in rural electrification is being driven forward together with power sector reforms under administrative guidance.

Name of specialist: Mr. Santiago J. Sanchez (private sector)
Earned a Masters degree in electrical engineering from Iowa State University. After serving as Deputy Secretary of Renewable Energies and Energy Efficiency at Ecuador's Ministry of Energy and Mines, assumed current position as general manager of Enerpro. Specializes in renewable energy, energy efficiency, and clean mechanisms.