

Ex-ante Evaluation

1. Name of the Project
Country: India Project: Transmission System Modernization and Strengthening Project in Hyderabad Metropolitan Area (Loan Agreement:03/30/2007; Loan Amount: 23,697 million yen; Borrower: The President of India)
2. Necessity and Relevance of JBIC's Assistance
<p>A glance at the supply and demand of electrical power in India as a whole shows that there have been serious shortages since 1998: around 6-9 % in year-wise energy requirement; and about 11-14% in the amount of power required at peak hours. In addition, high rates of loss in power transmission and distribution (the average for the entire country of India was 32.5% in FY2003) and frequent power outages are major problems from the supply side.</p> <p>In the 10th 5-Year Plan (April 2002- March 2007) by the Government of India, in addition to developing 41,110MW of new power source, the Government of India plans to build a high-voltage power transmission network to supply power effectively from the north, northeast and east of India, where electric power source is concentrated, to other regions. Additionally, from 2002, the government implemented its "Accelerated Power Development and Reform Program" for the purpose of improving the power distribution facilities. In the current administration's Common Minimum Programme (May 2004), infrastructure development, including the development of an electric power system, is a top priority.</p> <p>In JBIC's current Medium-Term Strategy for Overseas Economic Cooperation Operations, a priority area for assistance in India is "Economic Infrastructure Development." The assistance provided by the Project is consistent with the strategy.</p> <p>Recently, there has been a high concentration of IT industries and the like in Hyderabad, the capital city of the southern Indian state of Andhra Pradesh, and in its neighboring regions, resulting in a surge in the demand for power due to increase in office buildings, factories, and population. The power demand for the entire state rose 50% in 2005, from 5,576MW in 1996 to 8,563MW. Especially, in Hyderabad, the power demand at peak hours has been increasing on average at a rate of 7%, and is expected to increase by 11% annually over the next five years. To meet this demand, by FY2011, the state plans to double its power supply at peak hours over the level it recorded in FY2005. To provide this surging power generation to consumers in a stable manner, the capacity to transmit electrical power to the point of consumption in the city must be increased. Thus JBIC's assistance in the Project is highly necessary.</p>
3. Project Objectives
To improve the reliability and quality of power supply through the reduction of outages and voltage fluctuation and to meet the fast growing load demand by strengthening the transmission system in Hyderabad Metropolitan Area, the capital of the State of Andhra Pradesh, thereby contributing to local economic development and improvement of living standards of local residents in the concerned influence areas.
4. Project Description
(1) Target Area

Hyderabad metropolitan area, State of Andhra Pradesh

(2) Project Outline

- (a) Construction of power transmission facilities (sub-stations (including related facilities) at eight locations)
- (b) Consulting services

(3) Total Project Cost/Loan Amount

30,123 million yen (Yen Loan Amount: 23,697 million yen)

(4) Schedule

April 2007 – December 2010 (45 months)

(5) Implementation Structure

- (a) Borrower: The President of India
- (b) Executing Agency: Transmission Corporation of Andhra Pradesh Limited
- (c) Operation and Maintenance System: Same as (b)

(6) Environmental and Social Consideration

(a) Environmental Effects/Land Acquisition and Resident Relocation

(i) Category: B

(ii) Reason for Categorization

This Project is classified as Category B because the Project will not have a significant negative environmental impact given that the sector and the Project do not have characteristics that are likely to exert impact, and the characteristics of the region make it unsusceptible to impact, based on the “Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations” (established April 2002).

(iii) Environmental Permit

The Environmental Impact Assessment (EIA) Report is not required for the Project in the country’s legal system.

(iv) Anti-Pollution Measures

During the construction, appropriate measures will be taken by the construction company according to need.

(v) Natural Environment

The project site is not located in and around any sensitive areas such as national parks, and it is likely to have a minimal adverse impact on the natural environment.

(vi) Social Environment

The Project requires land acquisition of about 3ha, which will be implemented in accordance with the country’s domestic procedures. The Project will not involve any involuntary resettlement.

(vii) Other/Monitoring

Environmental impacts regarding such items as sediment discharges will be monitored by the

executing agency.

(b) Promotion of Poverty Reduction

None

(c) Promotion of Social Development (e.g. Gender Perspective)

None

(7) Other Important Issues

Enhancement of the organizational capacity of the executing agency will be supported by introducing training abroad, total quality management (TQM) and so on as part of the consulting services.

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2006)	Target (2 012, 2 years after completion)
Voltage Fluctuation (+/- % from target level)	6.87	4.09
Operation Ratio (Capacity Utilization Index) (%)	53.26 (220kV) 59.92 (132kV)	69.94 (220kV) 56.10 (132kV)
Outage Times (no./ year)	71	20
Transmission Loss (%)	4.35	4.0
Electricity Supply in the Project Area (GWh)	8,860	16,329

(2) Internal Rate of Return

Financial Internal Rate of Return (FIRR): 2.8%

(a) Cost: Project costs, operation and maintenance expenses

(b) Benefit: Increase in income from power transmission, decrease in transmission loss

(c) Project Life: 30 years

Economic Internal Rate of Return (EIRR): 6.0%

(a) Cost: Project costs (excluding tax), operation and maintenance expenses

(b) Benefit: Increase in income from power transmission, decrease in transmission loss

(c) Project life: 30 years

6. External Risk Factors

Economic stagnation and deterioration in India and in areas surrounding the target area of the Project

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

A lesson learned from the findings of similar projects undertaken in the past is that, for the effectiveness of the Project to be fully manifested, in addition to the development of a power transmission network it is also necessary to continue reinforcing power transmission facilities after a project is completed and implement new power development to meet potential demand. Since the state of Andhra Pradesh has already laid down a plan for doubling by FY2011 the power supply at peak hours recorded in FY2005, the progress of the plan will be monitored periodically.

8. Plans for Future Evaluation

(1) Indicators for Future Evaluation

- (a) Voltage Fluctuation (+/- % from target level)
- (b) Operation Ratio (Capacity Utilization Index) (%)
- (c) Outage Times (no./ year)
- (d) Transmission Loss (%)
- (e) Electricity Supply in the Project Area (GWh)
- (f) Internal rate of return: FIRR, EIRR (%)

(2) Timing of Next Evaluation

After project completion