

## Ex-ante Evaluation

<b>1. Name of the Project</b>
Country: India Project: Kerala Water Supply Project (II) (Loan Agreement: 03/30/2007; Loan Amount: 32,777 million yen; Borrower: The President of India)
<b>2. Necessity and Relevance of JBIC's Assistance</b>
<p>In India, water usage is increasing together with the growth in population. Reliance on groundwater is lowering the groundwater level, leading to a serious imbalance in the supply and demand of water. As a result of the sudden population influx in urban areas and industrialization, the discharge of wastewater exceeds disposal capacity, and raw sewage is discharged into rivers in amounts that far exceed the self purification capacity. As a result, the public health and living conditions of local residents are threatened by diarrhea and hepatitis, etc., that are caused by the polluted water.</p> <p>The 10<sup>th</sup> 5-Year Plan (April 2002-March 2007) by the Government of India proposes to supply adequate and safe drinking water to the entire population, to clean up the major polluted rivers and to improve the river catchment area environment. Based on this, in the National Water Policy (April 2002), Ministry of Water Resources aims to give priority to the allocation of water resources for drinking water, irrigation, and hydroelectric power, in that order. Ministry of Environment and Forests also has been working on cleaning up of rivers and lakes, starting with the River Ganga in 1985 and is in the process of construction of sewerage facilities under the National River Conservation Plan and the National Lake Conservation Plan. In the current administration's Common Minimum Programme (May 2004) and Jawaharlal Nehru National Urban Renewal Mission (JNNURM) legislated in 2005, there is a commitment to expansion of public investment in urban infrastructure development, including water supply and sewerage facilities. Furthermore in JNNURM, large-scale subsidy from the central government is planned for urban infrastructure development, on the condition that state governments and municipalities implement managerial reforms, such as strengthening their financial structure and delivery of basic services to the urban poor.</p> <p>In JBIC's current Medium-Term Strategy for Overseas Economic Cooperation Operations, the priority sectors in assistance to India are "Economic Infrastructure Development" and "Environmental Improvement." The assistance provided by this project is consistent with the strategy.</p> <p>In Thiruvananthapuram, the capital of Kerala, and in Kozhikode, the development of potable water facilities has failed to keep pace with the rapid growth in population resulting from urbanization, and the imbalance in water supply and demand is becoming increasingly serious. Moreover, in Cherthala, Meenad, Pattuvum and the surrounding areas, in addition to the water supply shortage, water quality has deteriorated due to salinization into the groundwater, which is the existing water source, and so development of water source from surface water is required. Thus, JBIC's assistance in this project is highly necessary.</p>
<b>3. Project Objectives</b>

The objective of this project is to provide reliable water supply service to meet the growing demand for water by installing water supply facilities in the state of Kerala, in the cities of Thiruvananthapuram (the capital of Kerala), Kozhikode, Cherthala, Meenad, Pattuvum and the surrounding areas, thereby improving living conditions in those areas.

#### **4. Project Description**

(1) Target Area

Thiruvananthapuram, Kozhikode, Cherthala, Meenad, Pattuvum, and the surrounding area, State of Kerala

(2) Project Outline

- (a) Water supply facilities: Construction and rehabilitation of water intake facilities, conducting tubes, expansion, new construction and rehabilitation of water treatment plants in 5 areas (totally 516,000 m<sup>3</sup>/day), transmission pipelines, pumping stations, distribution network
- (b) Capacity building of the executing agency: Purchase of equipments, establishment of information system, training
- (c) Consulting services (detailed design, bidding assistance, construction management, improvement of management, etc.)

(3) Total Project Cost/Loan Amount

65,263 million yen (Yen Loan Amount: 54,529 million yen)

(4) Schedule

June 1997 – August 2009 (147 months)

(5) Implementation Structure

- (a) Borrower: The President of India
- (b) Executing Agency: Kerala Water Authority (KWA)
- (c) Operation and Maintenance System: Same as (b)

(6) Environmental and Social Consideration

(a) Environmental Effects/Land Acquisition and Resident Relocation

(i) Category: Does not apply

(ii) Reason for Categorization

For this project, the “OEFC Guidelines for Environmental Considerations” (first edition) are applied. (Furthermore, this project is classified as Category B under the “Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations” (established April 2002) because it was determined that the project will not have any significant undesirable impact on the environment given that the characteristics of the sector is not likely to exert impact, and the characteristics of the region make it unsusceptible to impact.)

(iii) Environmental Permit

The EIA report is not required for the project in the country’s legal system.

(iv) Anti-Pollution Measures

No ground subsidence is foreseen due to intake of surface water from rivers in each area.

(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:

Land acquisition of 75.84 ha has been completed, and the remaining 1.06 ha is proceeding in accordance with the country's domestic procedures. The resident relocation of 8 households in Kozhikode and 5 households in Cherthala has been completed in accordance with the country's domestic procedures.

(vii) Other/Monitoring

KWA will monitor the water quality, etc., during construction.

(b) Promotion of Poverty Reduction

None

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

None

(7) Other Important Issues

None

## 5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2006)		Target (2011, 2 years after completion)	
	Thiruvananthapuram and the surrounding area	Kozhikode and the surrounding area	Thiruvananthapuram and the surrounding area	Kozhikode and the surrounding area
Total population served (thousand persons)	698	560	845	1,011
Amount of water supply (m <sup>3</sup> /day)	190,000	72,000	264,000	264,000
Rate of facility utilization (%)	-	-	95	95
Non-revenue water rate (%)	37	30	29	25
Percentage of population served (%)	77	52	90	90

Indicator	Baseline (2006)		Target (2011, 2 years after completion)	
	Cherthala and the surrounding area	Meenad and the surrounding area	Cherthala and the surrounding area	Meenad and the surrounding area
Total population served (thousand persons)	54	70	559	453
Amount of water supply (m <sup>3</sup> /day)	7,000	13,000	111,000	73,000
Rate of facility utilization (%)	-	-	85	85
Non-revenue water rate (%)	-	-	19	19
Percentage of population served (%)	10	16	100	100

Indicator	Baseline (2006)	Target (2011, 2 years after completion)
	Pattuvum and the surrounding area	Pattuvum and the surrounding area
Total population served (thousand persons)	69	405
Amount of water supply (m <sup>3</sup> /day)	9,000	93,000
Rate of facility utilization (%)	-	85
Non-revenue water rate (%)	-	19
Percentage of population served (%)	12	90

(2) Internal Rate of Return

Economic Internal Rate of Return: 11.8%

(a) Cost: Project cost (excluding tax), operation and maintenance expense

(b) Benefit: Increase in willingness to pay water bills

(c) Project Life: 40 years

**6. External Risk Factors**

None

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

In the ex-post evaluation of similar projects in the past, it has been learned that it is important to conduct rehabilitation of the existing water supply network in order to enhance the effects of the project. In this project, rehabilitation of the existing water supply network is included in the development of water supply facilities.

It is also noted that it is necessary to study measures to strengthen management of the water services from the project formation and appraisal stage. In this project, it has been decided to take measures including those for reduction of non-revenue water rate, improvement of financial condition, reinforcement of public relations and improvement of information system etc.

## **8. Plans for Future Evaluation**

### (1) Indicators for Future Evaluation

- (a) Total population served (thousand persons)
- (b) Amount of water supply (m<sup>3</sup>/day)
- (c) Rate of facility utilization (%)
- (d) Non-revenue water rate (%)
- (e) Percentage of population served (%)
- (f) Internal rate of return: EIRR (%)

### (2) Timing of Next Evaluation

After project completion