

## Ex-ante Evaluation

### 1. Name of the Project

Country: India

Project: Amritsar Sewerage Project

(Loan Agreement: 03/ 30/2007; Loan Amount: 6,961 million yen; Borrower: The President of India)

### 2. Necessity and Relevance of JBIC's Assistance

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.

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.

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.

Amritsar is a large city in the state of Punjab in northern part of India, and is situated next to the Pakistan border. It is a Sikh holy site and is visited by many pilgrims and tourists. Installation of the sewerage facilities has not kept pace with the city's population increase (from 590,000 in 1981 to 980,000 in 2001), and this has brought deterioration of the sanitary conditions of local residents. In addition, since there is no sewerage treatment plant in the city, untreated wastewater is discharged into the surrounding rivers, causing river water pollution and eventually flows into Pakistan territory through discharged river. Consequently, JBIC's support of this project is highly necessary and relevant.

### **3. Project Objectives**

The objective of this project is to provide reliable sewerage services by carrying out construction of sewerage facilities in the city of Amritsar, State of Punjab located in northern part of India, thereby improving hygiene and living conditions of local residents including the poor.

### **4. Project Description**

#### (1) Target Area

Amritsar municipal area, State of Punjab

#### (2) Project Outline

- (a) Sewerage facilities: Construction of sewerage treatment plants (3 locations; 201,000 m<sup>3</sup>/day) and sewer pipes, construction and rehabilitation of pumping stations.
- (b) Social development and community participation: Assistance for water supply service connections for the poor, construction of public toilets, public awareness activities.
- (c) Consulting services (detailed design, tendering assistance, construction supervision, institutional improvement)

#### (3) Total Project Cost/Loan Amount

9,073 million yen (Yen Loan Amount: 6,961 million yen)

#### (4) Schedule

February 2007 – March 2012 (62 months)

#### (5) Implementation Structure

- (a) Borrower: The President of India
- (b) Executing Agency: Punjab Water Supply and Sewerage Board (PWSSB)
- (c) Operation and Maintenance System: Municipal Corporation Amritsar (MCA)

#### (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 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, based on the “Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations” (established April 2002).

###### (iii) Environmental Permit

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

(iv) Anti-Pollution Measures

The quality of the water discharged from the sewerage treatment plants to the river will comply with the country's effluent standards, and no significant adverse impact is foreseen from the effluents.

(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 78ha, 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 effluent water quality and sewerage sludge will be monitored by PWSSB and MCA

(b) Promotion of Poverty Reduction

As countermeasures against urban poverty to improve the living conditions of the poor, the project will assist install water supply service connections, construct toilets, and expand and improve solid waste management utilizing community -based organizations in slums.

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

With the assistance of local NGOs, the project will organize community-based groups and strengthen them through training and will assist the establishment of self-management system at the community level for solid waste collection and sanitation facilities. Moreover, the project will conduct public awareness activities concerning public health and environmental conservation in an endeavor to raise the awareness of residents and government personnel.

(7) Other Important Issues

None

**5. Outcome Targets**

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2005)	Target (2015, 2 years after completion)
Total population served (1,000 persons) by the Project	647	1,048
Amount of wastewater treated (m <sup>3</sup> /day)	-	148,000
Rate of facility utilization (sewage treatment plant) (%)	-	74
BOD concentration for each sewerage treatment plant (effluent) (mg/l)	129-205	less than 30
Percentage of population served (%)	62	83

(2) Internal Rate of Return

Economic Internal Rate of Return (EIRR): 11.2%

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

(b) Benefit: Increased willingness to pay for improved sewerage services, reduction of economic losses due to illness, reduction of individual/public medical expenses.

(c) Project Life: 40 years

**6. External Risk Factors**

None

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

From ex-post evaluations of similar projects in the past, it has been learned that it is necessary to examine measures for strengthening management of the water supply and sewerage services from the project formation and appraisal stage. In this project, it is planned to implement measures for the operation and maintenance organization that will include reduction of the unaccounted-for water, restructuring of the tariff system, financial improvement, human resources development, strengthening of public relations and public awareness activities, and participation of the private sector.

**8. Plans for Future Evaluation**

(1) Indicators for Future Evaluation

(a) Population served (1,000 persons)

(b) Amount of wastewater treated (m<sup>3</sup>/day)

(c) Rate of facility utilization (sewage treatment plant) (%)

(d) BOD concentration for each sewerage treatment plant (effluent) (mg/l)

(e) Percentage of population served (%)

(f) Internal rate of return: EIRR (%)

(2) Timing of Next Evaluation

After project completion