

Ex-ante Evaluation

1. Name of the Project

Country: India

Project: Orissa Integrated Sanitation Improvement Project

(Loan Agreement: 03/30/2007; Loan Amount: 19,061 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 10th 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.

The state of Orissa, located in eastern part of India, has the highest poverty rate (47.2% in 2000) of any state in India. Bhubaneswar is the state capital, and because the installation of sewerage facilities has not kept pace with the rapid population growth (from 220,000 persons in 1981 to 650,000 persons in 2001), deterioration in the sanitary conditions of local residents and water pollution in surrounding rivers is advancing. Meanwhile, Cuttack, which lies 25 km north of Bhubaneswar, flourished as the state capital until the capital was transferred to Bhubaneswar in 1949, it remains the center of commercial activities in the state today. However, because it is located on the holms of Mahanadi River and Kathajodi River and drainage facilities are inadequate, low-lying areas in the city are flooded during the rainy season. Moreover, because the installation of sewerage facilities has not kept pace with the population increase (from 290,000 in 1981 to 480,000 in 2001), deterioration

in the sanitary conditions of local residents and water pollution in both rivers is advancing. 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 service and improve drainage service by carrying out construction of sewerage and drainage facilities in the city of Bhubaneswar and Cuttack, State of Orissa located in eastern part of India, thereby improving hygiene and living conditions of local residents including the poor.

4. Project Description

(1) Target Area

Bhubaneswar and Cuttack municipal area, State of Orissa

(2) Project Outline

- (a) Sewerage facilities (Bhubaneswar): Construction of sewerage treatment plant (1 location, 48,150 m³/day), pumping stations, and sewer pipes.
- (b) Sewerage facilities (Cuttack): Construction of sewerage treatment plants (3 locations, 52,200 m³/day), pumping stations, and sewer pipes.
- (c) Drainage facilities (Cuttack): Construction and rehabilitation of drainage channels, construction of pumping stations, rehabilitation of sluice gates.
- (d) Social development and public awareness: Construction of public toilets, slum sanitation improvement, public awareness activities.
- (e) Consulting services (detailed design, tendering assistance, construction supervision, institutional improvement)

(3) Total Project Cost/Loan Amount

23,817 million yen (Yen Loan Amount: 19,061 million yen)

(4) Schedule

February 2007 – November 2012 (70 months)

(5) Implementation Structure

- (a) Borrower: The President of India
- (b) Executing Agency: Orissa Water Supply and Sewerage Board (OWSSB)
- (c) Operation and Maintenance System: Public Health Engineering Organization (PHEO), Bhubaneswar Municipal Corporation (BMC), Cuttack Municipal Corporation (CMC)

(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 48ha, 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 BMC and CMC

(b) Promotion of Poverty Reduction

As countermeasures against urban poverty to improve the living conditions of the poor, development of sanitary facilities such as toilets and solid waste collection sites will be implemented in response to the needs of slum residents.

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

In the above-mentioned assistance for slums, development of sanitation facilities will take place after having slum residents prioritize the facilities to be improved by this project, with the cooperation of NGOs. Moreover, BMC and CMC 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

- The project area in Bhubaneswar is district 6 only. Construction in district 1 through district 5 is planned to be conducted by the Indian side at its own expense.
- The request was for the project plan to include four cities in Orissa; however, the feasibility studies for the cities of Berhampur and Sambalpur are incomplete, and so they are not part of this project.

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

(a) Sewerage - Bhubaneswar

Indicator	Baseline (2005)	Target (2015, 2 years after completion)
Population served (1,000 persons)	70	200
Amount of wastewater treated (m ³ /day)	-	23,000
Rate of facility utilization (sewage treatment plant) (%)	-	50
BOD concentration for each sewerage treatment plant (effluent) (mg/l)	-	less than 30
Percentage of population served (%)	30	60

(b) Sewerage - Cuttack

Indicator	Baseline (2005)	Target (2015, 2 years after completion)
Population served (1,000 persons)	55	422
Amount of wastewater treated (m ³ /day)	5,500	50,700
Rate of facility utilization (sewage treatment plant) (%)	-	60
BOD concentration for each sewerage treatment plant (effluent) (mg/l)	-	less than 30
Percentage of population served (%)	10	60

(c) Drainage - Cuttack

Indicator	Baseline (2005)	Target (2015, 2 years after completion)
Maximum inundated area (ha)	470	30
Inundation frequency (time/year)	3-5	less than 3

(2) Internal Rate of Return

Economic Internal Rate of Return (EIRR): 18.4%

(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, reduction of economic losses due to flood.

(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
<p>(1) Indicators for Future Evaluation</p> <ul style="list-style-type: none"> (a) Population served (1,000 persons) (b) Amount of wastewater treated (m³/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) Maximum inundated area (ha) (g) Inundation frequency (time/year) (h) Internal rate of return: EIRR (%) <p>(2) Timing of Next Evaluation After project completion</p>