

Ex-ante Evaluation

1. Name of the Project

Country: The Republic of Panama

Project: Panama City and Panama Bay Sanitation Project

(Loan Agreement: June 25, 2007; Loan Amount: 19,371 million yen; Borrower: The Republic of Panama)

2. Necessity and Relevance of JBIC's Assistance

Approximately 30% of Panama's total population (approx. 1.18 million people) is concentrated in its metropolitan area where the sewer system and sewage treatment facilities are not adequately developed, and approximately 330,000 cubic meters (2005) of raw sewage per day is currently discharged into Panama Bay through the city's rivers and gutters. The severe water pollution and unpleasant odor have led to measures being taken, such as in 2001 when the Ministerio de Salud (Ministry of Health, MINSA) prohibited the consumption of fish caught in Panama Bay or the surrounding areas. Therefore, as the living environment of residents worsens and the image of Panama as a waterfront city—which it depends on greatly for service industries such as the tourist industry—is dramatically damaged, the development of the sewage system and sewage treatment facilities in the Panama metropolitan area is an urgent issue. This project has also been announced as a campaign pledge for the national development policy by the current administration.

In response to this situation, JBIC has repeatedly held policy dialogues with the government of Panama and the Inter-American Development Bank (IDB), which supported the preparation of the F/S for this project. JBIC also worked to formulate this project by promoting the strengthening of the structure and improving the management of the Instituto de Acueductos y Alcantarillados Nacionales (Institute for National Water Supply and Sewerage System, IDAAN), which provides water and sewage services for the metropolitan area. In March 2006, the IDB entered a loan agreement with the Panama Government, commencing the new construction and restoration of the collectors in Panama's metropolitan area. All donors are cooperatively working together on this project, including Japan International Cooperation Agency (JICA), which has provided technical aid for strengthening the Autoridad Nacional del Ambiente's water quality monitoring system.

As the Medium-Term Strategy for Overseas Economic Cooperation Operations and in response to the current escalating situation of air, water, and other pollution caused by industrial activities and city life, JBIC emphasizes support for environmental improvement and pollution prevention. Moreover, in consideration of escalating issues including water contamination within cities, JBIC also emphasizes support for environmental conservation projects within Latin America. Accordingly, support for this project is highly necessary and relevant.

3. Project Objectives

By newly constructing and restoring the sewage treatment system, interceptor, and collectors, this project will improve the water quality of Panama Bay and surrounding rivers where pollution is severe. This will contribute to the amelioration of life and a hygienic environment within the metropolitan area, while also serving to boost the image of Panama, crucial in order to revive

tourism.

4. Project Description

(1) Target Area

Panama metropolitan area.

(2) Project Outline

This project is co-financed with the IDB, and will conduct new construction and restoration of the sewage treatment system, interceptor, and collectors in the Panama metropolitan area.

- (a) Building a sewage treatment system: treatment capacity of 190,000 m³/day (activated sludge system) (Yen loan)
- (b) Building an interceptor: natural flow-down system (Yen loan)
- (c) Building/restoring the collectors: total length 90 km (IDB loan)
- (d) Consulting service: tendering assistance, construction supervision, strengthening structure, etc. (Yen loan; IDB loan)

(3) Total Project Cost / Loan Amount

32,561 million yen (Yen Loan Amount: 19,371 million yen)

(4) Schedule

March 2007 ~ November 2015 (104 months)

The project will conclude once all facilities have been transferred over to IDAAN.

(5) Implementation Structure

- (a) Borrower: The Republic of Panama
- (b) Executing Agency: Ministerio de Salud (MINSa)
- (c) Operation and Maintenance System: Instituto de Acueductos y Alcantarillados Nacionales (IDAAN) (However, MINSa will handle the sewage treatment system until the project is completed.)

(6) Environmental and Social Considerations

(a) Environmental Effects / Land Acquisition and Resident Relocation:

(i) Category: A

(ii) Reason for Categorization:

This project was categorized as A because it is located in a sensitive area as prescribed by the “Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations” (established April 2002).

(iii) Environmental Permit:

In November 2006, the Autoridad Nacional del Ambiente (Environmental National Agency, ANAM) approved the Environmental Impact Assessment (EIA) report for the project.

(iv) Anti-Pollution Measures:

Water leaving the sewage facilities will be treated to meet domestic water discharge standards before being discharged into rivers, where it is not foreseen to have any adverse impact. Sludge created from sewage treatment facilities will be properly disposed of at existing landfill sites.

(v) Natural Environment:

The site planned for construction of the sewage treatment facility borders a wetland registered in the Ramsar Convention. However, as precautions will be taken to prevent soil runoff using gabion and other barrier facilities, no major impact to the registered wetland is foreseen to be caused by the construction. It is also necessary to cut down a maximum of approximately 10 hectares of mangroves in order to construct the sewage treatment facility, but the particular mangroves in question are not of a valuable variety. Furthermore, mangroves of the same variety will be planted within the registered wetland and in the surrounding areas, encompassing an area twice that of those cut down.

(vi) Social Environment:

This project will acquire approximately 39 hectares of land in accordance with domestic procedures within the Republic of Panama. Residents will not have to relocate.

(vii) Other/Monitoring:

MINSA will monitor air and water quality, and noise control.

(b) Promotion of Poverty Reduction: The provision of sewage service in poorer areas is included in the component IDB is to support.

(c) Promotion of Social Development (e.g. Gender Perspective): Environmental education will be provided for residents through implementing agencies. Additionally, preventative measures against AIDS will be provided for the construction workers through collaboration with a domestic program on combating AIDS.

(7) Other Important Issues: None

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicators)

Indicator	Baseline (2006)	Target (2015, completion of project)
Sewage treatment population (people)	None	748,171
Amount of sewage treated (m ³ /day)	None	190,080
Facility utilization rate (%)	None	100
BOD/SS concentration (mg/l) (Incoming) BOD/SS	-/-	180/180

Water quality improvement at discharge sites (MPN/100mL) E. coli (Average in ocean water)	10,000	3,000
<p>(2) Recipients 748,171 people (Sewage treatment population at completion of project in 2015.)</p> <p>(3) Internal Rate of Return (Financial and Economic Internal Rate of Return) Economic Internal Rate of Return (EIRR): 11.2%</p> <ul style="list-style-type: none"> (a) Cost: Project costs (excluding taxes), operation and maintenance expenses. (b) Benefit: Intended payments from connecting to the water pipe system and sewage treatment; increase in revenue from tourism due to sanitization of bay. (c) Project Life: 40 years 		
<p>6. External Risk Factors</p>		
<p>None</p>		
<p>7. Lessons Learned from Findings of Similar Projects Undertaken in the Past</p>		
<p>It has been learned that project supervision in countries where there is no JBIC resident office requires the utilization of external manpower. There is no JBIC resident office in Panama, and the Ministerio de Salud (MINSa) has no past experience in implementing yen loan projects. Furthermore, while the lack of experience regarding yen loan procedures is undeniable, seminars on JBIC procurement and loans will be implemented after the loan agreement is established, and while working to strengthen the project supervision capabilities of the counterparts in Panama, there are also plans to hire external specialists to support the startup of proceedings for employing consultants. Additionally, there are plans to continue support for procedures of procurement and loan execution aid through the consulting service even while the project is underway.</p>		
<p>8. Plans for Future Evaluation</p>		
<p>(1) Indicators for Future Evaluation</p> <ul style="list-style-type: none"> (a) Sewage treatment population (people) (b) Amount of sewage treated (m³/day) (c) Facility utilization rate (%) (d) BOD concentration (mg/l) (Incoming, released) (e) SS concentration (mg/l) (Incoming, released) (f) Water quality improvement at discharge sites (E. coli (MPN/mL³), average within ocean water. <p>(2) Timing of Next Evaluation After project completion</p>		