

Ex-ante Evaluation

1. Name of the Project

Country: The Republic of Indonesia

Project: Countermeasures for Sediment in Wonogiri Multipurpose Dam Reservoir (I)

Loan Agreement: March 31, 2009

Loan Amount: 6,060 million Yen

Borrower: The Republic of Indonesia

2. Background and Necessity of the Project**(1) Current Status and Issues of the Water Resources Management Sector in Indonesia**

Various regions in Indonesia suffer annually from flood and sediment damage, caused in part by changes in rainfall patterns, which are thought to be the result of global warming. This has a serious impact on society and the economy. During the dry season, many regions in the country continue to suffer from the serious water shortages. Under these circumstances, it is important to prevent flood damage while securing a stable supply of potable water for households, water for industrial use, and water for irrigation.

(2) Development Policies for the Water Resources Management Sector in Indonesia and Priority of the Project

In the National Medium Term Development Plan 2004-2009 (PRJM: 2004-2009), the Government of Indonesia set the goal of Enhancing the Integrated Water Resource Management Structure. One important strategic program designed to secure water resources involves function recovery and improved management of existing water resource infrastructure. Taking democratization and decentralization into account, the Government of Indonesia established a new law concerning water resource management in March, 2004 and stipulated comprehensive plan development, implementation, monitoring, and evaluation of water resource conservation and water disaster control by each river basin.

(3) Japan and JICA's Policy and Operations in the Water Resources Management Sector

In Japan's Country Assistance Program for Indonesia (November, 2004), the Japanese government set forth assistance for the achievement of peace, stability and the provision of assistance for protection from natural disasters as priority areas and issues. JICA considers countermeasures for disasters as an important cooperative program and promotes integrative resource management. The Project is consistent with this policy. The Wonogiri multipurpose dam was constructed in 1981 with the help of ODA loans from Japan, and in 2002, Japan provided 760 million JPY as grant aid for emergency countermeasures aimed at sedimentation. Furthermore, a development study on permanent countermeasures for sedimentation at the relevant dam was conducted from March, 2004 to September, 2007.

(4) Other Donor's Activity

In regard to the initiatives of other aid organizations, the World Bank provided assistance for water resource sector reformation from 1999 to 2005 through the Structural Adjustment Program (SAP) for policies, systems, laws and regulations, and organizational reformation in the management divisions of the water resource and irrigation sectors. Currently, the World Bank provides assistance for the water resources sector aimed at the improvement of the

maintenance and management structure through the Water Resources and Irrigation Sector Management Program. The Asian Development Bank (ADB) has provided assistance for the establishment of an integrated water resource management structure in response to recent large-scale flood damage. Specifically, the ADB has provided assistance in Flood Management in Selected River Basins and Integrated Citarum water Resources Management for project formation related to the functional enhancement of water resource and disaster management.

(5) Necessity of the Project

The Wonogiri multipurpose dam has become one of the most important social capitals in Indonesia, whose economic value as a reservoir is significantly high. The excessive development of agricultural land near the Keduang River that flows into the dam area has caused an increase of sediment inflow and sediment deposits have clogged the intake of the dam; therefore, there is a need for permanent measures aimed at the recovery of the dam function. If the reservoir is completely filled with sediment deposits, it would be geographically difficult to build a new reservoir with the same capacity as the Wonogiri dam on the Bengawan Solo River. Supporting the Project with ODA loans is, therefore, highly necessary and relevant.

3. Project Description

(1) Project Objective(s)

The project aims to secure the long term reservoir capacity for irrigation, power generation, water resources for public use, and flood control of Central Java Province and East Java Province by conducting countermeasures for sedimentation with construction of spillway, closure dike, overflow dike on Wonogiri Multipurpose Dam reservoir, and watershed conservation, including check dam at Keduang river watershed, thereby contributing to the economic development in the region.

(2) Project Site/ Target Area: Central and East Java Provinces

(3) Project Component(s)

- 1) Installation work for spillway: New spillway (total length: approx. 710 m)
- 2) New spillway gate
- 3) Procurement of dredger
- 4) Installation work for dike for the prevention of sediment in-flow: Closure dike, Overflow dike
- 5) Watershed conservation
- 6) Consulting services: Detailed design, Assistance in tender, Supervision of construction, Watershed conservation support, etc.

Among the items listed above, ODA loans at this time will be provided for the following items: 1) Installation work for spillway; 2) New spillway gate; 3) Procurement of dredger; parts of 5) Watershed conservation; and parts of 6) Consulting services.

(4) Estimated Project Cost (Loan Amount): 7,143 million Yen (Loan Amount: 6,060 million Yen)

(5) Schedule

Scheduled from March, 2009 to October, 2012 (44 months in total)

The Project will be deemed complete when the spillway system starts the operation.

(6) Project Implementation Structure

- 1) Borrower: The Republic of Indonesia
- 2) Executing Agency: Directorate General of Water Resources, Ministry of Public Works

3) Operation and Maintenance System: Operation and maintenance of the facilities after completion of the Project shall be handled by the *Balai Besar Wilayah Sungai Bungawan Solo*.

(7) Environmental and Social Consideration/Poverty Reduction/Social Development

1) Environmental and Social Consideration

①Category (A, B, C, or FI): B

②Reason for Categorization:

The Project is categorized into Category B due to the fact that it does not fall under the large-sized dam sector category stipulated in the JBIC Cooperation Guidelines *for Confirmation of Environmental and Social Considerations* (established in April, 2002), it is not considered to have any undesirable impact on the environment, it does not have characteristics that make it likely to cause any impact, and is it not located in an area where it can be easily affected, as indentified in the *Environmental and Social Considerations Guidelines*.

③Environmental Permit: An Environmental Impact Assessment (EIA)

Report is not obliged under the laws and regulations of Indonesia.

④Anti-Pollution Measures:

The Project is for the construction of a dike for the prevention of sediment in-flow and the installation of a spillway in the existing dam reservoir, and no particular environmentally adverse effects in the river basin can be foreseen.

⑤Natural Environment:

The target area of the Project does not fall into an area or a surrounding area that can be easily affected, such as National Parks, etc.; therefore, it is likely to have minimum impact on the natural environment.

⑥Social Environment:

The Project requires land preparation around the dam, and land will be acquired in accordance with the procedures stipulated by the laws and regulations of Indonesia. There is no need for resident transfer.

⑦Other/Monitoring: The executing agency shall monitor the quality of water, etc. in the Project.

2) Promotion of Poverty Reduction: None in particular

3) Promotion of Social Development (e.g. Gender Perspective, Measures for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Handicapped etc.)

Countermeasures for HIV/AIDS shall be in place for workers engaged in the Project. A resident-participation-based watershed conservation project including terracing works, agro-forest works, etc. shall be carried out at the community level.

(8) Collaboration with Other Donors: None in particular

(9) Other Important Issues: None in particular

4. Targeted Outcomes

(1) Performance Indicators (Operation and Effect Indicator)

Indicators	Baseline (Predicted values for 2014, in the case of not carrying out the project.)	Target (2014) 【Expected value 2 years after project completion】
Volume of sedimentation in the reservoir from the Keduang River (10 ⁶ m ³ / year)	0.77	0

(2) Internal Rate of Return

Based on the conditions listed below, the economic internal rate of return (EIRR) of the Project will be 15.5%.

Costs: Construction costs, Operation & maintenance cost (Excluding tax and duty)

Benefits: Improvement of agriculture production, Profit from electric power sales

Project Life: 50 years

5. External Factors and Risk Control

None in particular

6. Lessons Learned from Past Projects

Ex-post evaluation for the water resource projects in the past has shown that it is important to conduct project formation and implementation with attention to the establishment of an operation and maintenance system based on the recognition that operation and maintenance has a great impact on the effect of the Project. Based on this lesson, assistance in implementation, quality control, and operation & maintenance management for the Project will be provided through consulting services.

In addition, ex-post evaluation for watershed conservation projects (resident-participation-based agro-forest works, etc.) in the past has shown that it is important to enhance resident awareness of the projects. Based on this lesson, an awareness campaign targeting residents will be carried out through administrative agencies and NGOs to create a system in which residents can participate in the project on their own initiative.

7. Plan for Future Evaluation

(1) Indicators to be used

1) Volume of Sedimentation in the Reservoir from the Keduang River

2) Economic Internal Rate of Return (EIRR) (%)

(2) Timing: 2 years after the completion of the project