Japanese ODA Loan

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: The Republic of Indonesia
Project: Upper Citarum Basin Flood Management Sector Loan
Loan Agreement: March 28, 2013
Loan Amount: 3,311 million yen
Borrower: The Republic of Indonesia

2. Background and Necessity of the Project

(1) Current State and Issues of the Flood Management Sector in Indonesia

Indonesia is suffering from frequent disasters, such as earthquakes, floods, and landslides. From 2000 to 2009, it is estimated that 61 floods hit the country, causing 2,810 deaths, 3.4 million people affected, and 1,615 million USD[1] in financial damage, making Indonesia one of the most flood-affected countries in Southeast Asia. The flood damages are not limited only to physical losses such as infrastructure and houses but also entail socio-economic losses such as economic stagnation and poverty, therefore has potential risk for hindering sustainable growth. However, the level of safety achievement for flood control still remains low even in major cities where population and industries are concentrated, and to respond to recurring flooding and future flood risks in terms of the integrated water resources management, structural and non-structural measures are urgently required.

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

The National Medium-Term Development Plan (2010-2014) of the Government of Indonesia emphasizes the importance of infrastructure including structural measures for flood control to promote economic and social growth. The Government of Indonesia also prioritizes the mitigation of flood damages and disaster reduction as one of the important policy directions in water resources development in order to achieve an independent and sustainable economic growth and improve the welfare through disaster management.

The Upper Citarum River Basin located in the southern area of Bandung City, the capital of West Java Province, is one of the centers of the fiber industry and agriculture in Indonesia. However, flood damages caused by the rapid urbanization and population increase have been deteriorated. Concerning the situation above, countermeasures for flood management in the main rivers of Upper Citarum were implemented through the Japanese ODA Loan projects “Upper Citarum Basin Urgent Flood Control Project (I), (II)” (loan agreement 1993, 1998), but the flood damage in densely populated areas along the river tributaries of the Citarum River Basin is still critical, therefore it is necessary to take urgent countermeasures for flood control.

[1] The International Disaster Database (EM-DAT：Emergency Events Database)

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

The Government of Japan considers "support for disparity reduction and building of a safe society" as one of the priority areas in the "Country Assistance Policy for Indonesia" (April 2012) and stipulates to support disaster prevention and emergency response. JICA Country Analytical Work for the Republic of Indonesia also prioritizes disaster management as one of the cooperation programs and analyzes the necessity of structural measures such as river improvement works as well as non-structural measures including watershed conservation and capacity development for community against flood disaster. Therefore, "Upper Citarum Basin Flood Management Sector Loan" (hereinafter referred to as "the Project") is consistent with such policies and analyses.

(4) Other Donors' Activity

The Asian Development Bank is implementing "Integrated Citarum Water Resources Management (hereinafter referred to as "ICWRM")" for the entire Citarum River Basin in order to promote the integrated water resources management and development involving with the related stakeholders. ICWRM is included with maintenance of drainage canals, water reservoirs, irrigation channels for agriculture, collection of hydraulic data and information as well as promoting collaboration between the public and private sectors. The Project uses hydrological and hydraulic analyses during the preparatory stage as mutual cooperation.

(5) Necessity of the Project

As mentioned above, the Project is consistent with the country's issues and development policies as well as the assistance policies of Japan and JICA. Therefore, it is highly necessary and relevant for JICA to provide assistance through the Project.

3. Project Description

(1) Project Objectives

The Project is to create a favorable environment and to promote socio-economic activities in the Upper Citarum Basin by meaning of materializing the mitigation of flood damages by flood management. Ultimately, the structural measures like river improvement works as well as non-structural measures will enhance the productive activities in the targeted areas and will contribute to economic growth and improvement in the standard of living.

(2) Project Site/Target Area: West Java Province

(3) Project Components

The Project consists of Component A for river improvement works, Component B for capacity development for community against flood disaster, and Component C for sediment control in upper Citarum river basins.

For the implementation of Component A, the Implementation Plan shall be developed by the Government of Indonesia based on the criteria, such as flood control effects, social impact, environmental impact, necessity and costs, in order to determine sub-projects, which are composed of river improvement works and

reservoirs for structural measures in tributaries of Upper Citarum River Basin.

1) Civil Works
   ① Component A: River Improvement Works (channel normalization, channel excavation, and bank slope protection)
   ② Component C: Sediment Control (construction of check dams)
2) Consulting services
   ① Component B: Institutional strengthening for the Citarum River Basin Organization or Balai Besar Wilayah Sungai Citarum (BBWSC) and Capacity Development for Community against Flood Disaster.
   ② Review of detailed design, monitoring for environmental issues and land acquisition, tender assistance, construction supervision, etc.

(4) Estimated Project Cost (Loan Amount)

4,502 million Yen (Loan Amount: 3,311 million Yen)

(5) Schedule

March 2013 – January 2018 (59 months in total)

The project will be deemed completed when construction of the facilities and non-structural measures are completed (January 2018).

(6) Project Implementation Structure

1) Borrower: Republic of Indonesia
2) Executing Agency: Directorate General of Water Resources, Ministry of Public Works
3) Operation and Maintenance System: Balai Besar Wilayah Sungai Citarum (BBWSC)

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

1) Environmental and Social Consideration
   ① Category: B
   ② Reason for Categorization: The Project is not likely to have significant adverse impact on the environment in terms of its characteristics under “JBIC Guidelines for the Confirmation of Environmental and Social Considerations” (April 2002).
   ③ Environmental Permit: The report of Environment Impact Assessment (EIA) has already been approved by West Java Province in December 2011.
   ④ Anti-Pollution Measures : Sand materials generated by civil works will be treated based on EIA, and no particular impact is expected.
   ⑤ Natural Environment: The project area 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.
   ⑥ Social Environment: The civil works will involve land acquisition and resettlement, and the steps will be taken in accordance with Indonesia’s domestic procedures. No major resettlement is expected.
   ⑦ Other/Monitoring: The executing agency will conduct monitoring for the treatment on sand materials generated by the civil works and land acquisition

based on EIA.

2) Promotion of Poverty Reduction: The Project is expected to contribute to reduce flood damages among the poor who are vulnerable to natural disasters and improve their living environment.

3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Person with Disability, etc.): The Project will contribute to strengthen the community through capacity development for community against flood dsaster.

(8) Collaboration with Other Donors: Collaboration of ADB has been realized through the utilization of flood analysis model produced by ICWRM.

(9) Other Important Issues: None in particular

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator):

Indicator	Baseline (Without Project)	Target (With Project: Year 2020) 【2 years after project completion】
Citarum Upstream Sub-project		
Maximum Discharge at K.11 (m^3/s)	59.9 (2010)	90
Maximum Flood Area (km^2)	4.9 (2007)	0
Cimande Sub-project		
Maximum Discharge at CMD.6 (m^3/s)	5.7 (2010)	50
Maximum Flood Area (km^2)	4.0 (2010)	0
Cikijing Sub-Project		
Maximum Discharge at P.18 (m^3/s)	10.0 (2010)	20
Maximum Flood Area (km^2)	4.4 (2007)	0
Cikeruh Downstream Sub-project		
Maximum Discharge at P.6 (m^3/s)	45.5 (2010)	90
Maximum Flood Area (km^2)	4.8 (2010)	3.8

Note1:The targeted values in “Maximum Flood Area (km^2)” are for 5-year return period.

Note2:The targeted tributaries above are candidates at the current stage. Indicators need to be reviewed when the short list for sub-projects is finalized.

2) Internal Rate of Return:

Based on the conditions below, the economic internal rate of return (EIRR) of the Project will be 12.9%.

Financial internal rate of return is not determined since financial income is not expected.

Cost: Project cost (excluding taxes), and operation and maintenance cost
Benefit: Reduction of infrastructure damage, etc.
Project life: 30 years

(2) Qualitative Effects : Reduction of health damages caused by flood and inundation, development of economic and industrial activities, capacity development for community against flood disaster, and adaptation to climate change

5. External Factors and Risk Control

None in particular

6. Lessons Learned from Past Projects

(1) Lessons from similar projects:

According to the ex-post-evaluation of Indonesia's a) "Surabaya River Improvement Project (II-1)", it is lessoned that it is necessary to confirm the progress of land acquisition not only at the time of appraisal but also when the project is being implemented, and take necessary measures. Additionally, according to the ex-post-evaluation of b) "Upper Citarum Basin Urgent Flood Control Project (I), (II)" and "Medan Flood Control Project", it has been pointed out that non-structural measures (development of appropriate planning for maintenance and management of the river basins, securing of the budget, and establishing the implementation mechanism, etc.) need to be conducted in addition to the structural measures in order to make the facilities more effective and efficient and to secure the sustainability of the project after the completion.

(2) Lessons applicable to the Project:

The Project will a) conduct monitoring and confirm the progress of land acquisition and its validity as part of consulting services, and will b) conduct structure and non-structural measures at the same time.

7. Plan for Future Evaluation

(1) Indicators to be Used

1) Maximum Discharge (m^3/s) at the water-level measurement point
2) Maximum flood area (km^2)
3) Economic Internal Rate of Return (EIRR) (%)

(2) Timing

Two years after the completion of the Project