

Ex-Ante Evaluation (for Japanese ODA Loan)**1. Name of the Project**

Country: The Republic of the Philippines

Project: Flood Risk Management Project for Cagayan de Oro River

Loan Agreement: March 26, 2015

Loan Amount: 11,576 million yen

Borrower: The Government of the Republic of the Philippines

2. Background and Necessity of the Project

(1) Current State and Issues on Development of the Disaster Risk Reduction and Management (Flood Control) Sector in the Philippines

The Philippines is one of the most natural disaster prone countries in the world. Flood by typhoon etc., in particular, causing great economic and human damage gives serious impact to economic activities. Against this backdrop, the Government of the Philippines formulates flood control plans for major river basins as priority where core cities for economic activities are located, and implements river improvement projects.

Cagayan de Oro City, a central city of the region, with approximately 600,000 population, is located in Cagayan de Oro River Basin in the northern part of Mindanao. Recent hit of a tropical cyclone (2009), Tropical Storm Sendong (2011), and Typhoon Pablo(2012) continuously caused flood damages in the region. Tropical Storm Sendong in particular, caused great damage including around 1.17 million people affected by the disaster and about 1,250 deaths. In response to such disaster, review of a flood control plan and implementation of river improvement project in the basin have become an urgent issues by the Government of the Philippines.

(2) Development Policies for the Disaster Risk Reduction and Management (Flood Control) Sector and the Priority of the Project

The Government of the Philippines places river basin conservation and infrastructure improvement for mitigating flood risk as one of the major measures in Philippine Development Plan (2011-2016). Concrete strategy measures include: construction of flood control facilities at regions with high flood risk as priority; incorporation of climate change adaptation into planning and design of flood control facilities; implementation of disaster risk reduction and management from both structural and nonstructural aspects; enhancement of participation of local governments and communities to operation and maintenance, etc. of flood control facilities; strengthening of collaboration among relevant stakeholders in project implementation and operation and maintenance; establishment of a financing mechanism for emergency restoration of flood control facilities, etc. The Government of the Philippines places Cagayan de Oro River Basin, the Project Site, as one of 18 major river basins with high priority for national water resource management.

Thus, this Project is recognized as a prioritized project in terms of policy of the Government of Philippines.

(3) Japan and JICA's Policy and Operations in the Disaster Risk Reduction and Management (Flood Control) Sector

In JICA's Country Analysis Paper for the Republic of the Philippines (April 2012), overcoming vulnerability and analyzing proper disaster risk mitigation and damage minimization are recognized as high priority areas. Support is recognized to be provided from both tangible (promotion of disaster mitigation infrastructure improvement) and intangible (strengthening disaster management plan and evacuation and other disaster-related systems) perspectives.. Thus, this Project is consistent with these policies. Moreover, this Project corresponds to "assistance of ¥300 billion over five years and human resources development for 1,000.

people in the area of disaster prevention" announced as consolidated infrastructure assistance, "the Package for Strengthening ASEAN-Japan Disaster Management Cooperation", at the ASEAN-Japan Commemorative Summit Meeting in December 2013.

Japan has provided a wide range of support for Metro Manila and large river basins including formulation of flood control plans, implementation of ODA Loan projects "Flood Risk Management Project for Cagayan, Tagoloan and Imus Rivers" (L/A in 2012), "Pasig-Marikina River Channel Improvement Project (Phase III)" (L/A in 2012), etc., technical assistance to the central ministries, and so on.

(4) Other Donor's Activity

The World Bank conducts the Study for Formulating (Reviewing) Metro Manila Flood Control Master Plan which focuses on construction of flood control infrastructures as well as F/S survey individually triggered by Tropical Storm Ondoy and Typhoon Pepeng in 2009.

(5) Necessity of the Project

Although Cagayan de Oro River Basin, the Project Site, is one of the 18 major river basins and large-scale damage was caused by Tropical Storm Sendong, review of flood control plan and river improvement project are yet to be implemented. Thus, implementation of this Project is highly prioritized in terms of development issues and policy of the Government of the Philippines. Moreover, this Project is in line with assistance policy of Japan and JICA. Therefore, it is highly necessary and relevant for JICA to support this Project.

3. Project Description

(1) Project Objective

The objective of the Project is to reduce flood damage in Cagayan de Oro River Basin by improving Cagayan de Oro River, thereby contributing to sustainable and stable economic growth in the region.

(2) Project Site/Target Area

Lower Basin of Cagayan de Oro River (area 21 km distance from the river mouth)
(Cagayan de Oro City, Mindanao)

(3) Project Components

- 1) Civil works: construction of embankment and flood retaining wall (international competitive bidding), bridge improvement (international competitive bidding), and raising of evacuation route (international competitive bidding)
- 2) Consulting services: detailed design, bidding assistance, construction supervision, maintenance plan formulation, public relations and awareness raising of residents, environmental management and monitoring assistance, support and monitoring of relocation of residents, etc. (short-listing method)

(4) Loan Amount

19,944 million yen (of which, Loan Amount: 11,576 million yen)

(5) Project Implementation Schedule

January 2015 to November 2021(83 months in total). Project completion is defined as the completion of the civil works(November 2021).

(6) Project Implementation Structure

- 1) Borrower: The Government of the Republic of the Philippines
- 2) Executing Agency: Department of Public Works and Highways (DPWH)
- 3) Operation and Maintenance System: DPWH Region 10 Office has management experience of flood control facility in the region and will lead the maintenance in coordination with relevant sections of the central government and local government (City of Cagayan de Oro), thus no specific matters are concerned.

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

1) Environmental and Social Consideration

- ① Category: A
- ② Reason for Categorization: This project is classified as Category A because it has characteristics that are likely to exert impact under the “JICA Guidelines for Environmental and Social Considerations” (published in April 2010).
- ③ Environmental Permit: The Environmental Impact Statement (EIS) Report for this Project was approved in November 2013 by the Department of Environment, Natural Resources (DENR)
- ④ Anti-Pollution Measures: Measures for noise, dust, waste and water quality during the construction period will be taken by setting the construction period only in the daytime, installation of noise reduction device for heavy machineries and noise barrier and regular inspection of vehicle and heavy machineries, regular sprinkling of water at the construction site, reuse and recycle, etc. of construction waste, installation of drainage channel, sediment basin, etc.
- ⑤ Natural Environment: Since the Project is not located in or around sensitive areas such as national parks, its adverse impact on the natural environment is assumed to be minimal. Impact on biodiversity including animal, plant, and

aquatic organisms, monitoring and, if necessary, mitigation measures will be implemented upon consultation with DENR to minimize the impact.

⑥ Social Environment: This project requires resettlement of 1,087 households (4,743 residents) and carries out the procedures in line with the country's process and the Resettlement Action Plan (RAP). At series of consultation meetings, the project description, contents of compensation and support, relocation schedule, monitoring plan, grievance redress mechanism, etc. were explained. Throughout the meeting, no specific adverse opinions against the Project from the resident side were observed.

⑦ Other/Monitoring: Based on the environmental management plan and environment monitoring plan, Multi-partite Monitoring Team (MMT) conduct monitoring of water quality, aquatic organisms, plants, noise and vibration, air quality, etc. of Cagayan de Oro River under the supervision of Executing Agency (DPWH). Monitoring of implementation status of land acquisition and resettlement and the progress of livelihood recovery are oriented by the local government (the City of Cagayan de Oro).

2) Promotion of Poverty Reduction: During the construction period, employment opportunity of local residents is expected to be increase by preferential hiring of those unemployed.

3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Handicapped etc.): None

(8) Collaboration with Other Donors: Technical support will be provided separately for "land use management in river area" and "formulation of flood hazard map and evacuation plan" which is deemed contributing to the outcome of this Project.

(9) Other Important Issues:

1) Since there is an industrial complex where Japanese enterprises are located in the suburb of Cagayan de Oro City, the project site, implementation of flood control measures is expected to also benefit to those Japanese companies to the complex.

2) Based on the basic concept of residents not living in dangerous areas, support was provided in the preparatory survey to the Government of the Philippines to establish the first river boundary in the Philippines.

4. Targeted Outcomes

(1) Quantitative effect

(1) Operation and Effect Indicator

Indicator	Baseline (Actual Value in 2013)	Target (2023 [2 years after project completion])
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Annual highest water level at flood control reference point (m)	-	-
Annual max. flooded area (ha) (※2)	494	0

*1: Annual highest water level at flood control reference point is an operational indicator thereby its baseline and target are not defined.

*2: Based on rainfall of 25-year probability scale.

2) Internal Rate of Return:

Based on the conditions indicated below, the economic internal rate of return (EIRR) of the Project is 18.8%. The financial internal rate of return (FIRR) is not calculated as there is no income.

【EIRR】

Cost: Project cost (tax excluded), operation and maintenance cost, Benefit: Flood damage cost saving, Project life: 50 years

(2) Qualitative effect:

Improvement of living environment and investment climate, improvement of public awareness on flood risk management, and adoption to climate change

5. External Factors and Risk Control

None

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

Evaluation of the ODA Loan project “Metro Manila Flood Control Project – West of Mangahan Floodway,” etc. suggests that land acquisition be prepared and arranged during the implementation period appropriately for the smooth operation of the Projects. It also suggests that it is necessary for DPWH to clarify the responsibility of maintenance to be shared with local governments at an early stage of the Project. Since a large-scale resettlement is expected under this Project, enhancement of collaboration among DPWH, local governments and relevant organizations were promoted during the project preparation and the preparatory survey, etc. while understanding of affected residents and other stakeholders was facilitated by holding a consultation meeting. Moreover, through an information campaign during the project implementation, their understanding will be promoted. In order for the local government to take responsibility of part of the maintenance, a memorandum of understanding on the operation and maintenance between DPWH and the local government will be prepared at the project preparation stage based on the lessons noted above.

7. Plan for Future Evaluation

(1) Indicators for Future Evaluation

1) Annual highest water level at flood control reference point (m)

2) Annual max. flooded area (ha)

- 3) Economic internal rate of return
- (2) Timing of Next Evaluation: 2 years after project completion