Japanese ODA Loan

Ex-ante Evaluation

1. Name of the Project

Country: Republic of the Philippines
Project: Pasig-Marikina River Channel Improvement Project (Phase III)
Loan Agreement: 30 March 2012
Loan Amount: : 11,836 million yen
Borrower: The Government of the Republic of the Philippines

2. Background and Necessity of the Project

(1) Current State and Issues of the Disaster Risk Reduction and Management (flood risk management) in the Philippines

The Philippines is one of the most disaster prone countries in the world. While Metro Manila is the center of politics, economy and culture of the Philippines where more than 10 million people live, it is also at a high risk of the storm/typhoon-related disasters since it is located in a coastal low-lying area. Socio-economic activities have been seriously influenced by floods. The government of the Philippines has been continuing efforts to address this issue for more than 50 years through planning and implementation of drainage and measures against floods. In particular, flooding of Pasig-Marikina River, which runs through the most urbanized political and economic center of Metro Manila, gives huge economic and social impact to not only Metro Manila but also the entire Philippines. The government of the Philippines has been implementing river channel improvement with assistance from Japan.

Nevertheless, there remains a long way to go for the flood risk management for Metro Manila including the Pasig-Marikina River. Flood risk management and safety of Metro Manila have not met the urgent requirements set under the master plan in 1990 and remain highly vulnerable. Furthermore, the recent climate changes increase flood risk by typhoons and storms. For instance, tropical storm "Ondoy" in 2009 caused large flooding over a wide area of Metro Manila due to the heavy rainfall at once-in-180-year level, resulting in serious damages to economic activities and loss of lives.

Therefore, flood risk management for the Pasig-Marikina River that runs through Metro Manila is more important and urgent than ever for the government of the Philippines.

(2) Development Policies for Disaster Risk Reduction and Management (flood Risk management) in the Philippines and the Priority of the Project

The Philippine Development Plan (PDP 2011-2016) addresses, as one of the principal issues, flood risk reduction by maintaining watersheds and providing efficient and adequate infrastructure. The strategies mentioned in the development plan include the prioritized construction of flood management structures in highly vulnerable areas, the application of Climate Change Adaptation (CCA) in the planning and design of flood management structures and the implementation of both structural and non-structural measures for flood risk reduction and management. The implementation of the Project is consistent with the national plans and is prioritized under the country's investment plan.

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

The Government of Japan's Country Assistance Program for the Republic of the Philippines (June 2008) sets "Expansion of Basic Social Services (Improving the Living Conditions of the Poor)" as one of its priority

development issues, and as measures for "Protecting Life From Natural Disasters", it indicates support for the development, maintenance and management of flood control and sabo (erosion control) infrastructure in high priority sites. Under this program, JICA places its importance on both structural and non-structural measures to mitigate damages to be caused by natural disasters. In addition, Japan-Philippines Joint Statement announced in September 2011 has confirmed that the both countries will further promote bilateral cooperation in the field of disaster prevention and management.

Over 30 years, Japan has been continuing its supports for the Philippines' flood control measures in a wide range of areas, for example, the planning and implementation of flood control measure and technical cooperation for the central government agencies. Especially, for Metro Manila, starting with the Japanese ODA loan project "Manila And Suburbs Flood Control And Drainage Project" in 1973, JICA has a series of supports which contribute to enhanced safety against floods in the area.

(4) Other Donors' Activity

World Bank conducts the study on the "Master Plan for Flood Management in Metro Manila and Surrounding Areas". In addition, it approved development policy loan with catastrophe risk deferred drawdown option (Cat DDO) in September 2011. United Nations Development Programme and the Australian Agency for International Development support hazard mapping of the most vulnerable provinces to disasters (and plan to expand into Metro Manila and surrounding areas).

(5) Necessity of the Project

The Project implements Pasig-Marikina River channel improvement works in order to reduce flood risks at an earlier stage in Metro Manila which remains highly vulnerable to flood. This project is aligned with the Philippines' development policy and Japan and JICA's country assistance policies. Therefore, JICA's support to the Project is necessary and relevant.

3. Project Description

(1) Project Objectives

The Project aims to mitigate flood damage in Metro Manila caused by channel overflow of the Pasig-Marikina River by implementing river channel improvement works together with non-structural measures with flood risk management, thereby contributing to the sustainable urban economic development of Metro Manila.

(2) Project Site/Target Area

Metro Manila (Areas along Pasig-Marikina River)

(3) Project Components

1) Civil works (revetment works and river wall construction/repair works, dredging, dike construction and river wall construction for the lower Marikina River, etc.)
2) Consulting services (assistance in bidding procedure, construction supervision, assistance in formulation, introduction and operation of Non-structural Measures, etc.)

(4) Estimated Project Cost (Loan Amount):

13,809 million yen (Loan Amount : 11,836 million yen)

(5) Schedule

March 2012 – September 2017 (67 months) The completion of the civil works (August 2016) shall be the project completion.

(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: Metro Manila Development Authority (MMDA） and the related LGUs

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

1) Environmental and Social Consideration

① Category: A

② Reason for Categorization: The project is likely to have significant adverse impact due to its characteristic under the JICA guidelines for environmental and social considerations (April 2010).

③ Environmental Permit：The Environmental Impact Statement (EIS) Report on this project was approved by DENR in June 1998 and Environmental Compliance Certificate (ECC) was issued for this project.

④ Anti-Pollution Measures: Part of dredged material will be packed in geo-textile tubes which dewater the soil and will be reused at site. The filtration effect of the geo-textile ejects only clean water from the tube while keeps the soil and the contaminations, if any, remain inside. Also dredged materials will be mixed with a small portion of fixture to immobilize the contaminants and then reused to fill up lowland other than the project areas. Silt protector sheet will be used to minimize the diffusion of pollution, if any, generated in dredging works. In addition, drainage discharged during processing dredged material will be disposed to meet the water quality criteria. Due to the above measures, no significant adverse impact on environment is expected.

⑤ Natural Environment：The project area is in and near the river that flows through the urbanized areas, not in or near a protected area like a national park. In addition, the environmental monitoring in the Pasig-Marikina River Channel Improvement Project Phase II has not found any rare species. Thus the projects are expected to cause little adverse environmental impacts.

⑥ Social Environment: This project requires resettlement of 204 persons, which will be conducted in accordance with the procedures stipulated in law and regulations in the Philippines and Resettlement Action Plan (RAP). At public consultation meetings with stakeholders during the RAP preparation, the outlines of the Project, compensations and assistance, resettlement schedule, monitoring plan and grievance redress mechanism were explained. No objection to the Project was heard during the consultation meetings.

⑦ Other/Monitoring：During the construction, the Executing Agency will monitor resettlement, water quality/flow of the Pasig-Marikina River, aquatic organisms, noises, vibrations, air quality, dredged material and underground water in disposal site for dredged materials. In addition, the related organizations will conduct monitoring to confirm if the project is in compliance with the terms of the ECC. After the service is started, the Executing Agency will monitor aquatic organisms in the Pasig-Marikina River and underground water in disposal site for dredged materials.

2) Promotion of Poverty Reduction：The unemployed residents in and near the Project Site will be preferentially hired for the construction, and thus, increase in job opportunity for the residents is expected.

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.)：Gender perspective will be included in the planning and implementation of non-structure measure (hazard map etc.).

(8) Collaboration with Other Donors: JICA has provided technical input to the study on Master Plan for Flood Management in Metro Manila and Surrounding Areas by the World Bank and continues cooperation with the World Bank.

(9) Other Important Issues：

1) Due to the characteristics of the strata and environmental considerations to the disposal of dredged material, Japanese technologies are planned to be utilized to revetment works and reuse of dredged material.
2) Period to the commencement of construction will be shortened by the detailed design (JICA Grant).

4. Targeted Outcomes

(1) Quantitative effects

1) Performance Indicators (Operation and Effect Indicator)

Indicators	Return Period	Original for the whole Project (Yr 2010)	Original for Phase III (After completion of Phase II)	Target (Yr 2018) (2 years after completion of Phase III)
Annual maximum flow at the monitoring point (m3/s) (※2)	-	-	-	-
Annual highest water level at the monitoring point (m) (※2)	-	-	-	-
Annual maximum damage (million peso)	2 years	2,526 (Approx.4,572 mil yen)	2,088 (Approx.3,779 mil yen)	1,116 (Approx.2,020 mil yen)
	5 years	17,244 (Approx.31,212 mil yen)	15,809 (Approx.28,614 mil yen)	1,201 (Approx.2,174 mil yen)
	10 years	31,314 (Approx.56,678 mil yen)	25,437 (Approx.46,041 mil yen	21,130 (Approx.38,245 mil yen)
	30 years	80,573 (Approx.145,837 mil yen)	67,893 (Approx.122,886 mil yen)	66,282 (Approx.119,970 mil yen)
Annual maximum inundated area (km2)	2 years	1.2	1.0	0.5
	5 years	19.5	17.9	1.4
	10 years	24.0	19.5	16.2
	30 years	42.0	35.4	34.6

※1: Original and target are calculated for the whole area that the Project covers.

※2: Annual maximum flow and annual highest water level at the monitoring point are monitoring indicators.

＜Reference＞

In addition, as reference data on impacts, Gross Regional Domestic Product (GRDP)[1] in National Capital Region (NCR) will be checked before and after the project implementation. Since GRDP is highly susceptible to external factors, it is used for reference only.

2) Internal Rate of Return:

Based on the conditions indicated below, Economic Internal Rate of Return (EIRR) is 45.7%.

【EIRR】

Cost: Project cost (excluding tax), O&M cost

Benefit: Mitigated damages

Project Life: 50 years

[1] GRDP in NCR as of 2009 (1985 as the base year) is 465,689 million peso.

(2) Qualitative Effects

Improvement of living environments in the areas along Pasig-Marikina River, improvement of business environments in Metro Manila, enhancement of aesthetic view along Pasig-Marikina River, enhancement of awareness of people in Metro Manila on flood risk management, improvement of flood evacuation activities, enhancement of technical capacity of the Executing Agency regarding flood management, adaption to climate change.

5. External Factors and Risk Control

Delay in project implementation due to natural disasters, flood beyond the planned level

6. Lessons Learned from Past Projects

Findings from the past flood risk management projects indicate that 1) technical assistance is important for more effective and efficient structural measure, 2) due preparation of land acquisition and coordination during implementation period are necessary for smooth implementation of the Project, and 3) the central government should play a role, where necessary, for the efficient operation and maintenance by LGUs.

Since the Project is a flood risk management project in Metro Manila where flooding results in serious damages to economic activities and loss of lives, the structural measure as well as planning and implementation assistance for the non-structure measure (hazard map, etc.) in consulting service are implemented. Since a large scale resettlement is expected, JICA has been strengthening its cooperation with related organizations from the project formulation stage through the preparatory study etc . During the project implementation, information campaign which is planned as one of non-structure measures will be held for the stakeholders including affected people to understand the resettlement. In addition, since MMDA and LGUs are responsible for operation and maintenance, cooperation among the related organizations will be strengthened, for instance, monitoring on operation and maintenance through the flood risk management committee to be established by the related governmental organizations (central and local).

7. Plan for Future Evaluation

(1) Indicators to be Used

1) Annual maximum flow at the monitoring point (m3/s)
2) Annual highest water level at the monitoring point (m)
3) Annual maximum damage (million peso)
4) Annual maximum inundated area (km2)

(1) Timing

2 years after the completion of the project

END