

Ex-Ante Evaluation
Southeast Asia Division 5, Southeast Asia and Pacific Department,
Japan International Cooperation Agency

1. Basic Information

Country : Republic of the Philippines

Project : Cavite Industrial Area Flood Risk Management Project

Loan Agreement : November 13, 2017

2. Background and Necessity of the Project

- (1) Current State and Issues of the Development of the Disaster Risk Reduction and Management Field (Flood Measures) in the Philippines and the Priority of the Project

The Republic of the Philippines (hereinafter called Philippines) is one of the countries that are hit by the highest number of natural disasters in the world. In particular, floods frequently occur due to typhoons or rainstorms, resulting in serious damage to assets, human lives, and economic activities. Notwithstanding, insufficient measures are taken in many river basins because the budget and labor are limited, so many districts suffer serious flood damage every year. The Philippines faces challenges in the expansion of basins subject to flood prevention projects and the efficient execution of projects.

Cavite Province (area: 1,447.5 km², population: 3.7 million), situated next to the southern part of the Manila metropolitan area, is one of the most highly populated provinces and boasts remarkable economic growth. The province has 32 industrial parks with 933 companies (186 Japanese-owned companies account for about 20%). Since the downstream area of the San Juan and other rivers running through the province is lowland, the rivers and drainage channel have low flood downflow capabilities. In recent years, houses and industrial parks have been submerged due to flooding every two years.

The Philippine government announced the Philippine Medium-Term Development Plan (2017-2022) setting forth reducing the vulnerability to natural disaster risks and making the local community safe and secure as one of the key measures. Meanwhile, to adapt to climate change according to the Philippine Strategy on Climate Change Adaptation (2010-2022), the government aims to reduce risk and vulnerability by constructing appropriate infrastructure. The Cavite Industrial Area Flood Risk Management Project (hereinafter referred to as “the Project”) is considered as a preferential undertaking consistent with the measures mentioned above and a public investment program under the control of the Philippine government (2017-2022).

- (2) Japan’s and JICA’s Cooperation Policies in the Disaster Risk Reduction and Management Field (Flood Measures) and the Priority of the Project

The Country Assistance Policy for the Philippines (April 2012) defines

“overcoming vulnerability and stabilizing bases for human life and production activity” as an important field to give support to “the improvement of both “hard” and “soft” infrastructures to address issues related to natural disasters and environment.” Moreover, the JICA Country Analysis Paper for the Philippines (November 2014) determines that properly mitigating disaster risk and minimizing the resultant damage are challenges, with “overcoming vulnerability” as a priority. JICA provides support from the perspective of both hardware (promoting the construction of disaster risk reduction infrastructures) and software (strengthening the systems including disaster risk reduction plans and evacuation measures), and thus the Project is consistent with this policy and analysis.

Since the 1970s, Japan has provided a wide range of support, such as drawing up and implementing flood action plans mainly for the Manila metropolitan area and large rivers, dispatching experts to help flood and erosion control engineers of the central authorities improve their capabilities, and promoting the execution of political actions with a disaster recovery stand-by loan. In the lowland area of Cavite Province, an investigation was made in 2009 to assess comprehensive flood control measures. According to the results, a master plan was formulated for flood disaster prevention in the basins of the three rivers running through the province: the Imus, San Juan, and Canas, and a feasibility study has been carried out to determine preferential projects. In the Imus River basin, flood disaster prevention is underway through the Flood Risk Management Project (Cagayan, Tagoloan, and Imus Rivers) on which the Loan Agreement was signed in 2012.

(3) Other Donors' Activity

In September 2011, the World Bank determined the provision of the Disaster Risk Management Development Policy Loan. In addition, since 2017, the bank has cooperated with the Asian Infrastructure Investment Bank in giving a loan for renewing drain pumps in the Manila metropolitan area. The United Nation Development Plan and Australian Development Assistance Agency support the creation of hazard maps of provinces hit by many disasters.

3. Project Description

(1) Project Objective

The objective of the Project is to reduce flood damage to the province, particularly the area where industries are concentrated, by carrying out flood disaster prevention in the Cavite Province, thereby contributing to the sustainable and stable development of the region.

(2) Project Site/Target Area

San Juan River basin in Cavite Province (146.8 km² in area)

(3) Project Components

1) Civil engineering works

-Construction of the San Juan diversion canal (2.4 km long), the

Marimango diversion canal I (1.0 km long), and the Marimango diversion canal II (3.5 km long) as well as the repair of the Marimango drainage channel (2.0 km long) and the Rio Grande and Ylang Ylang Rivers (6.9 km in total).

-Development of resettlement site.

2) Consulting Service

Detailed design, tender assistance, construction supervision, support for planning and taking non-structural measures, environmental management and monitoring, and resettlement support and monitoring, etc.

(4) Estimated Project Cost

22,339 million yen (loan amount: 15,928 million yen)

(5) Schedule

November 2017 – October 2025 (96 months in total). Project Completion is defined as when the facility service is commissioned.

commencement date of service shall be the time of the Project's completion.

(6) Project Implementation Structure

1) Borrower: The Government of the Republic of the Philippines

2) Guarantor: None

3) Executing Agency: Department of Public Works and Highways (DPWH)

4) Operating and Maintaining Agency: The Cavite 1st Regional Office, DPWH, plays a key role in the maintenance of facilities under the supervision of the department and the 4A District Office having jurisdiction over the province.

(7) Collaboration and Division of Roles with Other Projects and Donors

1) Japan's assistance activities

A long-term expert in flood measures, who is dispatched from the Water and Disaster Management Bureau, MLIT, to DPWH long term, gives advice from the planning stage.

2) Other development partners' assistance activities:

None in particular

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

1) Environmental and Social Consideration

(i) Category: A

(ii) Reason for Categorization

The Project falls under the characteristics likely to exert influence listed in the JICA Guidelines for Environmental and Social Considerations,

promulgated in April 2010.

(iii) Environmental Permit

The environmental impact statement (EIS) report of the Project was approved by the Department of Environment and Natural Resources (DENR) in May 2002.

(iv) Anti-Pollution Measures

The quality of water will not degrade during work because the rivers are repaired during the dry season, the temporary closure of the rivers has a limited impact, and it is not expected to reduce the flow rate of the downstream area or to discharge a large amount of earth. Meanwhile, grit chambers and silt fences are used to prevent the water from being turbid. The Project or the surrounding local governments plan to reuse waste, provided that after checking whether the soil to be excavated or in the place to be dredged is polluted, the results show that the soil quality is suitable to reuse. If it is necessary to dispose of the soil to be excavated or dredged, the soil is to be used for the construction of a disposal plant on public land after conducting environmental assessment based on the domestic law. The effect of sediment at the mouth of the diversion canal on the landform during provision may be minimized through the regular removal of earth and the dredging of the river course.

(v) Natural Environment

The Project is not located in or near any sensitive areas such as national parks, and is expected to have minimal adverse impact on the environment. Planned measures include the application of a method that does not obstruct the flow of rivers and channels or the migration of fish; the design of a flood way to avoid the mangrove forest growing near the river mouth as much as possible; the afforestation of mangroves to compensate for cut ones; and the use of a work method of minimizing changes in bank slope.

(vi) Social Environment

The Project obliges 877 households to be relocated, so they move and their sites are acquired according to the Philippine procedures and the resettlement action plan meeting the requirements set forth in the JICA Guidelines. A meeting took place to give the residents to be relocated an outline of the Project, compensation, and an overview of available support. At the meeting, the residents requested development of the new resettlement site. Accordingly, it is carried out near to the project site for both formal and informal settlers.

(vii) Other/Monitoring

During work, DPWH monitors the water quality and waste in the area surrounding the project site in accordance with environment

management and monitoring plans. The department also monitors not only the progress of site acquisition and resettlement, but also livelihood recovery conditions. After the provision, the executing agency will monitor sediment at the diversion canal mouth.

2) Cross-cutting Issues:

The Project contributes to adaptation to climate change because it carries out flood disaster prevention in the region that is expected to suffer serious damage due to typhoons caused by such change.

3) Gender Category: [Gender Project] ■ GI(S) Gender Activity Integration Project

<Description of activities and reason for classification>

The Project aims at activities from a gender point of view as follows: improving the environment of flood shelters, encouraging women to participate in recovery and reconstruction from disasters, and helping women searching for jobs in the resettlement action plan (RAP).

(9) Other Important Issues

(i) The method under study for the Project is a combination of “hat-shaped steel sheet pile and H-shaped steel.” Japanese companies are good at its technology and process. Therefore, the Project is considered to contribute to their overseas development.

(ii) More than 180 Japanese-owned companies make inroads into Cavite Province with industrial parks including special economic zones. Since the Project has the effect of reducing the flood risk, the companies are expected to gain benefits directly and to increase their investment in the region.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator)

Indicator	Baseline	Target (2026) [Expected value 2 years after project completion]
Yearly maximum number of submerged houses (San Juan River basin)	7,032	0
Yearly maximum number of submerged houses (Marimango River basin)	1,207	0

Note: The San Juan or Marimango River basin is presumed to have heavy rain at a reoccurrence interval of 25 or 15 years, respectively.

(2) Qualitative Effects

The living and investing environments are improved, and adaptation to

climate change is attained.

(3) Internal Rate of Return

Based on the conditions indicated below, the economic internal rate of return (EIRR) of the Project will be 19.8%. No financial internal rate of return (FIRR) is specified because no income is obtained.

[EIRR]

Cost: Project cost (excluding tax), operation and maintenance expenses

Benefit: Money saved by a reduction in flood damage

Project Life: 50 years

5. Prerequisites / External Factors

(1) Prerequisites

Land acquisition and resettlement shall be carried out in a timely manner.

(2) External Factors

The Project shall not be delayed by natural disasters.

6. Lessons Learned from Past Projects

The ex-post evaluation of the loan assistance for the Philippines called “Flood Control Project in West Mangahan, Metro Manila” contains the lesson that running the Project smoothly requires coordination with the agency in charge of site acquisition and the proper management of the planned project site. In addition, it is necessary to show clear task allotment (including finance) to the local government responsible for operation and maintenance at an early stage.

The Project assumes 877 households to be affected, so it aims to strengthen the alliance with DPWH, local governments, and related organizations through a cooperation preparation survey, and to have talks with the residents to encourage stakeholders including influenced residents to deepen their understanding. In addition, DPWH and the local governments plan to sign a memorandum showing task allotment clearly because the latter is in charge of part of site acquisition, resettlement, and structure maintenance.

7. Evaluation Results

The Project meets not only the Philippine development issues and measures but also Japan’s and JICA’s assistance policy and analysis, and its objective is to reduce flood damage to the district in question, resulting in contributions to SDGs 11 and 13. Therefore, it is highly necessary for JICA to support the operation of the Project.

8. Plan for Future Evaluation

(1) Indicators to be Used

Same as 4. (1) - (3)

(2) Timing

Ex-post evaluation will be carried out 2 years after the completion of the Project.

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