

**1. Name of the Project**

Country: The Republic of Indonesia (Indonesia)

Project: Urban Flood Control System Improvement in Selected Cities (Phase 2)

Loan Agreement: March 31, 2020

**2. Background and Necessity of the Project**

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

The Republic of Indonesia (hereinafter referred to as “Indonesia”) is prone to floods, landslides, earthquakes, volcanic eruptions, or other natural disasters. According to the Ministry of Finance (hereinafter referred to as “MOF”), economic losses due to natural disasters (from 2000 to 2017) amounted to an average of 180 billion dollars per year. Of these, economic losses due to floods amounted to about 21%, and about 230,000 people suffered from the floods. Disasters may cause the stagnation of economic activities and damage to the lives of the people, and also contribute to economic and social losses, making disaster control measures an urgent priority in the country. The year 2017 saw 3,814 natural disasters (148% over the previous year) which was the largest number since 2000. Of these disasters, floods due to prolonged rainy seasons were the second highest, amounting to 784 or about 21% (a decrease of 5% over the previous year) of the total (sourced from the National Disaster Management Agency (hereinafter referred to as “BNPB”) statistics).

In recent years, we have seen significant changes in the annual amount of precipitation and rainfall patterns which are thought to be the result of global warming. With the increasing risk of climate change, there is concern of an increase in water-related disasters. Thus, there is a growing need for, as future flood control measures, implementing comprehensive measures that would combine measures for structures that should be taken immediately in highly flood-prone areas, and measures for non-structures related to developing and reviewing a flood control master plan and a flooding map for the entire river basin, establishing early-warning systems, conserving the river basins, upgrading river maintenance capabilities, and making the residents aware of these measures.

Under the current circumstances, however, flood control measures are preferentially implemented for major rivers in urban areas where the population, industry and assets are concentrated, and where flood damage has occurred or is likely to occur, while flood control measures for outlying cities tend to receive a lower priority. Thus, there is a need for medium-term flood control measures that would contribute to economic development in outlying cities, in addition to urban areas, through the process of developing the infrastructure in outlying cities and upgrading the capabilities of the River Basin Organization

(hereinafter referred to as the “BWS”).

Japan implemented the Flood Control Sector/Loan (L/A signed in 2009) (hereinafter referred to as “Phase 1”) for developing the infrastructure for river/flood control in the six major cities (including Padang, Palembang, Brangkal, Wonkromo, Gorontalo, and Manado) of Indonesia. This resulted in a reduction of flooded areas which produced good results, such as the utilization of previously flooded areas as local community spaces. However, there are still some problems, such as differences among the residents’ levels of disaster risk reduction awareness and the degree of penetration of this awareness. Targeting the major outlying cities in Indonesia which have recently suffered from major flood damage and will also likely suffer from the impact of disasters in the future, the Project as Phase 2 will develop an infrastructure for river/flood control and upgrade the BWS’s administrative capabilities, thereby mitigating the flood damage and enhancing its mid-term capabilities to deal with flooding risk.

## (2) Japan and JICA’s Policy and Operations in the Flood Control Sector

Japan’s Country Development Cooperation Policy for Indonesia (September 2017) singled out providing assistance for disaster risk reduction measures toward creating a safe and fair society in its priority area, “Assistance for creating a safe and fair society through well-balanced development”. JICA’s Country Analysis Paper for Indonesia (June 2018) also singled out measures against flooding as an important issue and went on to describe that cross-sectoral integrated water-resource management is required for both disaster risk reduction and adaptation to climate change. This project is consistent with these policies and analysis. In addition, Japan hosts the U.N. World Conference on Disaster Reduction and, as a country with developed disaster prevention, contributed to the development of the “Sendai Framework for Disaster Risk Reduction 2015-2030” by sharing knowledge and technologies at the third Conference held in March 2015, making disaster risk reduction measures one of Japan’s important fields of cooperation. Furthermore, from the viewpoint of upgraded disaster risk reduction capabilities, the Project will contribute to its goal of “ensuring peace and stability” in the “free and open Indo-Pacific”. The Project contributes to improving the living environment and economic infrastructure, thereby making a contribution to the achievement of Goal 9 (resilient infrastructure), Goal 11 (make cities inclusive, safe, resilient and sustainable), and Goal 13 (climate change and urgent response to its impact) of the SDGs.

## (3) Other Donors’ Activities

The World Bank has been implementing river development intended for flood control according to the “Jakarta Emergent Discharging Initiatives (JEDI)” (from 2011 to 2019) and the “Indonesia Disaster Resilience Initiatives Project (IDRIP)” (from 2019 to 2024). The Asian Development Bank has been providing assistance intended for river risk management in Banten and Ambon, Maluku, according to “River Basin Flood Management” (from 2016 to 2022). The Project has no overlap with the assistance extended by other donors.

### 3. Project Description

#### (1) Project Objective

The objective of the Project is to mitigate any flood damage and enhance the mid-term capabilities of dealing with flooding risk in major regional cities in Indonesia that are vulnerable to flood damage, by improving the flood control infrastructure, upgrading the administrative capabilities of river basin management offices, and raising people's awareness, thereby contributing to improving the living environment and economic infrastructure.

#### (2) Project Site / Target Area

Selected Cities and/or Provinces

#### (3) Project Components

##### 1) Overview of Entire Project Plan

The Project is implemented in the form of a Sector Loan. Pekanbaru (Riau Province, Sumatra), Padang (Western Sumatra Province), Jambi (Jambi Province, Central Sumatra), and Bima (Nusa Tenggara Province, Sumbawa), 4 cities in total, are planned to be selected as prioritized cities for the Project. In conjunction with the infrastructure development, the Project will upgrade the administrative capabilities of the BWS involved in the preparation of master plans and flooding maps. These sub-projects are subject to change according to the contents of the implementation plans prepared by the executing agency and the progress of the preparations.

##### 2) Civil Works

The sub-projects are planned to be implemented at present are as follows:

- Pekanbaru (one river): Installation of drain pumps, improvements to flood control basins, expansion of drainage ditches, improvements to bank protection, etc.
- Jambi (6 rivers, one lake): Improvements to flood control basins, expansion of drainage ditches, installation of drain pumps, etc.
- Padang (one river): Improvements to rivers, construction of dikes, improvements to bank protection, etc.
- Bima (two rivers): Improvements to rivers, construction of dikes, improvements to bank protection, etc.

##### 3) Consulting services

Detailed design review, tender assistance, supervision of construction, preparation and review of master plans, preparation of flooding maps, consideration of installing early-warning systems, enhanced notifications to residents, etc.

#### (4) Estimated Project Cost: 8,643 million yen (including the Japanese ODA loan: 7,299 million yen)

#### (5) Schedule

Scheduled from March 2020 to November 2025 (69 months in total). The Project completion is defined as the opening of facilities

#### (6) Project Implementation Structure

- 1) Borrower: The Republic of Indonesia
- 2) Executing Agency: Directorate General of Water Resources, Ministry of Public Works and Housing (hereinafter referred to as the “DGWR”.)
- 3) Operation & Maintenance System: The Project Management Unit established under the DGWR will be responsible for the entire project management, while the BWS which has jurisdiction over the area where the sub-projects are implemented will be responsible for the sub-projects.

(7) Collaboration with Other Donors

1) Japanese Donors’ Activity

The yen loan “Urban Flood Control System Improvement in Selected Cities” was implemented in March 2009. The Project described herein is positioned as Phase 2. In addition, the administrative capabilities of the BWS will be upgraded through the framework of training programs developed by the technical cooperation project “The Project on Capacity Development for River Basin Organizations in Integrated Water Resources Management in the Republic of Indonesia (Phase II)” (from January 2015 to January 2019). Furthermore, individual experts “Inclusive Disaster Risk Reduction Policy Advisers” (from September 2017 to June 2022) and “Integrated Water Resources Management Policy Advisers (September 2016 to June 2021) have provided indirect support for the formation of the Project and, in the implementation phase, will also provide support based on case examples and experience gained from flood control, and river improvement projects implemented in Japan.

2) Other Donors’ Activity

The Project has no overlap with the assistance extended by other donors.

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

1) Environmental and Social Consideration

1. Category: B
2. Reason for Categorization: The project is not located in a sensitive area, nor has it sensitive characteristics, nor falls it into sensitive sectors under the JICA guidelines for environmental and social considerations (April 2010) , and its potential adverse impacts on the environment are not likely to be significant.
3. Environmental Permit: All of the assessment of environmental impact (AMDAL) reports for the sub-projects related to the Project have already been approved.
4. Anti-Pollution Measures: Despite anticipated noise/vibration and an adverse impact on water quality, soil, and air quality during construction work, the applicable domestic standards in effect in Indonesia are assumed to be met through the measures taken by the contractor, including the installation of soundproof walls, waste treatment and the reuse of dredged soil, selection of a construction period during which the least amount of muddy water is discharged into rivers and drainage ditches (avoid the rainy season), water quality management by ensuring periodic cleaning and notifications of bans on disposal,

inspection and maintenance to prevent oil leaks from construction machines, and maintenance and servicing of heavy machinery to suppress exhaust emissions. Although an adverse impact of noise/vibration generated by the drainage pumps while in operation is anticipated in Pekanbaru, they will be mitigated by dissipating the vibrational energy and using devices that reduce the amplitude of noise and vibration.

5. Natural Environment: The project target area is an area surrounding the city center and is not a national park or other vulnerable area, or in their vicinity, and so adverse effects on the natural environment are assumed to be minimal.
6. Social Environment: Although the construction work in Padang is accompanied by the acquisition of a 2.34 ha site at the maximum and the relocation of 17 households or about 68 involuntary residents, such acquisition and compensation will be based on the residents relocation program developed according to domestic procedures and JICA guidelines. No opinions which oppose the implementation of the Project have yet been identified during the resident meetings. Regarding Bima, it has been confirmed that the relocation of 408 households in the Project's area was completed under the countermeasures for the flood occurred in 2016 by the local government before the Project starts.
7. Other/Monitoring: In the Project, the contractor will undertake the monitoring of noise/vibration, air quality, and water quality during the construction period. Land acquisition/compensation and impact of the usage following completion will be monitored by the DGWR and the BWS.

## 2) Cross-Cutting Issues

- ① Climate Change Measures: Through the development of human resources for flood control infrastructure and disaster risk reduction, the Project will contribute to the mitigation of flood damage which is anticipated to increase due to climate change.
- ② Participatory Development: Participatory activities to raise people's awareness of disaster risk reduction are planned to be carried out.
- ③ Consideration for Persons with Disabilities: If a water park is provided as part of a river improvement, the river development will be performed while keeping the barrier-free concept in mind. A slope, for example, is provided in the area from the protected bank to such a water park.

## 3) Gender Category: [N/A] GI (Gender Mainstreaming Needs an Assessment and Analysis Project)

<Details of Activities/Reason for Categorization> Although the preparatory survey examined gender mainstreaming needs, it did not result in the implementation of specific activities that contribute to gender equality or women's empowerment.

(9) Other Important Issues: None in particular

#### 4. Targeted Outcomes

##### (1) Quantitative Effects

##### 1) Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline (Actual value in 2016)	Target (2026) [Expected value 2 years after project completion]
Pekanbaru sub-projects		
Drainage ditch flow capability (m <sup>3</sup> /s) (10-year probable rain intensity)	Determined by the approval of sub-projects	40.36
Discharge for operating drainage pumps (m <sup>3</sup> /s)	1.5	6
Flooded areas (km <sup>2</sup> )	5.45	0
Padang sub-projects		
River flow capability (m <sup>3</sup> /s) (10-year probable rain intensity)	50	240
Flooded areas (km <sup>2</sup> )	10.9	0
Jambi sub-projects		
Drainage ditch flow capability (m <sup>3</sup> /s) (25-year probable rain intensity)	Determined by the approval of sub-projects	Tembuku river: 20.25 Asam river: 59.03 Lake Sipin: 8.02 Putri river: 6.08 Seringca river: 102.24 Beluran river: 16.42 Kenari Busahar river: 79.39
Flooded areas (km <sup>2</sup> )	14.9	0
Bima sub-projects		
River flow capability (m <sup>3</sup> /s) (25-year probable rain intensity)	Pedro river: 89 or less Murah river: 66 or less	Pedro river: 167.9 Murah river: 138
Flooded areas (km <sup>2</sup> )	2.24	0

##### 2) Impact

Mitigation of flood frequency and damage in the target area

##### (2) Qualitative Effects

Mitigation of the negative effects on health caused by floods and immersion, improved hygienic environment in surrounding areas, increased flood awareness for residents in surrounding areas,  
and upgraded flood management capabilities at the BWS.

### (3) Internal Rate of Return

According to the following preconditions, the Project's Economic Internal Rate of Return (EIRR) will be 15.8%. Since fee collection from users is not assumed, the Financial Internal Rate of Return (FIRR) will not be calculated.

[EIRR]

Costs: Project costs and maintenance/operation costs (excluding tax)

Benefits: Reducing the costs of damage caused by floods and immersion

Project Life: 50 years. Not calculated because no sub-projects have been identified.

## 5. External Factors and Risk Control

- (1) Preconditions: There will no significant changes in the land acquisition or the progress of resident relocation.
- (2) External Conditions: None in particular.

## 6. Lessons Learned from Past Projects

The ex-post evaluation of the yen loan for the Indonesia "Upper Citarum Basin Urgent Flood Control Project (I) (II)" identified delayed progress in the construction work caused by delayed land acquisition in the implementation phase ((1) prolonged period of price negotiations with landowners and (2) delayed budgetary requests). Considering that land acquisition is planned in conjunction with the river improvement, the Project will urge the BWS, local governments, and relevant agencies to strengthen their cooperation with each other, starting from the project preparation stage, and seek confirmation from the executing agency that they will implement sufficient courteous public consultations, in order to encourage all stakeholders including the affected residents to understand the project for consensus formation. In addition, at the project implementation stage, agreement will be sought from the executing agency to continually monitor the progress of land acquisition.

## 7. Results of Evaluation

The Project is in line with Indonesia's development subjects and policies, and with Japan's/JICA's cooperation policies/analyses, it develops the flood control infrastructure, upgrades the administrative capabilities of river basin management offices, raises residents' awareness, and thereby contributes to improving the living environment and economic infrastructure as well as the achievement of Goal 9 (resilient infrastructure), Goal 11 (make cities inclusive, safe, resilient and sustainable), and Goal 13 (climate change and urgent response to its impact) of the SDGs. In light of these advantages, the necessity to support the Project is high.

## 8. Plan for Future Evaluation

- (1) Indicators to be Used

As indicated in sections 4. (1) to (3).

(2) Timing

Three years after project completion (ex-post evaluation)

End