

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country : The People's Republic of Bangladesh

Project : Small Scale Water Resources Development Project (Phase 2)

Loan Agreement: June 29, 2017

Loan Amount : 11,853 million Yen

Borrower : The Government of the People's Republic of Bangladesh)

2. Background and Necessity of the Project

(1) Current State and Issues of Poverty Reduction and the Agricultural/Rural Development Sector in Bangladesh

In recent years, the People's Republic of Bangladesh has achieved steady economic growth, and the population of the poor has continued to decrease, but many people are still living below the poverty line, with 31.5% of its total population or approximately 48 million classified as poor (World Bank, 2010). In particular, the poverty rate for rural areas, where about 70% of the population lives, is 35.2%, higher than that for urban areas, which stands at 21.3%. Agriculture, forestry and fisheries account for 15.6% of total GDP but absorb a large percentage of labor, with 47.5% of the population working in these industries (World Bank, 2010). There are growing income disparities between urban and rural areas as the country's economy develops, and against this backdrop, the Government of Bangladesh is prioritizing the increase of income in rural areas in its policies and is working to reduce poverty in these areas. In Bangladesh, one of the world's leading rice consumers, rice production is directly linked to the lives of people in rural areas and constitutes an important factor for the stability of the country.

A look at agricultural productivity in Bangladesh indicates that the acreage for boro rice, a staple wet crop, nearly doubled, and its production tripled, from 1990 to 2015. This is mainly attributed to the spread of groundwater irrigation technology after the Green Revolution in 1970. In addition, the introduction of high-yielding varieties helped to increase rice yields per unit area, which in turn led to a steady increase of annual rice production. Combined with other efforts, this allowed the country to achieve nearly 100% food self-sufficiency. However, due to factors such as decreases in agricultural land caused by the progress of industrialization and urbanization (about 20% decrease from 1989 to 2012), growing demand for food due to population increase, and vulnerability to climate change, the government is strongly required to continue improving the productivity of limited arable land going forward in order to ensure the food security that it has identified as one of its goals.

In the agricultural sector of Bangladesh, the effective use of groundwater as water resources is widespread as 95% of irrigation uses groundwater, but there is concern about decreases in usable groundwater mainly because of a decline in groundwater levels from excessive pumping and the exhaustion of the water supply source from lack of maintenance and

management. Under such circumstances, the policy of the government is to actively make the most of surface water, but it is not easy to do so effectively because Bangladesh consists of alluvial plains with over 90% of its land only nine meters above sea level at most. In addition, floods frequently occur—partly due to effluents from neighboring countries—inundating about one-fourth of the land every year during the rainy season, which sees about 80% of the annual precipitation, while the amount of rainfall decreases substantially during the dry season, causing water shortages. In order to use land effectively, stabilize agricultural production, and improve agricultural productivity, it is necessary to prevent agricultural land and the like from being flooded during the rainy season, and develop water resource management facilities to effectively utilize the rainwater from the rainy season by storing it for the dry season on a nationwide scale. These facilities will also contribute to diversifying farmers' means of livelihood such as fish farming operations and increasing their income.

(2) Development Policies for Poverty Reduction and the Agricultural/Rural Development Sector in Bangladesh and the Priority of the Project

In its 7th Five-Year Plan (FY2016/17–FY2020/21), the Government of Bangladesh identifies "substantial poverty reduction" and "comprehensive growth" as its priority goals and emphasizes the efficient and effective use of surface water as a strategy to ensure food security, stabilize food production, and adapt to climate change. In addition to strengthening agricultural production capabilities, the government also lists the reinforcement of farming and farmers' access to markets, and the increase of farmers' income as important goals. In its National Agriculture Policy (2013), the government stated that it would strive to achieve sustainable agricultural growth, reduce poverty, and ensure food security mainly by improving grain productivity.

This project aims to improve agricultural productivity and increase farmers' income by taking measures such as providing the following: infrastructure for small water sources management; agri-business-related facilities and equipment; rural infrastructure for agricultural product distribution; and training and technical support for Water Management Cooperative Associations. The project is positioned to contribute to the realization of the policies and strategies that the government has prioritized. It covers the following four divisions of Bangladesh: the Dhaka, Mymensingh, and Sylhet Divisions, all of which were supported by the Japanese ODA loan for the Small Scale Water Resources Development Project, a past project that was approved in 2007; and the Rangpur Division, which has the highest poverty rate in the country and has been newly added in order to spread the achievements of the past project more widely.

(3) Japan and JICA's Policy and Operations in Poverty Reduction and the Agricultural/Rural Development Sector

In the Country Assistance Policy for Bangladesh (June 2012), the Japanese government listed "overcoming the vulnerability of society" as a priority area, and in the JICA Country Analysis

Paper for Bangladesh (April 2013), it stated that it would work to reduce poverty with particular emphasis on agricultural and rural development and that by developing water resource management facilities, roads, markets, etc., it would provide assistance in reducing poverty in rural areas, improving farmers' income, and increasing productivity and produce a wider variety of crops in order to ensure a stable food supply. This project is in line with the policies and the analysis.

Previous support activities include the above-mentioned Small Scale Water Resources Development Project for the Local Government Engineering Department, Ministry of Local Government, Rural Development and Cooperatives (LGED). In this project, 242 sub-projects were implemented, leading to results such as increasing the income of farmers who benefited from the project and ensuring food security mainly by increasing agricultural production volume by about 20–50%. Other assistance programs included Technical Assistance Related to the ODA loan for Participatory Water Resources Management through Integrated Rural Development (2012–2017), and the dispatch of Rural Infrastructure Development & Management Advisors to LGED at the policy level, which has continued since 2000.

(4) Other Donors' Activity

The Asian Development Bank (ADB), the Dutch government, and other donors implemented Phase 1 (1996–2002) and Phase 2 (2002–2009) of the Small Scale Water Resources Development Sector Project, and its successor the Participatory Small Scale Water Resources Sector Project (2010–2018) is currently being implemented. These projects have helped to develop small scale water resource management facilities, strengthen the ability of the executing agency, and establish sustainable water resource management with participation by residents. The JICA project will collaborate on the aforementioned projects to address various initiatives, particularly in the areas of reinforcing the maintenance and management systems, revising the operational guidelines, and ensuring gender mainstreaming within LGED. This project avoids overlapping the sub-project areas supported by other donors and their assistance programs during sub-projects selection.

(5) Necessity of the Project

As mentioned above, this project is in line with Bangladesh's development challenges and policies, as well as with the assistance policies and the analysis of the Government of Japan and JICA. It also contributes to improving the production of agricultural products, increasing farmers' income, and reducing poverty through the development of water resource management facilities, thus contributing to the achievement of the first goal of the Sustainable Development Goals (SDGs), which is to end poverty in all forms everywhere, and the second goal, which seeks to end hunger, achieve food security, and improve nutrition and promote sustainable agriculture. In addition, it contributes to the achievement of the fifth goal of SDGs, which is to achieve gender equality and empower all women and girls, by promoting the participation of women in the decision-making process of union activities and supporting

women in improving their income and finding employment. Furthermore, it is expected to contribute to the achievement of the sixth goal (Ensure availability and sustainable management of water and sanitation for all) and thirteenth goal (Take urgent action to combat climate change and its impacts) of SDGs by developing water resource management facilities to ensure the efficient and effective use of surface water as measures against water shortages, floods and other disasters caused by climate change. Therefore, the necessity for JICA to support the Project is substantial.

3. Project Description

(1) Project Objective

The objective of the Project is to increase agricultural production and farmers' income by providing infrastructure for small scale water resources management, agri-business-related facilities/equipment and rural infrastructures, and training and technical supports to Water Management Cooperative Associations in 4 Divisions namely Dhaka, Mymensingh, Sylhet and Rangpur of the country, thereby contributing to poverty reduction and food security as well as social economic development.

(2) Project Site / Target Area

Dhaka, Mymensingh, Sylhet and Rangpur Divisions

(3) Project Components

- 1) Construction of small scale water resources management facilities (flood control, drainage improvement, surface water storage, irrigation), agri-business-related facilities /equipment and rural infrastructures (rural road etc.)
- 2) Consulting Services (subproject selection assistance, bidding assistance, construction supervision, etc.), Institutional Development assistance of Water Management Cooperative Associations (WMCAs) and others

(4) Estimated Project Cost (Loan Amount)

16,117 million Yen (Loan Amount: 11,853 million Yen)

(5) Schedule

June 2017- March 2024 (82 month in total) The Project will be completed when all facilities are placed in services (March 2023).

(6) Project Implementation Structure

- 1) Borrower: The Government of the People's Republic of Bangladesh
- 2) Executing Agency: Local Government Engineering Department (LGED) under Local Government Division, the Ministry of Local Government, Rural Development and Cooperatives

3) Operation and Maintenance System: The operation and maintenance of the Project is conducted by LGED and WMCA

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

1) Environmental and Social Consideration

① Category: FI

② Reason for the Categorization: The Project is classified as Category FI, according to the JICA Guidelines for Environmental and Social Considerations (April 2010), since its subprojects cannot be specified prior to JICA's approval of funding and are expected to have a potential impact on the environment.

③ Other/Monitoring:

In the Project, while receiving support from consultants engaged through the Japanese ODA loan, LGED will classify the categories of sub-projects in accordance with the Bangladeshi legal system and the JICA Guidelines for Environmental and Social Considerations published in April 2010 and take the actions required for the category concerned. Category A projects are not included in the sub-projects.

2) Promotion of Poverty Reduction: The Project is to increase agricultural production and farmers' income by providing infrastructure for small scale water resources management and others, and training and technical supports in the rural areas with high poverty rate, thereby contributing to poverty reduction.

3) Promotion of Social Development: The Project will include activities such as training to promote women participation in decision making process, supports for income generation activities for women, employment promotion for poor women, formulation of gender action plan, planning and implementation of subproject development through participatory approach and others.

(8) Collaboration with Other Donors

JICA will work with ADB and other donors, which help LGED develop small scale water resources, to address initiatives such as strengthening LGED's ability to carry out projects, improving maintenance and control systems, revising the operational guidelines, and ensuring gender mainstreaming within LGED, mainly by sharing the progress in project implementation and the results of technical support.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline*1 (Actual Value in 2017)	Target (2025) *1 【Expected value 2 years after project completion】
Gross Annual Average Farm Income((Yen)/Year/Ho usehold)	(to be calculated)	(to be calculated)
Cropped area benefited by the Project (ha)	(to be calculated)	(to be calculated)
Number of farm beneficiaries benefited by the Project (Household)	(to be calculated)	(to be calculated)
Rate of WMCA formulated (%)	(to be calculated)	(to be calculated)
Collection Rate of Operation and Maintenance Cost (%)	(to be calculated)	(to be calculated)
Production volume of cereal (t/year)	(to be calculated)	(to be calculated)
Production volume of fish (t/year)	(to be calculated)	(to be calculated)

*1: Data to be collected at baseline survey for around 20 subprojects after subprojects are identified

2) Internal Rate of Return

The Economic Internal Rate of Return (EIRR) and the Financial Internal Rate of Return (FIRR) are not calculated since subprojects cannot be identified prior to the start of the Project.

(2) Qualitative Effects

- 1) Strengthening of resident associations through water management association activities and awareness increase for maintenance of the facilities
- 2) Improvement of nutrition condition in rural areas through agriculture and fishery development
- 3) Poverty reduction, food security and social economic development in the targeted areas (livelihood improvement of farmers, increase of income source for women, etc.)

5. External Factors and Risk Control

- (1) Preconditions: None
- (2) External Factors: None

6. Lessons Learned from Past Projects

(1) Lessons Learned from Past Projects

JICA implemented the earlier Small Scale Water Resources Development Project in Bangladesh. In the process to examine its sub-projects several times at the local and central levels, it fully analyzed details of the work performed and matters to be examined in each step and learned that it is necessary to prevent the overlapping of examinations and shorten the screening process.

It has also been confirmed that providing agricultural guidance to farmers and appropriate maintenance and management training helps to realize the effects of water resource management facilities and contributes to the improvement of farmers' income.

Furthermore, the results of the ex-post evaluation of the Agrarian Reform Infrastructure Support Project in the Republic of the Philippines revealed that the livelihood of farmers was improved by helping to develop infrastructure related to the rural economy such as irrigation facilities and agricultural roads linked to markets as well as by supporting rural farmers in strengthening their organizational abilities from the viewpoint of comprehensive rural development.

(2) Application of Lessons Learned to the Project

The policy of the Project is to take measures such as revising the project guidelines created and applied in past projects in order to clearly define details of the work in each step of the sub-project examination process, as well as to strive to achieve greater project efficiency for seamless implementation mainly by strengthening the staff competency of related agencies.

Another policy is to help to realize the effects of water resource management facility development through the provision of farming guidance and appropriate maintenance and management training to farmers, to review the content of training for water management unions in earlier projects so that such reviews lead to the improvement of farmers' income, and in particular, to improve the guidance programs and their implementation methods by making them more practical (such as offering field exercises and interactive workshops), thus ensuring that water resource management facilities produce even greater results. Moreover, when conducting training, JICA plans to encourage LGED's training units to cooperate with other government agencies such as the Department of Agricultural Extension and the Department of Fisheries to effectively use their expertise, training curriculums, and facilities and improve the training system so that training is provided effectively down to the farmer's level.

7. Plan for Future Evaluation

- (1) Indicators to be Used: Gross Annual Average Farm Income ((Yen)/Year/Household), Cropped area benefited by the Project (ha), Number of farm beneficiaries benefited by the Project (Household), Rate of WMCA formulated (%), Collection Rate of Operation and Maintenance Cost (%), Production volume of cereal (t/year), Production volume of fish (t/year)

- (2) Timing: Two years after the project completion