Japanese ODA Loan

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: The People's Republic of Bangladesh

Project: Energy Efficiency and Conservation Promotion Financing Project (Phase 2)

Loan Agreement: May 29, 2019

2. Background and Necessity of the Project

(1) Current State and Issues of the Power Sector and the Priority of the Project in Bangladesh

In Bangladesh, the power supply has not kept pace with the sharp increase in electricity demand accompanied by recent stable economic growth and progress in industrialization. While electricity demand was 12,644 MW in FY2016/17, the maximum electricity supplied at peak hours was 9,479 MW (Bangladesh Power Development Board "Annual Report," 2016/2017 Bangladesh Fiscal Year).

Although the power demand is estimated to increase by 9.3% per annum over the next decade, the output of domestic natural gas, which accounts for approximately 60% of total power generation, will hit a ceiling. Therefore, it is an urgent requirement to develop power sources and diversify energy sources. Under these circumstances, the Government of Bangladesh has taken measures to enhance the electricity supply system through the diversification of energy sources and the improvement of power generation facilities. At the same time, it is imperative to promote energy conservation policies in order to control the electricity demand at peak hours for meeting the power generation capacity.

The Government of Bangladesh formulated the Sustainable and Renewable Energy Development Authority (hereinafter referred to as "SREDA") Act in 2012 and established SREDA under the Ministry of Power Energy and Mineral Resources. Under the Bangladesh Energy Efficiency and Conservation Master Plan up to 2030(2016), SREDA has set a target of reducing energy consumption (energy intensity) per GDP by 20% by 2029/30 Bangladesh Fiscal Year compared to 2013/14, and has strengthened the development and implementation systems of related laws and regulations. To achieve the target, however, it is essential to take measures to promote the introduction of energy-saving equipment.

(2) Japan and JICA's Cooperation Policy in the Power Sector of Bangladesh and the Priority of the Project

The JICA Country Analysis Paper for Bangladesh (May 2014) identifies a priority target for implementing cooperation to accelerate economic growth. The target aims to reduce energy consumption by expanding and improving the efficiency of electricity supply, which is an essential infrastructure but is in serious shortage and a bottleneck for all economic activities. The Energy Efficiency and Conservation Promotion Project (Phase 2) (hereinafter referred to as the “Project”) is, therefore, consistent with the policy and analysis. In addition, Japan’s Country Assistance Program for Bangladesh (February 2018) sets one of the priority areas as being to accelerate economic growth, and identifies the shortage of power as the largest barrier to economic development.

The Project also aims to promote the introduction of energy-saving equipment in Bangladesh through concessional loans. Furthermore, it is expected to contribute to achieving SDGs goal 7, “Ensure access to affordable, reliable, sustainable, and modern energy for all,” SDG 9, “Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation,” and SDG 13, “Take urgent action to combat climate change and its impacts.”

JICA has been supporting the stable supply of electricity in Bangladesh through the following yen-loan projects: New Haripur Power Plant Development Project (approved in FY2007 and FY2008), Bheramara Combined Cycle Power Plant Development Project (approved in FY2010 and FY2013), National Power Transmission Network Development Project (approved in FY2013), Matarbari Ultra Super Critical Coal-Fired Power Project (I) and (II) (approved in FY2014 and FY2016), Dhaka-Chittagong Main Power Grid Strengthening Project (approved in FY2015), Dhaka Underground Substation Construction Project (approved in FY2017), and others.

In addition, in order to promote energy conservation on the demand side, JICA supported the establishment of energy conservation policies and systems through a technical cooperation entitled the Project for Development of Energy Efficiency and Conservation Master Plan (January 2014 – February 2015). Furthermore, with regards to the promotion of introduction of energy-saving equipment through concessional loans proposed in the master plan, JICA has provided support by using policy-based financing, which is characterized by concessional interest terms and simple loan application procedures, through the Energy Efficiency and Conservation Promotion Project (hereinafter referred to as the “Phase 1 Project”).

The support has promoted the introduction of energy-efficient equipment,

which is expected to achieve a reduction in electricity consumption of 43,721 MWh per year (the sum of the estimated value for subprojects with L/Cs established as of the end of December 2018) raised awareness of the promotion of investment in energy-saving equipment in Bangladesh. Based on the results of the Phase 1 Project, the Project will expand concessional loans to support the promotion of further investment in energy-saving equipment, in order to achieve the target of reducing energy intensity in the Energy Efficiency and Conservation Master Plan. The Project is positioned as a priority project in the power sector in Bangladesh.

(3) Other Donors' Activities

The Asian Development Bank (ADB) provides assistance concerning planning of measures for renewable energy and provision of two-step loans for energy conservation projects. The World Bank provides assistance for disseminating knowledge on energy diagnosis. The United Nations Development Programme provides assistance for establishing energy-saving standards and incorporating the labeling system for home appliances. The German Development Corporation provides assistance for developing and implementing energy conservation laws and regulations.

3. Project Description

(1) Project Objective(s)

The objective of the Project is to facilitate installation of energy efficiency and conservation equipment in Bangladesh as well as supporting the promotion of policy in energy efficiency and conservation by the Government of Bangladesh by extending concessional loans and other support, thereby securing the balance between energy supply and demand and contributing to the reduction of greenhouse gas.

(2) Project Site / Target Area

Throughout Bangladesh

(3) Project Component(s)

a) Loans for promoting energy-saving: Financing for private businesses in the industrial and commercial sectors to incorporate energy-saving equipment through financial institutions in partnership with SREDA

b) Consulting services: Technical assistance for loans to promote implementation of the Project and loans to promote incorporation of energy-saving equipment

(4) Estimated Project Cost (Loan Amount)

22,040 million Yen (Loan Amount: 20,076 million Yen)

(5) Schedule

May 2019 - October 2025 (78 months in total). The Project will be completed when the JICA's final disbursement is made (October 2025)

(6) Project Implementation Structure

1) Borrower: The Government of the People's Republic of Bangladesh
2) Guarantor: N/A
3) Executing Agency: Sustainable and Renewable Energy Development Authority (SREDA), Infrastructure Development Company Limited (IDCOL) and Bangladesh Infrastructure Finance Fund Limited (BIFFL)
4) Operation and Maintenance System

(7) Cooperation and Sharing of Roles with Other Donors

1) Japan's Activity

The Energy Efficiency and Conservation Promotion Project (approved in FY2016, Loan amount: 11,988 million yen, Cooperation period: May 2016 to August 2022) has been implemented as a prior project.

2) Other Donors' Activity

N/A

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

1) Environmental and Social Consideration

① Category: FI

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

③ Environmental Permit: In the Project, IDCOL and BIFFL will receive support from consultants hired through the Project, classify each sub-project according to the laws and regulations of Bangladesh and the JICA Guidelines for Environmental and Social Considerations (April 2010) and take necessary measures depending on the category. None of the sub-projects will fall under the Category A.

2) Cross-Cutting Issues

The Project, which supports the promotion of energy consumption efficiency,

is consistent with COP 21 and other global efforts to reduce greenhouse gas emissions. The project contributes to mitigating climate change.

3) Category of Gender: GI (Gender mainstreaming needs assessment and analysis project)

Activities / reason for Classification:

Although the preparatory survey examined gender mainstreaming needs, it did not result in the implementation of specific activities that contribute to gender equality and women's empowerment.

(9) Other Important issues

N/A

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator)

Indicator	Baseline (Actual Value in 2019)	Target (2027) [Expected value 2 years after project completion]
Amount of sub-project approval and total loan amount (million yen)	-	19,000
Rate of receivables in arrear (amount basis) (%)	-	To be set upon start of the Project
Rate of receivables in arrear (count basis) (%)	-	To be set upon start of the Project
Rate of energy efficiency and energy-saving (%) (achievement rate by targeted energy-saving equipment of loan target)	-	To be set upon completion of sub-loan

(2) Qualitative Effects

Stabilization of energy demand and supply, improvement of energy-saving awareness in the industrial sector and improvement of the screening capacity of the executing agencies (SREDA and intermediary financial institutions)

(3) Internal Rate of Return

The Financial Internal Rate of Return (FIRR) and Economic Internal Rate of Return (EIRR) were not calculated because it is difficult to identify sub-projects before implementing the Project.

5. Preconditions / External Conditions

(1) Preconditions

N/A

(2) External conditions

N/A

6. Lessons Learned from Past Projects

From the ex-post evaluation of the Small and Medium Scale Industry Promotion Program (BPIMB, BITMB, MIDF1[1]) in Malaysia (evaluated in 1998), it has been learned that it is effective for each executing agency to set the transaction amount flexibly according to the financial demand and scale of the targeted end users in cases where several executing agencies (financial institutions) are involved in development loans. Based on what has been learned, the Project will not previously determine the credit line for the two executing financial institutions (IDCOL and BIFFL), but will set the transaction amount of each financial institution according to the loan condition, thereby ensuring competitiveness.

In addition, the ex-post evaluation of the Micro, Small, and Medium Enterprises Energy Saving Project (Phase 2) in India (evaluated in 2016) suggested the necessity of an appropriate review of the energy-saving equipment list. Specifically, items can be added to the list or deleted if they are no longer required, in light of the needs of end users. In the Project, SREDA, which is in charge of overall supervision and coordination of the Project, will form the Technical Advisory Committee to receive advice on the preparation and revision of the list of equipment subject to the loan.

7. Evaluation Results

The Project is consistent with Bangladesh's development issues and policies and with the development cooperation policies and analyses of the Government of Japan and JICA. The Project improves energy use efficiency in Bangladesh, where energy demand and supply is in a serious condition, by promoting the introduction of energy-saving equipment through concessional loans, thereby contributing to SDGs goal 7, "Ensure access to affordable, reliable, sustainable,

[1] BPIMB, BITMB, MIDF stand for "Bank Pembangunan & Infrastruktur Malaysia Berhad", "Bank Industri & Teknologi Malaysia Berhand" and "Malaysia/Malaysian Industrial Development Finance Berhand" respectively.

and modern energy for all," SDGs goal 9, "Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation," and SDGs goal 13, "Take urgent action to combat climate change and its impacts." Thus, the necessity for JICA to support the Project is substantial.

8. Plan for Future Evaluation

(1) Indicators to be Used

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

(2) Timing

Ex-post evaluation: Two years after the project completion