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
Loan Agreement: June 29, 2016
Loan Amount: 11,988 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 the Power Sector in Bangladesh

The People's Republic of Bangladesh has been achieving steady economic growth of approximately 6% in average. The demand of electric power and primary energy has rapidly increased and the supply and demand gap has expanded. While the demand for electric power in 2015 was 9,000MW, supply remained 8,177MW (Bangladesh Power Development Board (BPDB), August 2015). It is estimated that the production of domestic natural gas, which accounts for approximately 50% of primary energy and 60% of generated energy, will decline from the peak in the second half of 2016 (Data Collection Survey on Revision of Power System Master Plan 2010 (2015)). Under such situation, the government of Bangladesh has taken measures to enhance the supply system through diversification of energy sources and improvement of power generation facilities, which is however insufficient for eliminating the supply and demand gap, and it is imperative to save energy in order to control the demand.

(2) Development Policies for the Power Sector in Bangladesh and the Priority of the Project

The People's Republic of Bangladesh developed the Sustainable and Renewable Energy Development Authority (SREDA) Act in 2012, and established SREDA under the Ministry of Power, Energy and Mineral Resources. Improvement of energy efficiency is prioritized as an important issue in The Seventh Five Year Plan (FY2015/16 - FY2019/20) continuously from the previous five year plan. SREDA is currently trying to develop energy-saving regulations and enhance the comprehensive project implementation structure. Based on the consensus that it is necessary to motivate incorporation of energy-saving facilities in the industrial sector and throughout the country, it is intended to promote incorporation of energy-saving facilities, raise the awareness on the economic effect of reducing production costs as well as the effect of energy-saving by making use of low interest loans, and thereby establish an environment for promoting energy-saving measures. The Energy Efficiency and Conservation Promotion Financing Project (hereinafter referred to as "the Project") is intended to contribute directly to establish such environment.

(3) Japan and JICA's Policy and Operations in the Power Sector

The Country Assistance Policy for Bangladesh (June 2012) prioritizes drastic improvement of electric power and energy (increase of supply and improvement of efficiency) as an urgent issue because the issue stands in the way of economic and industrial activities. Analyzing

“stable supply of electricity” as a priority issue in JICA Country Analysis Paper for Bangladesh (April 2013), JICA is working to establish a policy and system of energy-saving measures through technical cooperation for development planning The Project for Development of Energy Efficiency and Conservation Master Plan in Bangladesh (January 2014 through February 2015). The Project is one of the measures suggested in the master plan and is consistent with the policy and analysis of the Japanese Government and JICA.

JICA’s assistance in the power sector includes loan assistance through Renewable Energy Development Project (2013), Matarbari Ultra Super Critical Coal-Fired Power Project (2014) and Natural Gas Efficiency Project (2014) as well as technical cooperation by dispatching Power Sector Adviser (2014).

(4) Other Donors’ Activities

The Asian Development Bank (ADB) provides assistance concerning planning of measures for renewable energy. The World Bank provides assistance for conversion from incandescence lamps to compact fluorescent lamps for domestic lighting. The United Nations Development Programme provides assistance for establishing energy-saving standards and incorporating the labeling system for home appliances.

(5) Necessity of the Project

The Project is consistent with the assistance policy and analysis of the Government of Japan and JICA, and the policy of the Government of Bangladesh prioritizes improvement of energy efficiency as an urgent issue. Therefore, it is highly necessary and relevant for JICA to implement the Project.

3. Project Description

(1) Project Objective

The Project is intended to improve efficiency of energy by promoting incorporation of energy-saving equipment through two-step concessional loans in Bangladesh where the energy demand is pressing due to the economic growth, and thereby contribute to stabilize the demand/supply balance and reduce greenhouse gas.

(2) Project Site / Target Area: Throughout Bangladesh

(3) Project Components

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)

13,089 million Yen (Loan Amont: 11,988 million Yen)

(5) Schedule

June 2016 - November 2022 (78 months in total). The Project will be completed when the JICA’s final disbursement is made (November 2022).

(6) Project Implementation Structure

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

2) Guarantor: None

3) Executing Agencies: Sustainable and Renewable Energy Development Authority (SREDA), Infrastructure Development Company Limited (IDCOL) and Bangladesh Infrastructure Finance Fund Limited (BIFFL)

4) Operation and Maintenance System: SREDA will be in charge of development of project planning, supervision of the entire Project, listing of relevant equipment items, renewal, etc. SREDA has the sufficient capacity as it has secured human resources through dispatch of experienced persons from other ministries and government offices who are familiar with energy-saving. The executing financial institutions in partnership (IDCOL, BIFFL) will be in charge of financing to end-users. IDCOL has implemented Japanese ODA loan project Renewable Energy Development Project by a two-step loan, and BIFFL has implemented Japanese ODA loan Foreign Direct Investment Promotion Project. Therefore, both of them are competent to continue similar loans after the Project.

(7) 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 Other / Monitoring: 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) Promotion of Social Development

① Gender perspective

Gender category: Gender mainstreaming needs assessment and analysis project

Reason for categorization: Gender measures, gender considerations in similar projects and impacts of men and women on the Project have been discussed and confirmed with the Bangladesh government. Therefore, the Project is categorized as gender mainstreaming needs assessment and analysis project.

(8) Collaboration with Other Donors: GIZ supports SREDA for development and enforcement of the Energy-saving Act and its provisions, the energy management/diagnosis program and the home appliance labeling program. In order to avoid overlapped assistance but to create synergy, frequently exchange opinions with GIZ through the executing agency SREDA.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline (Actual Value in 2015)	Target (2024) 【Expected value 2 years after project completion】
Amount of sub-project approval and total loan amount (million yen)	-	9,978
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
Greenhouse gas reduction (CO2 equivalent tons/year)	-	To be set upon completion of sub-loan
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) Impact (Operation and Effect Indicator)

Indicator (unit)	Baseline (Actual Value in 2015)	Target (2024) 【Expected value 2 years after project completion】
Reduction of energy consumption (oil equivalent tons/year)	-	To be set upon completion of sub-loan

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.

(2) Qualitative Effects

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

5. External Factors and Risk Control

N/A

6. Lessons Learned from Past Projects

(1) Lessons Learned from Past Projects

From the ex-post evaluation of Small and Medium Scale Industry Promotion Program (BPIMB, BITMB, MIDF[1])" in Malaysia (1998), it has been learned that it is effective for each executing agency to adapt flexibly to the financial demand and scale of the targeted end-users instead of applying the same project scale in case that several executing agencies (financial institutions) are simultaneously involved in development loan through the banking system.

From the evaluation of past similar projects in the power sector in the Socialist Republic of Vietnam, it has been learned that it is necessary to improve the transparency and accountability of funding while simplifying the screening procedure and it is imperative to establish standards for selecting sub-projects in order to prevent funding for inappropriate sub-projects.

(2) Application of Lessons Learned to the Project

The Project is to improve the access to sub-loans by not limiting the project scale of the two executing financial institutions and not setting any upper limit for individual funds.

The Project makes a screening manual as stated above, and selects sub-projects based on the list of energy-saving appliances and equipment (specifications) indicating the financing standards in the Project.

7. Plan for Future Evaluation

(1) Indicators to be Used:

1) Amount of sub-project approval and total loan amount (million yen)
2) Rate of receivables in arrear (amount basis) (%)
3) Rate of receivables in arrear (count basis) rate (%)
4) Greenhouse gas reduction (CO2 equivalent tons/year)
5) Rate of energy efficiency and energy-saving (%) (achievement rate by targeted energy-saving equipment of loan target)
6) Reduction of energy consumption (oil equivalent tons/year)

(2) Timing: Two years after project completion (ex-post evaluation)

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