

Ex-Ante Evaluation

1. Name of the Project

Country: The People's Republic of Bangladesh

Project: Sirajganj Combined Cycle Power Plant Project

Loan Agreement: March 29, 2017

Borrower: Sembcorp North-West Power Company Ltd (This company is SPC which was established for this project)

2. Background and Necessity of the Project

While Bangladesh has been confronting the surge of power demand (annual average growth 9% between 2005 and 2014) amid the recent stable economic growth (6% between 2005 and 2015), energy supply availability is still less than the demand. Even though the peak demand is 10,238 MW in 2014, actual achievement rate remains 7,817 MW which means that the peak demand merely covers only 76%.

According to Power System Master Plan 2010, the demand for power in Bangladesh will increase 10% annually. Therefore power development is one of critical issues to address. In addition, in order to deal with the shortage of domestic natural gas as well as importing LNG for near future, the country needs to urgently improve generation efficiency through introducing high efficiency equipment of power system.

In the nation's "Seventh Five-year Plan (2016-2020)", Government of Bangladesh (GoB) has designated the energy sector as one of the crucial sectors for economic growth, and sets a goal that generation of electricity to be increased to 23,000 MW by 2020. Moreover, GoB has set a target of reducing greenhouse gas emission by 5% below BAU (Business As usual) by 2030 in COP 21, and in order to meet this target, GoB puts the priority on the construction of combined cycle power plant in action plan. Bangladesh Climate Change Strategy and Action Plan also points that infrastructure development for improving generating power as well as transmission power distribution has been put in place to evolve low carbon development.

Japan's Country Assistance Policy for the People's Republic of Bangladesh (June, 2012) identifies "Accelerate inclusive economic growth and eradicate poverty toward a middle-income country" as one of the priority areas. In order to ensure sustainable power supply, Government of Japan puts emphasis on assisting in developing new power generations and proper maintenance and rehabilitation of existing power stations and transmission/distribution facilities. JICA's Country Analysis Paper for the People's Republic of Bangladesh (April, 2013) identifies "Economic Infrastructure Development" as one of the priority areas, and indicates that JICA will work on the power development with a purpose of solving the power demand gap.

As discussed above, to support GoB efforts, this Project is in line with policies of Bangladesh and the development issues as well as the assistance policies of Japan and JICA. In addition, this will also contribute to Sustainable Development Goals

(Industry, innovation and infrastructure) therefore, it is highly necessary for JICA to implement this Project.

3. Project Description

(1) Project Objective

The objective of this Project is to achieve stable power supply by constructing a combined cycle power plant in Sirajganj, thereby mitigating the severe power shortage as well as contributing sustainable economic growth in Bangladesh.

(2) Project Site/Target Area

Sirajganj District in the Division of Rajshahi, Bangladesh

(3) Project Component (s)

This Project consists of the construction and operation of a combined cycle power plant (414 MW) and affiliated facility.

(4) Schedule

Project Approval has been achieved in March, 2017, and Completion and Commercial Operation will be started in 2019 (scheduled)

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

1) Environmental and Social Consideration

a) Category: A

b) Reason for Categorization: The project falls into the thermal power sector under the JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Promotion of Poverty Reduction: None

3) Promotion of Social Development: None

(6) Collaboration with Other Donors: co-finance with IFC

(7) Other Important Issues: None

4. Targeted Outcomes

As quantitative effects maximum power (MW), availability factor (generating end) (%) power generation efficiency (%) and power generation at sending end (GWh/year) will be monitored. As qualitative effects, stimulation to the economic activity is expected as a result of improving access to power.

5. External Factors and Risk Control

None

6. Lessons Learned from Past Projects

(1) Lessons Leaned from Past Projects

The ex-post evaluation of “Mombasa Diesel Generating Power Plant Project” in Kenya demonstrates that appropriate supports from the manufactures enhance the sustainability of power projects.

(2) Application on Lessons Leaned to the Project

In this Project, the Long Term Service / Supply Agreement (LTSA) by main supplier of power plant would be provided for efficient maintenance and support system.

7. Plan for Future Evaluation

(1) Indicators to be used

- 1) Maximum Power (MW)
- 2) Availability Factor (generating end) (%)
- 3) Power Generation Efficiency (%)
- 4) Power Generation at Sending End (GWh/year)
- 5) FIRR

(2) Timing: 2 years after project completion

END