

**Ex-Post Project Evaluation 2021
Package III-6 (Bangladesh, etc.)
Evaluation Reports**

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JAPAN INTERNATIONAL COOPERATION AGENCY

**OPMAC Corporation
Ernst & Young ShinNihon LLC**

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1. Project Description



Project Location



FSRU off the coast of Moheshkhali

1.1 Project Outline

Against the background of Bangladesh's economic growth and industrialisation, electricity and energy supply did not keep pace with demand, and in 2015, actual supply fell short of potential demand for both electricity and natural gas. While electricity and energy demand was expected to increase further over the next decade, domestic natural gas production was expected to peak in 2016 and then decline. Therefore, the promotion of primary energy imports, including Liquefied Natural Gas (hereinafter referred to as “LNG”) imports, was identified as one of the priority issues to meet the widening gap between natural gas supply and demand.

The project was designed to improve the tight primary energy supply and demand situation in Bangladesh by chartering and operating the country’s first Floating Storage and Regasification Unit (hereinafter referred to as “FSRU”) of LNG to supply natural gas, and by constructing related facilities off the coast of Moheshkhali, in the south-east of the country, thereby contributing to the promotion of economic growth.

2. Outline of the Evaluation Study

2.1 External Evaluator

Tomoo Mochida, OPMAC Corporation

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: November 2021 - February 2023

Duration of the Field Study: March 12, 2022 - April 1, 2022

3. Results of the Evaluation

The project was designed to improve the tight primary energy supply and demand situation in Bangladesh by chartering and operating the country's first FSRU of LNG to supply natural gas, and by constructing related facilities off the coast of Moheshkhali, in the south-east of the country, thereby contributing to the promotion of economic growth. The results of the ex-post evaluation were summarized below.

Relevance : The Government of Bangladesh aimed to become a middle-income country by 2030 at the time of appraisal and is aspiring to enter a status of a high-income country by 2041 at the time of the ex-post-evaluation. Therefore, the importance of natural gas in energy as a driving force for development remained unchanged for the Government of Bangladesh. With a predicted decline in domestic natural gas production, the commencement of LNG imports was perceived to contribute to the smooth supply of natural gas and the diversification of primary energy. This policy direction has not changed and is consistent with development needs. However, there is room for improvement in the project design in terms of how the project objective is described and indicators are set.

Coherence: The project was consistent with one of the areas specifically emphasized in Japan's aid policy, which focuses on "accelerating economic growth that all people can benefit from, with the aim of becoming a middle-income country" and which places power and energy shortages as the biggest obstacle to economic growth in Bangladesh. The project was found to be well associated with other JICA-assisted projects from the perspective of internal coherence and was identified as being effectively associated with another FSRU project and the government's project to construct a pipeline to transport regasified gas from the perspective of external coherence with projects funded by organizations other than JICA. Concrete results were also confirmed from the latter perspective.

Efficiency: Although the project period was slightly longer than planned, the project scope was achieved as originally planned and the project costs were within the plan.

Effectiveness: The volume of LNG imported and the level of the maximum regasification capacity were achieved by Excelerate Energy Bangladesh Limited (a special purpose company established for the construction of FSRU-related facilities and the operation of the FSRU, hereinafter referred to as "SPC"), the borrower and implementing entity. The LNG import volume having been regasified at the equipment and facilities of the project accounts for a high percentage of the country's total LNG imports. These results are considered to be contributing to the improvement of primary energy supply and demand.

Impacts: Companies located in Chattogram (formerly Chittagong), where the survey was conducted, have experienced a stable gas supply with few interruptions since the start of the commercial operation of the FSRU. Although the number of companies surveyed is limited, the contribution of the project to an increase in fertilizer production and power generation volume of companies, one of the beneficiary groups of the project,

and the promotion of economic development can be seen. The use of natural gas, which has a relatively low environmental impact, has been pointed out as contributing to the mitigation of climate change, while the measurement of greenhouse gas (GHG) emissions throughout the lifecycle, including the liquefaction and transport stages, has also been discussed as an important aspect to be considered. Therefore, it is not possible to determine that the environmental impact is generally low. However, for Bangladesh, which relies heavily on coal and oil imports, the use of natural gas is linked to a reduction in the use of other fuels that emit GHGs. It is also considered that the negative environmental impact of project implementation was adequately addressed.

Sustainability: The operation and maintenance of the project after completion has been being carried out by the SPC, which was established for the construction of FSRU-related facilities and the operation of the FSRU. No issues affecting the sustainability of the project effects have been observed in the policy and system, institutional/organizational, technical and financial aspects including the current status of operation and maintenance. Regarding Environmental and social aspects, continued consultations will be held, and preventive measures have been taken with regard to risks related to the realization of development effects, such as country and political risks, production and operation risks, and market risks.

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1. Project Description



Wind power generation facility constructed by the Project (Source: Project materials prepared by the ACP investment team)



Low-temperature warehouse constructed by the Project (Source: Project materials prepared by the ACP investment team)

1.1 Project Outline

Asia Climate Partners LP (hereinafter referred to as the “Project” or “ACP”) was implemented to promote countermeasures against climate change based on the provision of investment to companies whose businesses can contribute to the environment and society, including renewable energy, clean technology, efficient use of natural resources, water resources, agriculture and forestry, thereby contributing to sustainable economic growth in Asian countries. ACP was established as a vehicle for the promotion of countermeasures against climate change in the Asian region by public institutions and private companies. The Asian Development Bank (ADB) and the ORIX Group are involved in the establishment and operation of one of the largest climate change fund to be established so far with a focus on the Asian region. The expectation was that the participation of JICA in ACP through collaboration with ADB will have the following benefits: provide additional impetus to the mobilization of private funds for climate change countermeasures in the Asian region; expand scope of investment through an increase in the investment quota; leverage the knowledge and local networks of JICA through existing cooperation schemes; and encourage the entry of Japanese companies with advanced technology into the target investment sectors.

2. Outline of the Evaluation Study

2.1 External Evaluator

Hideyuki Takagi, Yasuhito Haneishi (Ernst & Young ShinNihon LLC)

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: November 2021- February 2023

Duration of the Field Study: Not conducted (Instead, a desk evaluation was carried out, based on online interviews and indirect sources, such as company publications.)

2.3 Constraints during the Evaluation Study

In this ex-post-evaluation, the ability to collate data especially on the sustainability of the sub-projects was limited by the fact that the ex-post evaluation was carried out after the fund had been terminated. Because there was no longer any relationship with the fund, the investee companies were not obliged to cooperate with the evaluation process, and not least because they were under different ownership compared to when the fund's initial investments were made. The information obtained in this ex-post evaluation was limited compared to the information that would have been collected from a field survey.

3. Conclusion

The objective of the Project was to promote countermeasures against climate change based on the provision of investment to companies whose businesses can contribute to the environment and society, including renewable energy, clean technology, efficient use of natural resources, water resources, agriculture and forestry through investment to the fund composed of public and private sector experts who had specialist knowledge in the relevant sectors. The results of the ex-post evaluation were summarized below.

Relevance: In Asian countries, carbon dioxide emissions are an issue because the majority of power generation is based on fossil fuels, while demand for electric power continues to increase. Therefore, the practice of low-carbon growth has become an important element of global climate change countermeasures, including initiatives to secure electricity that do not depend on fossil fuels in Asian countries.

At both the time of appraisal and that of the ex-post evaluation, the Project has been consistent with the development plans for the promotion of renewable energy and the development needs of low-carbon growth in the target countries.

Coherence: At the time of appraisal, the Project was consistent with the aid policy of Japan and the development cooperation policy of JICA which both aim to achieve goals in the field of climate change. The Project has been consistent with efforts to reduce greenhouse gas (GHG) emissions based on the Paris Agreement which came into effect in 2016 and the provision of funds by developed countries for this purpose. It has also been consistent with efforts to achieve objectives such as Sustainable Development Goals 13 (“Take urgent action to combat climate change and its impacts”).

The Project was expected to support the mobilization of private sector funds for climate change countermeasures in the Asian region, and the Japanese government announced that it would continue to support public and private sector participation to meet the financial requirements for climate change

countermeasures. From the time of appraisal to the time of ex-post evaluation, the Project has been consistent with the needs for support through Private Sector Investment Finance.

Efficiency: In the Project, investments were made in the fields of clean energy, resource efficiency, and environmental business targeted by ACP. The outputs of the Project were significantly below the plan in terms of both the number of investments and the total amount invested and the actual period of the Project was significantly shorter than the planned period due to its early termination. The planned number of investments was 15 with a target fund size (total investment) of US\$750 million; the actual number of investments was four with a fund size of US\$447 million as measured by capital commitment (27% of the planned number of investments). The actual amount of capital contributions to ACP was US\$102 million, including fund management expenses, which represented approx. 14% of the targeted total investment amount of US\$750 million. Of the capital contributions to ACP, actual investments in companies totaled US\$68 million. The ratio of fund operating expenses to the investment amount was significantly ahead of the planned ratio, and the Equity IRR of the Project was significantly lower than expected. Therefore, the cost burden was extremely high compared to the investment returns.

Effectiveness: The effectiveness of the Project was evaluated mainly according to the effect indicators set for the promotion of climate change measures, namely the amount of “reduction of GHG emissions” and the amount of “newly generated renewable energy.” The degree of achievement was measured by comparing the total amount of target set for each sub-project, and total of actual value for each subproject at the time of ACP’s exit from the investment. The actual amount of “reduction of GHG emissions” was 3,419,000 tons of CO₂e against the target of 4,903,000 tons of CO₂e (achieved 70%), and the actual amount of “newly generated renewable energy” was 3,668 GWh against the target of 5,204 GWh (achieved 70%), both by implementing sub-projects including wind and solar power generation renewable energy projects.

Impacts: Regarding the impact of the Project, which is the sustainable economic growth or low-carbon growth of Asian countries, GHG emission reduction from the sub-projects are assumed as relatively high in comparison with the invested amounts although reductions from the sub-projects were small in proportion to the total GHG emission reduction in each target country. In addition, as a private equity fund¹ for climate change, ACP’s support included aspects such as environmental, social, and governance issues (hereinafter referred to as “ESG”) related initiatives in addition to support for the growth strategies of the investee companies. From a qualitative impact perspective, it is considered that ACP would contribute to the development of low carbon growth through supporting investee companies in the enhancement of their corporate value, including the improvement of their approach to ESG issues. No serious environmental and social issues were identified by the implementation of the Project, and measures were taken for matters

¹ An investment fund that mainly invests in the stocks of unlisted companies (Bank of Japan website: https://www.boj.or.jp/research/brp/ron_2020/ron201211a.htm/)

pointed out in the environmental and social impact studies.

Sustainability: As for the sustainability of ACP's invested sub-projects, there are differences in the status of each investee company with respect to institutional/organizational, technical and financial aspects, the current status of operation and maintenance, and preventative measures against risks, and there is room for improvement in some areas.

Although ACP had a list of various candidate projects for investment and was preparing to adopt these, few proposals were adopted by the investment committee following the change of investment committee members of the fund. With implementation of investments stalled, it became difficult to continue the activities of the fund. As a result, the fund was terminated early. ACP's period of operation was less than the originally planned which was more than a decade; therefore, the functions and effects of the fund in terms of investments and recovery of the investments were not sustained.

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