

Ex-Ante Evaluation (for Japanese ODA Loan)

Private Sector Investment Finance Division,

Private Sector Partnership and Finance Department, JICA

1. Name of the Project

Country: The Socialist Republic of Vietnam (Vietnam)

Project: Waste to Energy and Waste Treatment Project in Binh Duong Province

Loan Agreement: December 9, 2022

2. Background and Necessity of the Project

(1) Current State and Issues of the Waste Sector in Vietnam

With rapid urbanization and industrialization in recent years, Vietnam has seen sharp increases in waste generation in large cities. In 2019, Ho Chi Minh City produced 9,400 tons of general waste every day, the largest in the country, followed by Hanoi, with 6,500 tons per day. Despite growing amounts of waste collected in urban areas, faster growth of waste produced there and a shortage of incineration plants and intermediate treatment facilities, such as composting plants, hinder proper waste management. That has led to a shortage of landfill sites, illegal dumping, and other problems which cause public health problems, such as air and soil pollution.

These circumstances have prompted the government of Vietnam to pursue better waste management. In Decision of the Prime Minister No. 491, issued in May 2018, the government set national targets for waste management for the years between 2025 and 2050 with several numerical targets, for instance, in urban areas, more than 90% of the waste should be collected for proper treatment and less than 30% of the waste should be dumped directly into landfill sites by 2025. Decision of the Prime minister No. 9, issued in February 2019, has set the principle that the Ministry of Natural Resources and Environment should lead the national waste management policy. The Law on Environmental Protection, enacted in November 2020, includes major revisions in stipulations on waste management and development of the circular economy. As seen in these developments, improvements are being made to solve challenges in governmental activities for waste management.

Some technologies, such as waste incineration power generation, or waste-to-energy, are believed particularly helpful to achieve the national targets mentioned above. Decision of the Prime Minister No. 31, issued in May 2014, on the development of power generation projects using solid waste, includes stipulations

on waste-to-energy development plans, incentives for waste-to-energy operators, such as economically preferential treatments (taxation, etc.), the unit price for electricity sold and roles that should be played by agencies concerned. Circular of the Ministry of Industry and Trade No. 32 of, issued in October 2015, stipulates procedures for permits and licenses for selling and purchasing electricity produced by waste-to-energy operators and details of the pricing for such electricity.

This project is designed for Binh Duong Province, a bedroom town with a population of 2.5 million, located in the northeast of Ho Chi Minh City. The Province is a major industrial center, boasting 29 industrial parks and the second largest FDI inflow in the country as of 2020. Many Japanese companies have also established operations in the province. As of March 2021, the membership of the Binh Duong Province Division of The Japanese Business Association of Ho Chi Minh City (JBAH) amounts to 134 companies (Source: Consulate General of Japan in Ho Chi Minh City). Despite the Covid-19 crisis, Binh Duong Province saw its gross regional production grow 6.91% in 2020 from the previous year. The amount of waste generated there was also on the rise, as 2,661 tons of general waste was produced every day, second only to Ho Chi Minh City and Hanoi. Achieving proper waste management is an urgent task they have to address. The Province has several waste treatment facilities already in operation. However, their capacities fall short of fully satisfying the demand for waste disposal in the region. If the amount of waste dumped before proper treatment continues to grow, the risk will increase that the region may suffer from serious air and soil pollution.

The project is carried out in an existing waste treatment complex in Ben Cat, a district located in southern Binh Duong, to build and operate a composting plant (840 tons/day), a waste-to-energy incinerator (8,400 kg/hour; up to 200 tons/day), and a steam turbine (5 MW). It will enable the province to meet the growing demand for waste disposal in residential and industrial areas there. The new waste-to-energy plant will also be able to supply the amount of power the complex needs for its own use. The project can be positioned as a crucial one as it will help the Vietnamese government succeed in its medium- to long-term development strategy and reduce the risk of environmental pollution in the region, as well as establish a circular economy.

(2) Japan and JICA's Policies and Operations in the Waste Sector in Vietnam

Japan's Country Assistance Policy for the Socialist Republic of Viet Nam (December 2017) identifies "response to vulnerabilities" as a priority area, stating that effective action must be taken to tackle urban environmental problems brought to light amid the rapid urbanization and industrialization. The JICA Country Analysis Paper for the Socialist Republic of Viet Nam (June 2020) also analyzes that dealing with urban problems emerging together with the rapid progress of economic development and industrial concentration is a priority issue. Therefore, this project is consistent with the cooperation policy and analysis.

As part of the Project for Harmonized, Practical Legislation and Uniform Application of Law Targeting Year 2020 (2015 - 2020), a technical cooperation project it carried out for Vietnam, JICA supported the country in preparing the Law on Environmental Protection, enacted in November 2020. In addition, JICA has been encouraging the country to promote the circular economy and develop its waste sector under various projects, such as the Project for Capacity Development on Integrated Management of Municipal Solid Waste (2014 - 2018), another technical cooperation project, and the Establishment of Environmentally Sound Management of Construction and Demolition Waste and Its Wise Utilization for Environmental Pollution Control and for New Recycled Construction Materials in Vietnam (2018 -), a Science and Technology Research Partnership for Sustainable Development (SATREPS) project. JICA has also provided comprehensive support for Binh Duong Province, where this project is carried out, for development of its urban environments through the Southern Binh Duong Province Water Environment Improvement Project and its Phase 2, ODA loan projects approved in 2007 and 2012, respectively, for development of its sewer system, and the Water Supply Expansion Project in Binh Duong Province, an Private Sector Investment Finance approved in 2021 for development of its waterworks.

In the Basic Strategy of the Promotion of Environmental Infrastructure, which it announced in July 2017, the Ministry of the Environment of Japan positions Vietnam as one of the priority countries for introduction of waste-to-energy technologies in the waste and recycling sectors. At the fourth meeting of the Japan-Vietnam Environmental Policy Dialogue, held in March 2018, the two countries agreed to set up a joint committee, which met in January of the following year. As seen here, Japan and Vietnam are making steady progress in bilateral

cooperation in the environmental field. As a Climate Change Management Project, this program encourages green investment by businesses all around the ASEAN region. In this sense, it is also helpful to the Initiative on Overseas Loan and Investment for ASEAN, which then Prime Minister Abe announced at the Japan-ASEAN Summit in November 2019.

3. Project Description

(1) Project Objective

The objective of the project is to promote waste treatment helpful to the circular economy in Binh Duong Province, Vietnam, through the construction and operation of a composting plant and a waste-to-energy incinerator, thereby contributing to improvement of urban environmental hygiene in the province and the southern region and their sustainable economic growth.

(2) Project Site / Target Area

Binh Duong Province, Vietnam

(3) Project Beneficiaries

The general public and corporations in Binh Duong

(4) Project Component

Loans are provided to build a composting plant (840 tons/day), a waste-to-energy incinerator (8,400 kg/hour; up to 200 tons/day), and a steam turbine (5 MW) in an existing waste treatment complex in Binh Duong.

(5) Total Project Cost

32.9 million US dollars

(6) Project Implementation Structure

- 1) Borrower: Binh Duong Water Environment Joint Stock Company (BIWASE)
- 2) Executing Agency: BIWASE

(7) Environmental and Social Consideration / Cross-Sectoral Issues / Gender Category

1) Environmental and Social Consideration

(i) Category: B

(ii) Reason for Categorization: In light of the sectoral, project, and/or regional characteristics mentioned in the JICA Guidelines for Environmental and Social Considerations, announced in April 2010, it has been determined that this project will not result in serious undesirable impacts on the environment.

(iii) Environmental Approval: The domestic laws of this country require the preparation of an Environmental Impact Assessment (EIA) report for this project. The revised (second) version of our EIA was approved

in June 2022 by the Department of Natural Resources and Environment of Binh Duong Province.

(iv) Pollution Control: Impacts caused by the construction work and during operation to the air, water, waste and noise around the site will be mitigated through appropriate measures, such as maintenance of vehicles and machines, water sprinkling, fences, and limitation of construction work hours, so that they will be controlled to satisfy the environmental standards set domestically by Vietnam and internationally. Even when impacts from the existing plants are considered together, the air, water, waste and sound there can only be affected in limited circumstances.

(v) Natural Environment: The areas affected by the project are not designated as or near national parks or other sensitive areas, and the level of undesirable impact on natural environments is expected to be minimal.

(vi) Social Environment: No land acquisition or relocation will occur as this project is carried out in the site for existing waste treatment plants.

(vii) Other/Monitoring: Contractors, during the construction, and the environmental & social considerations manager of the borrower, during operation, will monitor air, water, waste and noise according to the environmental management plan.

- 2) Cross-Sectional Issues: This project contributes to the mitigation of climate change as it is carried out to build a composting plant for producing manure through recycling, a process helpful to reducing greenhouse gas emissions.
- 3) Gender Category: ■GI (Gender mainstreaming needs investigation and analysis item)

Reasons of categorization: Although the gender mainstreaming needs were studied and confirmed, actual engagements for gender equality and empowerment of female failed to be taken.

- 4) Other Important Issues: None in particular.

4. Targeted Outcomes

(1) Quantitative Effects

Indicator	Baseline (2021 results)	Target (2024) [two years after the project completion]
Waste treated (tons per day)	2,336	2,669
Compost produced (tons per day)	1,680	2,520
Generation capacity (MW)	Null	5
Power produced (MWh)	Null	17,520

(2) Qualitative Effects

Investments from overseas stimulate the industry in the province, and public health is improved as air, soil and other pollution is mitigated.

5. External Factors and Risk Control

None in particular

6. Lessons Learned from Past Projects

The ex-ante evaluation of "Establishment of Ecological Solid Waste Management in Three Cities," a technical cooperation project for the Republic of the Philippines, evaluated in FY2013, found some cases where, before building any facilities related to waste management and encouraging utilization of such facilities, they might need to develop relevant laws and regulations (e.g. standards for emissions into the environment and those for waste management facilities) and administrative procedures (e.g. delays in construction / land-use permission). Especially in developing countries, frequent revisions to laws and regulations have been observed, and thus, it has been learned that sufficient information collection from the phase of project formulation and continuous monitoring are required. The appraisal has confirmed that this project is implemented in an existing waste treatment complex, that it is equipped with inspection facilities, and that it is carried out in compliance with standards for emissions into the environment. In terms of revisions to regulations, it is confirmed that no specific risk has been detected.

7. Evaluation Results

This project is carried out to build and operate a composting plant and a waste-to-energy incinerator for promoting waste treatment helpful to the circular economy. It is consistent with challenges Vietnam is faced with in development and the cooperation policy and analysis of Japan and JICA. It should also contribute to SDGs Goals 7 (energy), 11 (sustainable cities), 12 (sustainable consumption and production), and 17 (partnership).

8. Plan for Future Evaluation

(1) Indicators to be used:

As shown in Section 4

(2) Timing:

Ex-Post Evaluation is scheduled for 2024.

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