

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: India

Project: Project for Upgradation of Environmental Management for Ship Recycling in Alang and Sosiya in Gujarat

Loan Agreement: September 15, 2017

Loan Amount: 8,520 million yen

Borrower: The President of India

2. Background and Necessity of the Project

(1) Current State and Issues of the Shipping (Shipbreaking) Sector in India

Ship recycling (shipbreaking), which constitutes a part of the shipping industry, involves dismantling end-of-life vessels and recycle iron and other recyclables generated in the process. India is the world largest ship recycling country in terms of ship demolitions; it scrapped 12,236,000 tons of vessels from 2014 to 2015, accounting for 26 percent of the global total (UNCTAD STAT). India, Bangladesh, Pakistan, and China represent 95 percent of global ship scrapping gross tonnage in 2015 (UNCTAD, Review of Maritime Transport 2016). Some 97 percent of ship recycling in India is conducted in Alang and Sosiya in the western state of Gujarat. In these two areas, about 130 recycling yards are lined up on a 9-km coastline. They are leased to private recyclers by the Gujarat Maritime Board, under whose jurisdiction ship recycling falls. They use a shipbreaking method called “beaching,” whereby they strand vessels on a shoal before cutting off and scrapping them. As discussed later, the practice of shipbreaking in India has three major vulnerabilities although some improvements have been made: (i) serious occupational accidents such as explosions and fires due to inflammable gases and falls from higher places; (ii) environmental pollution caused by discharged oils, chemicals and heavy metals from vessels; (iii) problems on labor health due to harsh labor environment.

The shipbreaking process generates not only iron scraps and other recyclables, but also general and hazardous wastes, which need to be disposed of appropriately. Waste generated in Alang and Sosiya is brought to the Treatment, Storage, Disposal Facility (TSDF) for incineration and disposal. The TSDF, however, needs improvement on several issues. For one thing, it is incapable of treating high-concentration oil due to inadequate oil processing equipment. The landfill capacity has little room for expansion, for another. The facility needs improvement if ship recycling is to be implemented in an appropriate and sustainable manner.

As ship recycling is a labor-intensive industry, a total of some 10,000 workers are engaged in dismantling work in the two areas, although the number fluctuates according to season as well as conditions in the shipping and iron scraps markets. These workers are all migrant workers from relatively poor states in eastern India. They are prone to be in conditions: unstable employment, dangerous working conditions, and the poor living environment. Their working and living conditions need to be improved in the context of protecting workers and increasing productivity.

(2) Development Policies for the Shipping (Shipbreaking) Sector in India and the Priority of the Project

Addressing the issues related to ship recycling requires not only ship recycling

facilities, but also ship management during the building and operational phases. This recognition prompted the International Maritime Organization (IMO) to take the lead in organizing an international debate on how to tackle these issues. As a result, the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (the “Ship Recycling Convention”) was adopted in 2009, an international framework the Government of Japan and others had put forward. To help reduce environmental stress and improve occupational safety, the Ship Recycling Convention stipulates (i) requirements relating to ships, (ii) requirements relating to shipbreaking facilities, and (iii) shipbreaking procedures. Once the Ship Recycling Convention enters into force, the parties to the Convention may not use shipbreaking facilities outside of their territories, and shipbreaking countries shall make arrangements to meet the requirements relating to shipbreaking facilities and follow the shipbreaking procedures as provided for by the Convention.

In response to the heightened international debate mentioned above, the Government of India enacted the Shipbreaking Code in 2013 to tighten related regulations and made other efforts to reduce environmental stress and improve occupational safety on its own. Although progress has been made, further improvement would be required to comply with the requirements for in the Ship Recycling Convention. Although India has not ratified the Convention, in view of the expected growth in demand for facilities that conform to the Convention after it enters into force, India expressed its intention to achieve an early conclusion of the Convention at the Japan-India Summit Meeting in November 2016. The Project for Upgradation of Environmental Management for Ship Recycling in Alang and Sosiya in Gujarat (the “Project”), which is designed to develop facilities and management that conform to the Convention in anticipation of its ratification, is considered to constitute an important policy of the Government of India.

(3) Japan and JICA’s Policy and Operations in the Shipping (Shipbreaking) Sector

Japan’s Country Assistance Policy for India (March 2016) identifies “supporting sustainable and inclusive growth” as one of its priority areas and states that Japan will promote cooperation in tackling environmental issues among other challenges. JICA Country Analysis Paper for India (March 2012) stresses the need to ameliorate water pollution and other environmental degradation, and identifies addressing environmental and climate change issues as one of the priority areas. Therefore, the Project is consistent with Japan’s assistance policy and analysis. It is worth adding that, by July 2017, Japan made a total of three ODA loan commitments in the shipping sector in India, totaling 12.7 billion yen.

(4) Other Donors’ Activity

No other donors have provided significant assistance to ship recycling in India. However, amid growing global concerns over about environmental pollution caused by ship recycling as well as occupational safety and health in such recycling, the International Labor Organization, IMO, and the United Nations Environment Programme developed ship recycling guidelines by the early 2000s. In 2009, the Ship Recycling Convention was adopted as mentioned earlier. With this in mind, the Project aims to improve related facilities so that they will meet the requirements as stipulated in the Convention.

(5) Necessity of the Project

The Project, which is designed to meet international requirements for ameliorating environmental stress and occupational safety and health relating to ship recycling, is built on the Indian government’s policies as well as Japan’s and JICA’s

assistance policy and analysis. It is expected to contribute to attaining two SDGs: Goal 8, which calls for productive employment and decent work for all; and Goal 14, which requires marine conservation for sustainable development. Therefore, JICA's support for the implementation of the Project is much needed.

3. Project Description

(1) Project Objective

The objective of the Project is to promote more environmentally sound and safer ship recycling in Alang and Sosiya area in Gujarat State, by upgrading ship recycling related facilities and introducing preventive measures which comply with international conventions, thereby contributing to environmental conservation and sustainable development of the industry in Gujarat State.

(2) Project Site/Target Area:

Alang and Sosiya, Gujarat State

(3) Project Components

- 1) Improving ship recycling yards (impermeable flooring, the introduction of large cranes)
- 2) Improving TSDf (the introduction of an incinerator, waste compactor, etc.)
- 3) Consulting services (detailed design, bidding assistance, construction supervision, training regarding the environment and occupational safety, environmental monitoring, etc.)

(4) Estimated Project Cost (Loan Amount)

12,404 million yen (loan amount: 8,520 million yen)

(5) Schedule

September 2017 - March 2024 (79 months in total)

The Project is considered completed when all the facilities are put into service (scheduled for March 2022).

(6) Project Implementation Structure

- 1) Borrower: The President of India
- 2) Guarantor: none
- 3) Executing Agency: Gujarat Maritime Board
- 4) Operation and Maintenance System

Private recyclers will operate the improved yards, while private contractors will manage final waste disposal sites and equipment. The yards and final waste disposal sites are traditionally operated by private contractors under the supervision of the Gujarat Maritime Board, leaving no technical concerns. When new equipment is introduced under the Project, necessary training will be provided to ensure proper operation. The improved yards will be maintained by private recyclers, who will be responsible for day-to-day maintenance, as well as by the Gujarat Maritime Board, which will take charge of large-scale repairs. The latter will secure the necessary budget, leaving no financial concerns. The financial sustainability of disposal sites and equipment will be secured in an arrangement whereby the Gujarat Maritime Board will supervise the private contractors so that they set the prices at

appropriate levels.

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

1) Environmental and Social Consideration

(i) Category: A

(ii) Reason for Categorization: The Project is deemed to be categorized as Waste management and disposal sector as defined by the JICA Guidelines for Environmental and Social Considerations, promulgated in April 2010.

(iii) Environmental Permit: An environmental impact assessment (EIA) report on the Project was completed in July 2016. In November 2016, the EIA report obtained Environmental Clearance (EC) and Coastal Regulation Zone (CRZ) clearance from the Ministry of Environment, Forest and Climate Change (MOEF&CC) of the Government of India.

(iv) Anti-Pollution Measures: During the construction work, the Project will take such measures as water sprinkling, wastewater treatment, and the regular maintenance of construction vehicles, so that the air quality, water quality, noise, and other levels will meet the emission and environmental standards of India. Measures to be taken after the facilities are put into service for protecting air quality, water quality, soil, and occupational safety will include mounting an exhaust gas treatment device onto the incinerators, regularly cleaning rainwater drains, and putting in place oil spill response kits, and providing occupational safety training.

(v) Natural Environment: The project target area is located in or near sensitive areas such as national parks. Thus, the adverse effects of the Project are expected to be minimal.

(vi) Social Environment: The Project will not involve land acquisition or resettlement because the associated work for improvement and other purposes will be within the existing facilities.

(vii) Other / Monitoring: Construction supervising consultants and building contractors will monitor the air quality, water quality, noise, waste, etc., during the construction work. After the facilities are put into service, the Gujarat Maritime Board, the operator of the TSDF, the ship recyclers' association, etc., will monitor the air quality, water quality, soil and occupational safety, etc.

2) Promotion of Poverty Reduction

The beneficiaries of the Project will include a large number of poor migrant workers from other states of India; the Project is designed as a "poverty-integrated" project.

3) Promotion of Social Development

Measure for Infectious Diseases Including HIV/AIDS: Because the Project is expected to involve many workers who will live alone during the construction work, a high risk of HIV/AIDS infection will be likely. Accordingly, cooperation with HIV prevention activities for workers is provided for in the bidding documentation for contractors.

(8) Collaboration with Other Schemes and Donors

None in particular

4. Targeted Outcomes

(1) Quantitative Effects

Outcomes (Operation and Effect Indicators)

Indicator	Baseline (Actual value in 2020)	Target (2024) [Expected value 2 years after project completion]
Percentage of ship recycling yards which obtain the statement of compliance (%)	0	100*
Concentration of PAHs ¹ in soil of intertidal zone (mg/kg) **	**	Maintaining the baseline value
Amount of waste water treated at TSDF (MT/year)	**	19,800
Number of casualties due to occupational hazards/accidents per unit of man-hours	**	0

* On the assumption that the Government of India concludes the Ship Recycling Convention.

** To be confirmed based on the result of a baseline survey after project commencement

(2) Qualitative Effects

Environmental improvements in the immediate and adjacent seashore, reduced health risks for workers, sustainable industrial development (ship recycling and related industries) in the state

(3) Internal Rate of Return

Based on the conditions indicated below, the economic internal rate of return (EIRR) of the Project will be 25.3 percent, and the financial internal rate of return (FIRR) will be 8.5 percent.

[EIRR]

Cost: Project cost (excluding tax), operation and maintenance expenses

Benefit: Additional production of steel, recycled from recycling yards that conform to international conventions

Project Life: 30 years

[FIRR]

Cost: Project cost, operation and maintenance expenses

Benefit: Revenues from yard rents, recycling charges, and equipment lease rentals, as well as shared profits from leasing activities

Project Life: 30 years

5. External Factors and Risk Control

- The shipping and scrap iron markets do not slump.

¹ PAHs are contained in oil. Their concentration serves as an indicator of the level of oil pollution in the intertidal zone.

- The Government of India's policy of working to conclude the Ship Recycling Convention does not change.

6. Lessons Learned from Past Projects

(1) Results of Evaluation of Similar Past Projects

An evaluation report of a similar project for India in the past states that although this particular project was originally aimed at building cutting-edge shipbreaking facilities designed to be eco-friendly and ensure workers' safety, the facilities actually built were not used as originally intended due in part to a slump in demand for ship recycling at that time. The report warns against making excessive capital investment.

(2) Lessons for the Project

A demand analysis was conducted to study appropriate levels of investment for the Project so that facilities will meet the requirements of the Ship Recycling Convention and at the same time maintain their competitiveness in the market, even when the demand for ship recycling slows down. For this reason, trends in the shipping and scrap iron markets were taken into account. Based on this analysis, the Project will be appropriately designed so as to avoid excessive investment that may result in higher recycling fees.

7. Plan for Future Evaluation

(1) Indicators to be Used

- 1) Percentage of ship recycling yards which obtain the statement of compliance (%)
- 2) Concentration of PAHs in soil of intertidal zone (mg/kg)
- 3) Amount of waste water treated at TSDF (MT/year)
- 4) Number of casualties due to occupational hazards/accidents per unit of man-hours
- 5) Economic internal rate of return (EIRR) (%)
- 6) Financial internal rate of return (FIRR) (%)

(2) Timing

Two years after project completion