Japanese ODA Loan

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: India
Project: Dedicated Freight Corridor Project (Phase 2) (II)
Loan Agreement: March 28, 2013
Loan amount: 136,119 million yen
Borrower: The President of India

2. Background and Necessity of the Project

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

The freight traffic in India is increasing at an annual rate of 15%, while the supply of railway transport infrastructure has remained at a flat 6% during the Eleventh Five-Year Plan (April 2007 through March 2012). As a result, the existing carrying capacity of railways is nearing saturation limits. Particular concern is the Railway route along the “Golden Quadrilateral” connecting Delhi, the country’s capital and largest consumption-production base with Mumbai and Kolkata, the eastern and western gateway ports of India, and Chennai in the southeast. The volume of freight traffic along the Golden Quadrilateral already accounts for roughly 65% of total freight volume in India. On the other hand, container cargo and volume of agricultural products and mining/industrial resources are expected to further increase in the future. To address the demand - supply gap, the country seeks to strengthen its transportation capacity through both increasing carrying capacity and introducing high-speed transport services.

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

The Government of India acknowledged the need to expand routes and introduce high-speed trains in order to facilitate freight transportation along trunk routes through the railway working group established during the formulation of the Twelfth Five-Year Plan (April 2012 through March 2017). In particular, the Plan emphasizes the early development of dedicated freight rail lines, and upgrading of passenger/freight trains along the routes between Delhi and Mumbai, and between Ludhiana, Delhi and Kolkata. The significance of this project was also mentioned in the Indian Railways Policy Paper Vision 2020 (targeting a term ending in 2020) issued by the Ministry of Railways in December 2009. Therefore, this project is highly relevant to Japan and JICA's policies.

(3) Japan and JICA’s Policy and Operations in the Railway Sector in India

The “Promotion of Economic Growth” is one of the prioritized areas in the Japan’s Country Assistance Program for India by the Government of Japan. Accordingly, JICA has set the “Promotion of Sustainable Growth through the Development Assistance to the Infrastructure” as a prioritized area. The Project is categorized under the “Improvement of Transport Networks” program within the said priority area. Thus, the assistance for the Project is consistent with Japan and JICA’s policy. And as part of this, JICA intends to support the development of trunk railways, roads, and other infrastructure mainly in India’s six major metropolitan areas, as well as in special economic zones, economic corridors, and other industrial clusters located along the Delhi-Mumbai industrial corridor, with the aim of promoting regional economic development, efficient distribution, and foreign capital, and ultimately contributing to expanding investment in India. The project, therefore, fundamentally conforms to JICA’s Japanese ODA Loan assistance policy. So far, Japan has approved 783.6-billion-yen supports for 24 projects in the country's railway sector under the yen loan scheme.

(4) Other Donors’ Activity

The World Bank (WB) is currently working on to assist the executing agency of the Project, Dedicated

Freight Corridor Corporation of India Limited (DFCCIL) for formulating a business plan as well as financing the Eastern Dedicated Freight Corridor. The Asian Development Bank (ADB) is currently working to assist Indian Railways in improving their equipment-based and operation-based services under a sector loan scheme.

(5) Necessity of the Project

As per demand forecast along the Delhi – Mumbai route, rapid growth is expected in container transportation between the international ports along the west coast and major cities in the inland area. Traffic volume along the Western Corridor reached 100% of track capacity in 2010, while the Eastern Corridor reached 120%. A material deficit in track capacity is expected, even if the Ministry of Railways implements its improvement plan on existing lines formulated before the 2006–2007 fiscal year, as volume against track capacity will reach 230% for the Western Corridor and 180% for the Eastern corridor during 2031–2032. Given the situation, as a successor program to Phase 1, this project aims to achieve effective freight transportation by enhancing transportation capacity. This will be done by constructing a new freight-only line along the Western Corridor along with high-speed and high-capacity locomotives. Therefore, the aim of the project satisfies the development policies of Indian government as well as the support policies of the Japanese government and JICA. Consequently, JICA's support for this project is highly necessary and relevant.

3. Project Description

(1) Project Objective

The objective of the Project is to cope with the increase of freight transport demand in India by constructing new dedicated freight railway system between Dadri-Rewari and Vadodara-Mumbai sections of the Western Corridor (Delhi-Mumbai), thereby promoting comprehensive regional economic development along the freight corridor, through improvement and modernization of inter-modal logistic system handling considerable freight traffic and poised for massive growth.

(2) Project Site/Target Area

The Dadri–Rewari section stretching through the Uttar Pradesh and Haryana states and the Vadodara–Mumbai section (Jawaharlal Nehru Port Trust (JNPT)) stretching through the Gujarat and Maharashtra states.

(3) Project Components

The project will construct new dedicated freight lines, install automated signal and communication systems, and introduce locomotives capable of high-capacity, high-speed transportation over some 550-km section (a 123-km Dadri–Rewari section stretching through Uttar Pradesh and Haryana state and a 427-km Vadodara–Mumbai (JNPT) section stretching through Gujarat and Maharashtra states).

1) Construction work (civil engineering, architecture, and track construction along approximately 550 km)
2) Procurement of electrical and mechanical, signal and telecommunication systems
3) Procurement of electric locomotives
4) Consulting services (e.g. design review, bidding assistance, project supervision, operation/maintenance, environmental management, resettlement plan implementation and management, public announcements, resident education, management improvements)

(4) Estimated Project Cost (Loan Amount)

426,020 million yen (Yen Loan Amount: 136,119 million yen)

(5) Schedule

Planned for implementation between July 2010 and March 2023 (total of 153 months). The project will be completed when the use of facilities begins (April 2018).

(6) Project Implementation Structure

1) Borrower: The President of India

2) Executing Agency: Ministry of Railways (MOR) and Dedicated Freight Corridor Corporation of India Ltd. (DFCCIL)

3) Operation and Maintenance System: DFCCIL (operation and maintenance of rails, signals, communications systems, etc.). Indian Railways (implementation of operation of freight transportation, including the maintenance of locomotives).

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

1) Environmental and Social Consideration

i. (a) Category: A

ii. Reason for Categorization: This project falls under the category of a railroad sector project that is likely to have an adverse impact on the environment under the "Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Consideration" (Established in April 2002). This project is therefore classified as Category A

iii. Environmental Permit: The Environment Impact Assessment (EIA) report for this project was prepared in November 2011, though it is not required for the Project in India's legal system.

iv. Anti-Pollution Measures: This project takes measures during construction to prevent the widespread dust pollution, adequate storage of construction materials, installing noise barriers in the vicinity of construction sites, and shifting to low-noise equipment specifications. To mitigate noise impact when the railways are in service, noise barriers will be installed in the vicinity of densely populated areas, schools, and hospitals.

v. Natural Environment: A part of the project site passes in the vicinity of a national park. However, the tracks to be constructed in this area will be installed parallel to the existing tracks and within the railway right-of-way. Therefore, additional adverse impact on the natural environment is likely to be minimal. Official permissions and/or approvals are required to develop the area, and we are in the process of obtaining these.

vi. Social Environment: This project requires the acquisition of 2,252 ha of land, and the relocation of 2,553 households. DFCCIL is hosting discussions with those affected by land acquisition and relocation, and based on a resettlement and rehabilitation plan approved by the MOR, will remunerate residents at the repurchase price, and provide the necessary support for recovery of livelihoods.

vii. Other/Monitoring: The executing agency will monitor unwanted noise and vibration; soil, air, and water quality; borrow pits, vegetation, land acquisition, and resettlement. Also, a third party consultant will monitor land acquisition, resettlement, and living conditions after resettlement.

2) Promotion of Poverty Reduction: N/A

3) Promotion of Social Development (e.g. Gender Perspective, Measures to Prevent Infectious Diseases Including AIDS, Participatory Development, Consideration for the Handicapped, etc.): This project involves massive construction, so HIV/AIDS prevention measures for laborers will be implemented.

(8) Collaboration with Other Schemes and Donors: Collaborative activities with local NGOs are planned to prevent HIV/AIDS and other risks. Collaboration with WB assistance in improving the Eastern Corridor is planned not only from a social and environmental perspective but also to enhance the organizational capacity of DFCCIL.

(9) Other Important Issues: This project helps reduce GHG emissions. Effectiveness in mitigating climate change (in the form of rough estimates of GHG reduction) for phases 1 and 2 of this project is approximately 12.9 million tons annually. Technology developed in Japan for a portion of the electric locomotives, signal/communication system, transformers, heat-treated tracks, and so on will be adopted under the project.

4. Targeted Outcomes

(1) Quantitative benefits

1) Operation and Effect Indicator (Phase 1 and Phase 2 projects combined)

Indicators	Baseline (2010 actual)	Target (2020) (two years after completion)
Operation rate (%)	-	93
Running distance (1,000 km/day)	-	1,421.4
Number of running trains (both directions) (Number of trains per day)	-	164
Volume of transportation (millions of tons/km) per day	-	1,908.1
Maximum speed (km/hour)	-	100
Reduction in transportation time (hours)	-	34.6
Reduction in GHG emissions (millions of tons/year)	-	5.0

2) Internal Rate of Return (Phase 1 and Phase 2 projects combined)

Based on the conditions below, the Economic Internal Rate of Return (EIRR) of this project (Phase 1 and Phase 2 projects combined) was calculated at 26.3%, while the Financial Internal Rate of Return (FIRR) was 9.4%.

EIRR:

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

Benefit: reduction in freight transportation costs in line with increasing demand

Project Life: 30 years

FIRR:

Cost: Project cost, operation and maintenance expenses

Benefit: revenue from freight charges

Project Life: 30 years

(2) Qualitative benefits

Meeting the increasing demand for freight transportation, streamlining the physical distribution network, and promoting widespread economic development.

5. External Factors and Risk Control

Economic stagnation and deterioration in political situation in India and the surrounding area of the project as well as natural disasters

6. Lessons Learned from Past Projects

(1) Result of Evaluation of Similar Past Projects

Lessons were learned during previous similar projects regarding resettlement, it is absolutely imperative to hold earnest discussions with residents subject to resettlement as soon as possible to eliminate delays in project construction.

In cases where a public corporation implements, operates, and maintains a yen loan project, providing comprehensive support (including financial improvements and enhanced operational efficiency) is considered necessary while focusing on ensuring the financial sustainability of the public corporation.

(2) Lessons for the Project

A vast amount of land must be acquired in order to implement this project. Based on the lessons described above, JICA will urge executing agencies to periodically submit progress reports that include a resettlement plan for residents.

To ensure financial sustainability, a consultant hired by DFCCIL plans to help enhance

operation/maintenance systems, formulate financial strategies, and so on.

7. Plans for Future Evaluation

(1) Indicators to be Used:

1) Operation rate (%)
2) Running distance (1,000 km/day)
3) Number of running trains (both direction) (Number of cars running/day)
4) Volume of transportation (million ton・km) per day
5) Maximum speed (km/hour)
6) Reduction in transportation time (hours)
7) Reduction in GHG emission (million ton/year)
8) Internal rate of return: FIRR (%), EIRR (%)

(2) Timing of Next Evaluation:

Two years after plan completion