

Ex-Ante Evaluation (for Japanese ODA Loan)

South Asia Division 1, South Asia Department, JICA

1. Basic Information

Country: India

Project Name: North East Road Network Connectivity Improvement Project (Phase 3)
(I)

Loan Agreement : October 29, 2018

2. Background and Necessity of the Project

(1) Current State and Issues of the Road Sector and Northeastern Region in India

In India, roads are responsible for 85.2% of passenger transport and 62.9% of freight transport as important transportation means, which shoulder the domestic transportation sector along with railways. Along with population increase and economic growth, the number of registered vehicles has been increasing by approximately 11% per year since 2001. It is expected to exceed 250 million in 2020. While increase in the rate of owning private vehicles is expected also in the future, improvement of efficiency of passengers and freight transportation is a major issue.

In India, the National Highways Development Project (NHDP) was started in 2001 by the Ministry of Road Transport and Highways (MoRTH). In this project, improvement of road connectivity between large cities such as "golden quadrilateral connecting four metropolitan cities" has been promoted. In 2015, road construction works for all sections (7,522 km) of the 2001 annual plan had been finished, and improvement of major arterial roads was progressing. On the other hand, delays in road improvement are noticeable in the northeastern region. Actually, the pavement ratio of all roads in the northeastern region is 28.5% (national average: 63.4%), and the rate of roads with two or more traffic lanes is 53.0% (national average: 77.9%).

In the northeastern region, subsistence farming and public services, which rely on budget transfer, are the main industries. GDP per capita (2014-2015) was 82,649 Indian rupees, which was lower than the national average, 98,293 Indian rupees. The regional gap is a serious domestic issue. (Reserve Bank of India) North East Road Network Connectivity Improvement Project (Phase 3) (Hereinafter referred to as "this Project") is targeting the section, which is presently a missing link of the road connecting the East-West Corridor that traverses India and the northeastern region (National Highway 127B). The missing link section is hindering economic development. In order to promote countermeasures against the increasing traffic demands and investment to industries inside and outside the region, improvement of a road network including that of roads and bridges, which is the foundation for economic activities, is required.

The government of India aims to improve national roads between the major cities in the region through a special program in the northeastern region (Special Accelerated Road Development Programme for North-East) in the 12th Five Year Plan (April 2012-March 2017) in order to accelerate road improvement in the region, where road improvement and development are delayed. The Modi administration also views regional development in the northeastern region, especially road network improvement, as one of its priority measures. This

Project, designed to connect Assam State and Meghalaya State, is positioned as a part of the priority measures.

- (2) Japan and JICA's cooperation policy, etc. toward the Road Sector and the Northeastern Region and the Positioning of this Project

Japan's Country Assistance Policy for India (March 2016) states that Japan's ODA is "expected to continue to play an important role in India to build critical infrastructures that ensure continued investment and strong economic growth." It also sets "strengthening connectivity" as a priority area, and states that Japan, with a view to de-bottlenecking the infrastructure constraints to investment and growth, will support the development of a transportation hub and network infrastructure to strengthen connectivity among major industrial cities and economic zones as well as regional connectivity. Under this context, it further states the need to promote Japan-India cooperation to achieve connectivity between North Eastern Region and other parts of the country, a point acknowledged between the leaders of Japan and India.

In addition, JICA Country Analysis Paper for India (March 2018) positions strengthening connectivity as a task to be tackled by JICA, and stipulates that assistance shall be provided for improvement of roads and other infrastructure, which contribute to improvement in commodity distribution and human transportation, in order to eliminate bottleneck in economic growth. This Project is consistent with these policies and analyses. In ODA loans to India, 61 cases (total of 2,239.8 billion yen) of loan agreements were signed for the transportation and traffic sector as of September 30, 2018, including 15 cases (total of 441.4 billion yen) for the road and bridge sectors. Loan cases to the other sectors include 38 cases (1,762.1 billion yen) for the railway sector, and 8 cases (36.3 billion yen) for the port and harbor sector.

This Project, through bridge construction, is considered to contribute to Goal 9 of the SDGs, "Build resilient infrastructure, promote sustainable industrialization and foster innovation," and Goal 10, "Reduce inequality within and among countries."

- (3) Other Donors' Activity

ADB is conducting northeastern states roads investment program in the four states in the region including Assam State, and the World Bank is implementing a state road improvement project in Mizoram State.

3. Project Description

- (1) Project Objective

To improve the connectivity of Northeastern region of India through constructing the bridge, etc. (total length: 20 km) between Dhubri and Phulbari, thereby promoting regional socio-economic development.

- (2) Project Site/Target Area

Northeastern region (Assam State and Meghalaya State)

- (3) Project Components

- 1) Construction of new bridge, etc. (Approximately 20 km: Including access roads, two lanes on one side)

- 2) Consulting service (construction supervision, etc.)

- (4) Estimated Project Cost

104,660 million yen (of which, the ODA Loan amount is 79,059 million yen)

- (5) Schedule

The project period is planned to be from October 2018 to September 2030 (144

months in total), and the project completion shall be the date to commence the facility service (September 2028).

(6) Project Implementation Structure

- 1) Borrower: President of India
- 2) Guarantor: None
- 3) Executing Agency: National Highways and Infrastructure Development Corporation Limited (NHIDCL)
- 4) Operation and maintenance agency: Operation and maintenance after the project completion is planned to be outsourced to private companies under the supervision and responsibility of NHIDCL. Regarding consignment to private companies, there are a considerable number of achievements in other state roads, but consignment in construction of large bridges like this project is the first experience for NHIDCL. Accordingly, technical capacity development through technical assistance (dispatching experts and providing training) will also be taken into consideration after grasping the executing agency's needs. Regarding NHIDCL budget, obtaining subsidy from MoRTH is ensured. The cost of operation and maintenance is to be paid from the subsidy. There are no special financial concerns.

(7) Collaboration and Division of Roles with Other Projects and Donors

1) Japan's assistance activities

In North East Road Network Connectivity Improvement Project (Phase 1) (Loan Agreement: March 2017), it is planned to conduct improvement of road conditions and road expansion of the main line of National Highway 54 (total length: 350.7 km between Aizawl and Tuipang), which is the south-north trunk road in Mizoram State, and National Highway 51 (total length: 51.5 km between Tura and Dalu), which is the south-north trunk road in Meghalaya State. In the North East Road Network Connectivity Improvement Project (Phase 2) (Loan Agreement: March 2018), it is planned to construct a new bypass of National Highway 54 (total length: 350.7 km between Aizawl and Tuipang), which is the south-north trunk road in Mizoram State, and to conduct improvement of road conditions and road expansion of National Highway 40 (total length: 81.5 km between Shillong and Dawki), which is the south-north trunk road in Meghalaya State.

2) Other development partners' assistance activities:

None in particular

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

1) Environmental and Social Consideration

(i) Category: A

(ii) Reason for Categorization: This project falls into the road sector and has influential characteristics, both being shown in the JICA Guidelines for Environmental and Social Considerations (proclaimed in April 2010).

(iii) Environmental Permit: Preparation of an Environmental Impact Assessment (EIA) concerning this project is not obliged by the domestic laws of India. However, an EIA was approved by NHIDCL in May 2018.

(iv) Anti-Pollution Measures: Regarding air quality, water quality, waste, noise, vibration, etc., which may cause concern during the construction works, it is scheduled to take measures including watering, waste disposal at the government designated disposal site, reuse of surplus soil, maintenance of heavy construction machines, and installation of soundproof wall in order to meet the domestic emission standards of

India Regarding noise and vibration after the commencement of the service, road surface maintenance, horn restriction, and other measures will be taken.

(v) Natural Environment: The target area of the project does not fall within an area susceptible to the impact of construction works such as national parks, etc. or the surrounding area. As Ganges dolphin and other rare species are found, installation of pollution prevention curtains, suspension of works as needed, and other mitigation measures will be taken. In addition, detailed investigation will be conducted before the construction work in order to review the mitigation and monitoring plan when necessary.

(vi) Social Environment: As this project is going to be accompanied by land acquisition of 137.4 ha and involuntary resettlement of 615 residents, the land acquisition will be proceeded based on the domestic procedures of the country and the resettlement plan formulated according to JICA guidelines. In the discussions with the local residents about this Project, no fierce oppositions were presented.

(vii) Other/Monitoring: During construction, the contractors, etc. will monitor air quality, water quality, waste, noise, vibration, etc. under the supervision of NHIDCL. NHIDCL monitors the noise, vibration, etc. while the constructed facilities are placed in service. NHIDCL and a local environmental NGO will monitor the ecosystem, land acquisition, and involuntary resettlement.

2) Cross-cutting Issues:

None in particular

3) Gender Category: [Gender Project] ■ GI(S) Gender Activity Integration Project

<Description of reason for classification> In discussion among all stakeholders in the preparatory survey, an arrangement was made to share information with women and to involve women in the discussion, and women actually participated in the discussion. In the construction stage, types and work hours of jobs women may engage in will be considered carefully in order to provide equal employment opportunities for men and women, taking into consideration needs of women and the social background of the target area. Accordingly, the project is classified into a Gender Activity Integration Project.

(9) Other Important Issues

None in particular

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator)

Indicator	Baseline (Actual value in 2017)	Target (2030) [Expected value 2 years after project completion]
Average daily traffic volume in the target section (PCU/day)	0	14,547
No. of passengers in the target section	0	2,953,887

(persons/year) (Note 1)		
Freight volume in the target section (t/year) (Note 1)	0	11,841,106
Average required travel time (hours) (Note 2)	8.21	0.39

(Note 1) The number of passengers is calculated by multiplying the breakdown of "average daily traffic volume in the target section" by 365 days and the maximum number of passengers of each vehicle (1.5 persons for a motorcycle, 3 persons for a passenger car, 20 persons for a small bus, and 40 persons for a bus.) The freight volume is calculated by multiplying the breakdown of "average daily traffic volume in the target section" by 365 days and the maximum load capacity of each freight vehicle (one ton for LCV, 3 tons for two axel truck, 13 tons for three axel truck, and 15 tons for multiple axel truck or trailer.)

(Note 2) The baseline is the actual value in 2017, based on the traveling time data of the nearest detour between Dhubri - Phulbari (a route crossing the Naranarayan Setu Bridge in Goalpara about 60 km upstream along the Brahmaputra River).

(Note 3) Regarding indicators other than the average required travel time, the baseline is set to 0 because there are so many diverging points on the nearest detour between Dhubri - Phulbari that demand estimation at only one course is difficult.

2) Impacts

(2) Qualitative Effects

Economic development of the area, travel comfort of the target section

(3) Internal Rate of Return

Under the conditions indicated below, the economic internal rate of return (EIRR) is 16.5%, and the financial internal rate of return (FIRR) will not be calculated.

[EIRR]

Cost: Project and maintenance expenses (excluding tax)

Benefits: Reduction in vehicle travel costs, reduction in travel time costs

Project Life: 25 years

5. Prerequisites / External Factors

(1) Prerequisites

In land acquisition, consensus formation of local residents and the related organizations can be continued.

(2) External Factors

1) Aggravation of political and economic situations in the target area and their surroundings and large-scale natural disasters do not occur.

2) No changes will be made to the road development policies of the Government of India and the organizational structure/duties of the executing agency.

3) The situation of the use of land and facilities does not change rapidly in the target area.

6. Lessons Learned from Past Projects

(1) Lessons Learned from Similar Projects

Based on the ex-post evaluation of the ODA loan to the Republic of the Philippines, "Rehabilitation and Maintenance of Bridges Along Arterial Road," the executing agency and construction supervision consultant confirms the validity of the construction time considering the rainy season and the dry season, whereby

construction of this project can be conducted in a reasonable period. In this way lessons are learned so that impacts of natural disasters on the project implementation can be minimized.

(2) Application of the lessons learned to this Project

In this Project, the construction schedule with the rainy season taken into consideration has already been agreed upon with the executing agency. It has already been agreed that appointing a worker who can make a construction plan taking weather and disaster risks into consideration as the construction supervision consultant can minimize impacts of natural disaster and enable safe construction.

7. Evaluation Results

This project, being consistent with the development issues and development policies of India and with cooperation policies of the Japanese government and JICA, is thought to contribute to Goal 9 of the SDGs, "Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation," and Goal 10 of the SDGs, "Reduce inequality within and among countries to rectify." As the result of the above, it is highly necessary for JICA to cooperate with the implementation of this project

8. Plan for Future Evaluation

(1) Indicators to be Used

Same as 4. (1) - (3)

(2) Timing of the Next Evaluation

Ex-post evaluation: 2 years after project completion

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