

Ex-Ante Evaluation (for Japanese ODA Loan)

South Asia Division 1, South Asia Department

Japan International Cooperation Agency

1. Name of the Project

- (1) Country: India
- (2) Project Title: North East Road Network Connectivity Improvement Project (Phase 3) (II)
- (3) Project Site/ Target Area: State of Assam (Population: about 31.2 million), State of Meghalaya (Population: about 2.96 million) (2011)

Loan Agreement: February 20, 2024

2. Background and Necessity of the Project

- (1) Current State and Issues of the Road Sector and Priority in India

In India, the National Highway Development Project (hereinafter referred to as “NHDP”) was initiated by the Ministry of Road Transport and Highways (hereinafter referred to as “MoRTH”) in 1998. Under this project, major arterial roads connecting major cities including the Golden Quadrilateral that links the capital Delhi, Mumbai in the west, Kolkata in the east, and Chennai in the southeast have been developed. In 2018, development of the main arterial roads was steadily under way, including the completion of road construction work on the entire section planned in 1998 (7,522km).

On the other hand, the pavement ratio of all roads in the northeast region (States of Arunachal Pradesh, Assam, Sikkim, Tripura, Nagaland, Manipur, Mizoram, and Meghalaya) is 36.0% (relative to the national average of 72.0%), the ratio of two-way two-or-more-lane roads among national roads is 48.0% (relative to 70.9%) (Basic Road Statistics of India 2018-2019). This delay in road development has impeded the stable flow of people and materials within the region and with other regions in and outside of India, which is attributable to the delay in economic development. The per capita GDP (2020-2021) of Assam and Meghalaya is 56,953 Indian rupees (Reserve Bank of India, 2022), well below the national average of 112,677 Indian rupees (World Bank, 2022), and the Government of India has identified the reduction of regional disparities one of its top priorities. In Finance Minister Sitharaman's FY2023 budget speech in February 2023, among the capital expenditure budget, which increased by 33.4% compared to the FY2022 expenditure forecast, the budget related to transportation and traffic increased by 46.9% and the budget related to the development of the North Eastern region increased by 110.4%, indicating that the development.

The Government of India is promoting the construction of national highways between major cities in the region through “Special Accelerated Road Development Program for North-East” as a means of promoting socio-economic development and reducing disparities in the northeast region. In particular, the Gelephu-Dalu Corridor, which runs through Bhutan, India, and Bangladesh, is essential from both political and economic perspectives to improve connectivity with other regions of India and neighboring countries. However, the section of National Highway 127B, part of the Geleph Dalu Corridor, is currently disconnected by the Brahmaputra River, and it can only be crossed by small boats, or by land detouring approximately 200 km to the nearest bridge. Therefore, constructing a new bridge to connect Assam State and Meghalaya State, is highly necessary to resolve this missing link of National Highway 127B.

The North East Road Network Connectivity Improvement Project (Phase 3) (II) (hereinafter referred to as “the Project”) will construct a bridge (total length: 20 km) connecting between Dhubri in Assam State and Phulbari in Meghalaya State in northeastern region of India, aims at enhancing connectivity within the region and with other regions both domestically and internationally, thereby contributing to the realization of the aforementioned policy of the Government of India.

(2) Japan’s and JICA’s Policy Cooperation and Operations in the Road Sector/ Northeast Region (especially in relation to key foreign policies such as the Free and Open Indo-Pacific Partnership (FOIP))

Country Assistance Policy for India (March 2016) formulated by the Government of Japan, stipulates that the country will "develop the critical infrastructure necessary to ensure continued investment and high growth amid the need to achieve inclusive and stable high economic growth." The Policy also identifies "reinforcement of connectivity" as a priority area. With a view to eliminating infrastructure bottlenecks with respect to investment and economic growth, the Policy will support the development of transport infrastructure so as to strengthen connectivity among major industrial cities, economic zones, and regions in the country.

The Project will also contribute to resolving infrastructure bottlenecks to investment and growth in “strengthening connectivity,” which is identified as a priority area in JICA Country Analysis Paper for India (March 2018), and the Project is consistent with these policies and analyses.

Furthermore, the Project is expected to contribute to the pursuit of economic

prosperity in the “Free and Open Indo-Pacific (FOIP)” from the perspective of improving connectivity within and beyond the region. In addition, the Project is consistent with Japan's key foreign policies, such as pursuing cooperation to promote connectivity in the northeast region, as confirmed at the Japan-India Summit in March 2022, and launching “Japan-U.S.-Australia-India (QUAD) Infrastructure Partnership” and promoting sustainable infrastructure development through technical assistance, as announced at the QUAD Summit in September 2021.

The Project aligns with India's development agendas and policies as well as the cooperation policy and analysis of Japan and JICA, and will contribute to the SDGs Goal 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all) and Goal 9 (Build resilient infrastructure).

(3) Other Donors' Activities

The World Bank (WB) is financing the Assam State Highway Project (State Highway 46) (March 2012 to September 2019) and the Mizoram State Roads Project (June 2014 to April 2021) in the northeast region. The WB is also providing support (total project cost: US\$150 million) to improve connectivity and further develop agriculture and tourism in Meghalaya by repairing and upgrading National Highway 17, State Highway 12, and State Highway 2 in Assam and National Highway 17, State Highway 127, and other roads in Meghalaya through the Meghalaya Integrated Transport Project launched in October 2020. The Asian Development Bank (ADB) is financing road improvement in the northeast region through the North Eastern State Roads Investment Program Tranche 1 (October 2012 to December 2016) and Project 2 (May 2014 - June 2021). ADB also supports the strengthening of domestic and regional trade corridors (such as Bangladesh-China-India-Myanmar (BCIM) and Bangladesh-Bhutan-India-Nepal (BBIN)) through economic corridor development projects under the framework of South Asia Subregional Economic Cooperation.

3. Project Description

(1) Project Description

① Project Objectives

The Project aims to improve the connectivity of the North Eastern Region of India through constructing the bridge between Dhubri and Phulbri, thereby promoting regional socio-economic development.

② Project Components

a) Construction of new bridge, etc.

(Approximately 20 km: Including access roads, 2 lanes on each side)

b) Consulting services (construction supervision, etc.)

③ Project Beneficiaries (Target Groups):

Direct beneficiaries (Users of developed bridge and roads : about 3 million/year), Final beneficiaries (Population benefiting from economic development around the developed bridge and roads: Assam: about 31.2 million people, Meghalaya: about 2.96 million people. Population of northeastern region that will benefit economically from improved connectivity with neighboring countries: about 44.98 million people).

(2) Estimated Project Cost:78,937 million yen (Japanese ODA loan of this tranche: 34,537 million yen)

(3) Schedule (Cooperation Period):October 2018 to September 2032 (168 months in total). The Project completion shall be the date to commence the facility service (September 2028).

(4) Project Implementation Structure

1) Borrower: President of India

2) Guarantor: N/A

3) Executing Agency: National Highways and Infrastructure Development Corporation Limited (hereinafter referred to as “NHIDCL”)

4) Operation and maintenance system:

Operation and maintenance after the project completion is planned to be outsourced to private companies with similar work experiences, under the supervision and responsibility of NHIDCL. 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.

(5) Collaboration and Sharing of Roles with Other Donors:

1) Japan's Activities:

Major national highways in northeastern region are under construction or scheduled to be constructed under the ODA loans “North East Road Network Connectivity Improvement Project (Phase 1-7)”, which, together with the Project, will enhance the connectivity of major highways in the region. In addition, JICA has implemented the Technical Cooperation “The Capacity Development Project on Highways in

Mountainous Regions” (2016-2022) to support the formulation of guidelines for road construction, bridges, tunnels, slope reduction, and road operation and maintenance, as well as to strengthen the capacity of relevant government staff. JICA has already shared these guidelines with NHIDCL, the executing agency for the Project.

2) Other Donor's Activities: None

(6) Environmental and Social Consideration

① Category: A

② Reason for Categorization:

The 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).

③ 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.

④ Anti-pollution measures

During construction, measures are being taken to meet domestic emission and environmental standards for air quality, water quality, waste, noise and vibration, such as water sprinkling, waste disposal at a government-designated disposal site, reuse of surplus soil, maintenance of heavy construction equipment, and installation of noise barriers. In addition, measures are being taken for noise and vibration during service through maintenance of road surfaces and limiting the use of whistles.

⑤ 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. Since the presence of rare species including Ganges river dolphins has been confirmed, in addition to taking mitigation measures by installing anti-water-pollution curtains and suspending construction work as necessary, detailed surveys on the ecology of rare species will be conducted and the mitigation and monitoring plan will be updated, as necessary.

⑥ Social environment

The Project involves the acquisition of 137.4 ha of land and the involuntary resettlement of 627 people, and has been carried out and

completed in accordance with the resettlement plan prepared based on domestic procedures and JICA guidelines. No particular opposition to the implementation of the Project has been confirmed during the consultations with the local residents.

⑦ Other/Monitoring:

During construction, the contractors, etc. monitor air quality, water quality, waste, noise and vibration, etc. under the supervision of NHIDCL. NHIDCL monitors the noise, vibration, etc. while the constructed facilities are placed in service. NHIDCL and local environmental NGOs monitor the ecosystem, land acquisition, and involuntary resettlement .

(7) Cross-Sectoral Issues:

①Poverty measures and considerations : It is expected to promote the economic activities of residents along the Project site, thereby contributing to poverty reduction.

②Measures against HIV/AIDS and other infectious diseases : The Project is expected to involve a large number of workers, and the risk of HIV infection is considered high. Therefore, to mitigate the risk of HIV infection during construction work, an HIV/AIDS prevention clause is included in the bidding documents and the contractors are required to take necessary measures of HIV/AIDS preventions for workers.

(8) Gender Category

【Not a Gender Project】 ■GI (Gender Informed)

<Reason for Categorization> The preparatory survey of the project conducted a social and gender analysis, however, concrete initiatives and indicators that contribute to gender equality and women's empowerment have not been identified for the Project.

(9) Other Important Issues

Drone technology is regularly utilized for supervision of the bridge construction to check the progress of work in each section, as well as to monitor the impact of rain water flooding of the Project site in the rainy season. The Project will contribute to the promotion of DX, as it was confirmed in the appraisal that DX promotion measures, such as data collection and utilization of traffic volume surveys, etc., will be taken after the completion of construction.

4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

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)	—	14,547
No. of passengers in the target section (persons/year) (Note 1)	—	2,953,887
Freight volume in the target section (t/year) (Note 1)	—	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).

2) Quantitative Effects:

Improvement of connectivity within and outside India, economic development in the area, and travel comfort of the subject section.

3) Internal Rates of Return:

Under the conditions indicated below, the economic internal rate of return (EIRR) is 18.2%. Since the Project does not collect fees, the financial internal rate of return (FIRR) is not calculated. and the financial internal rate of return (FIRR) will not be calculated.

【EIRR】

Cost: Project costs, operation and maintenance costs (excluding taxes)

Benefit: Reduction in vehicle running costs and travel time costs

Project Life: 25 years

5. External Factors and Risk Control

- (1) Preconditions: None
- (2) External Factors: The security in the Project area shall not deteriorate significantly.

6. Lessons Learned from Past 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" (evaluation year: FY2005), a lesson was learned that if the executing agency and the construction supervision consultants confirm the appropriateness of the construction period considering the rainy and dry seasons, construction can be completed within a reasonable period and the impact of natural disasters can be minimized. In the 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

The Project is consistent with India's development agenda and policies, as well as Japan's and JICA's cooperation policies and analysis. The Project also contribute to enhancing connectivity within the region and with other regions both domestically and internationally, and to achieve SDDs Goal 9 "Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation," and SDGs Goal 10 "Reduce inequality within and among countries to rectify." Therefore, there is a strong need to support the implementation of the Project.

8. Plan for Future Evaluation

- (1) Indicators to be Used

As described in Section 4. (1) to (3).

- (2) Future Evaluation Schedule

Ex-post evaluation: 2 years after the project completion

END

Appendix: Map of the North East Road Network Connectivity Improvement Project (Phase 3) (II)

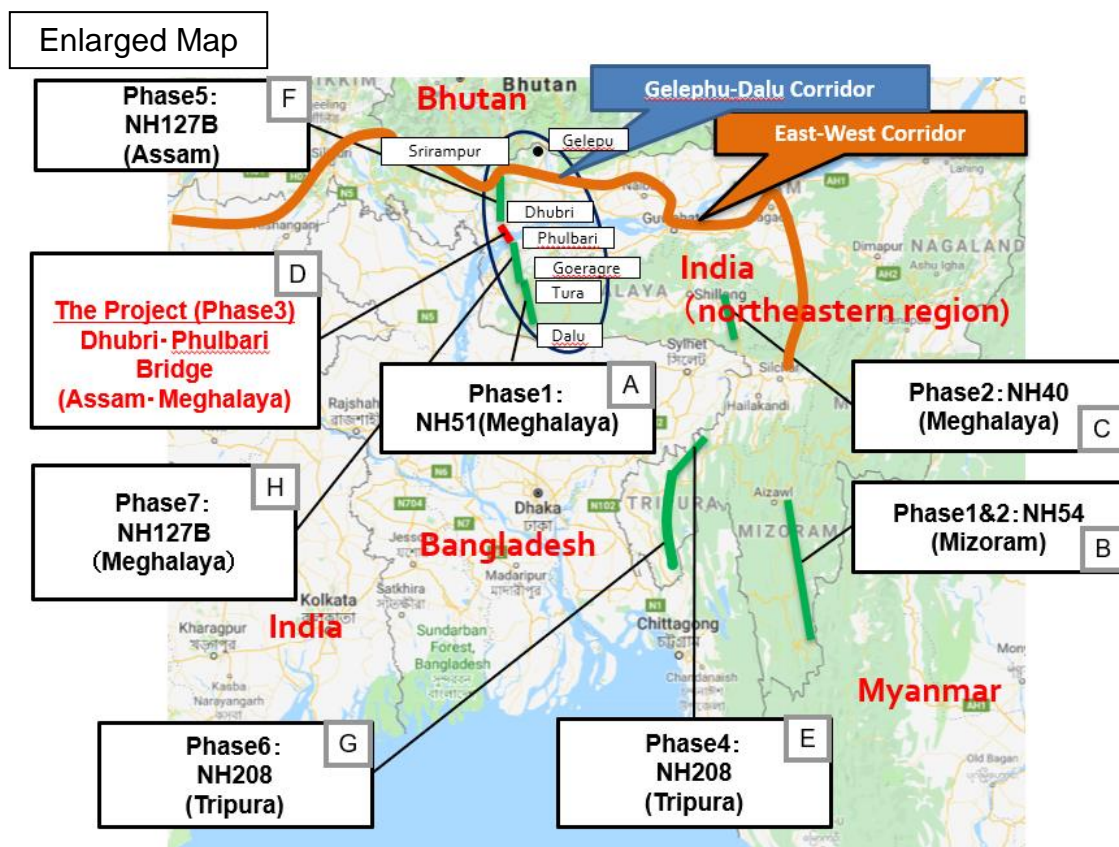
Appendix

Map: North East Road Network Connectivity Improvement Project (Phase 3)(II)

Project Overview Map (including preceding phase projects)



(Source : Created by JICA from www.mapofindia.com)



(Source: Compiled by JICA from www.google.com)

【Enlarged Map】

Green line . . . Under construction (Phase 1-6) and to be constructed (Phase 7)

Red line . . . Site of the Project (Phase 3)

Phase 1 (Under construction)

- Section A (National Highway 51)
- Section B (National Highway 54 excluding Bypass)

Phase 2 (Under construction)

- Section B (National Highway 54 Bypass only)
- Section C (National Highway 40)

Phase 3 (The Project : under construction)

- **Section D (Dhubri-Phulbari Bridge)**

Phase 4 (Under construction)

- Section E (National Highway 208 Kailashahar – Khowai)

Phase 5 (Under construction)

- Section F (National Highway 127B Srirampur – Dhubri)

Phase 6 (Under construction)

- Section G (National Highway 208 Khowai – Sabroom)

Phase 7 (To be constructed)

- Section H (National Highway 127B Phulbari - Goeragre)

【Image of the completion】

