

Ex-ante Evaluation Paper (for Japanese ODA Loan)

South Asia Division 1, South Asia Department, JICA

1. Name of the Project

Country: India

Project: North East Road Network Connectivity Improvement Project (Phase 2)

Loan Agreement: March 29, 2018

2. Background and Necessity of the Project

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

In India, roads are an important means of transport that together with railways support the majority of domestic logistics, carrying 85.2% of passenger transport and 62.9% of freight transport in India's transport sector (Source: Ministry of Road Transport and Highways). Against this backdrop, while there has been progress in the development of national highways in the plains that forms core highway networks under the country's remarkable economic growth, development in the mountainous areas is lagging behind due to financial and technical issues.

In particular, in North Eastern Region, where it contains more mountainous areas than other regions, only 28.5% of all roads there are paved (national average: 63.4%) and only 53.0% of the national highways have more than one lane (national average: 77.9%) (Source: Ministry of Road Transport and Highways). Another factor hampering local logistics is the frequent occurrence of landslide disasters caused by torrential rain (with an annual rainfall of over 10,000 mm in part of the state of Meghalaya), constraining on the economic development of the region. Furthermore, this is also a reason these highways cannot serve as a dependable lifeline for the region. In fact, they fail to ensure a stable supply of goods and access to medical and educational institutions, placing a burden on the lives of local residents.

In the target area, whose main industries are subsistence farming and public service, the GDP per capita is significantly lower than the national average (34,405 rupees in 2010–2011, compared to the national average of 59,606 rupees). Such disparity stands as a serious domestic problem. As the region is rich in coal and other resources, there is good prospects for future growth in the mining industry and in high value-added agriculture such as fruit and flower growing. Despite this, there is a lack of adequate connectivity within the region as well as with other areas due to the inferior road infrastructure. Improving the road network in Northeast India, which is a key element for promoting economic activity, is vital to encourage investment in these industries.

The Indian Government's initiative of "Special Accelerated Road Development

Programme for North-East” sets forth a goal of improving some 1,000 km of road network between major cities in the region. India's Prime Minister, Narendra Modi, has set road improvement as one of the priority policies of the Northeast state development in part by allocating roughly 170 billion yen of the 2016 fiscal budget to road maintenance in the region. The 'North East Road Network Connectivity Improvement Project (Phase 2)' (hereinafter, "the Project") is also positioned as a part of this strategy.

This project contributes to a number of objectives by improving access within the area as well as with other areas; stimulating economic development in the region; securing a dependable lifeline for local residents; and improving connectivity with neighboring countries like Myanmar and Bangladesh.

(2) Japan and JICA's Road Sector/Northeast Region Cooperation Policy 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 one of its priority areas, 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.

Furthermore, JICA's Country Analysis Paper for India (March 2012) also regards the development of industrial and urban infrastructure as one of its priority areas, and indicates the necessity of providing assistance to develop and improve infrastructure that contributes to the acceleration of regional economic development and streamlining of logistics, including roads, to eliminate bottlenecks in economic growth. This project is consistent with these policies and analysis paper.

There were 53 ODA loan cases in the transportation sector totaling 1.8502 trillion yen. In technical cooperation, JICA has implemented the 'Institutional Development Project on the Supervision for Highway and Expressway Operation, Management and Maintenance' and three other projects, which have been instrumental in strengthening the administrative structure for operation and maintenance of roads by the Ministry of Road Transport and Highways. ODA loans for the Northeast states were also approved mainly in the fields of electricity, water and sanitation with 17 loans to date totaling 232.6 billion yen. In technical cooperation, institutional improvements for sustainable agriculture and irrigation in Mizoram state were supported through the 'Project on Capacity Enhancement for Sustainable Agriculture and irrigation Development in Mizoram' (Dec. 2016–Nov. 2021).

(3) Other Donors' Activity

The Asian Development Bank has implemented a national highway improvement project in the northeast. Meanwhile the World Bank has implemented a state road improvement project in the state of Mizoram.

3. Project Description

(1) Project Objective

To improve the connectivity in North Eastern Region of India through improving National Highway (NH) 40 and establishing a new bypass for NH 54, thereby promoting regional socio-economic development.

(2) Project Site/Target Area

Northeast Region (Meghalaya and Mizoram states)

(3) Project Components

- 1) Road improvement of NH40 (approx. 81 km: widening to 12 m width (2 lanes) or 4-lane road, linear improvement, slope measures, paving, bridge rehabilitation, traffic safety equipment, etc.) and maintenance.
- 2) Newly construction of bypass for NH54 (4 locations between Aizawl and Tuipang, 24 km construction of 12 m wide road, slope measures, paving, bridges, traffic safety equipment etc.), and maintenance.
- 3) Consulting Services (construction supervision, etc.)

(4) Estimated Project Cost

52.247 billion yen (of which, the ODA Loan amount is 38.666 billion yen)

(5) Schedule

Scheduled for April 2018–November 2026 (104 months in total). The project completion is defined as the commencement of the service (November 2022).

(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: Operations and maintenance work are planned to be outsourced to private companies under the supervision and responsibility of NHIDCL.

(7) Collaboration with Other Schemes and Donors

- 1) Related aid activities by Japan: Japan plans to support the improvement of main road of NH54 in Mizoram state as well as NH51 in Meghalaya state through the 'North East Road Network Connectivity Improvement Project (Phase1)'.
2) Aid activities of other aid organizations: None in particular.

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

1) Environmental and Social Considerations

① Category: A

② Categorization Rationale: This project deemed Category A due to its high potential to exert significant negative impact as defined by the 'JICA Guidelines for Environmental and Social Considerations' (promulgated in April 2010).

③ Environmental Permit: Although not required under Indian law, an Environmental Impact Assessment (EIA) report for both NR40 improvement and NR54 bypass construction was prepared by NHIDCL in June 2017.

④ Anti-Pollution Measures: Mitigation measures against air pollution, water pollution, waste, noise, vibration, etc. are planned to be taken during construction work to meet the emissions and other environment standards set by India. Measures to be taken include water sprinkling to control dust, periodic maintenance of equipment, measures to prevent oil leaks, use of low-pollution equipment, installation of sound barriers, etc. Surplus soil and waste generated during construction will be disposed of appropriately by selecting a depositing area based on discussions with residents, following a linear decision process. Although it is assumed that air quality, noise and vibration standards will meet India's domestic environmental standards, monitoring and measures appropriate to residential areas are planned to be carried out after roads go into service.

⑤ Natural Environment: The negative impact on the environment from the Project is expected to be negligible as the target area is not situated in or around any vulnerable areas such as national parks.

⑥ Social Environment: The project involves land acquisition of 46 ha in Mizoram state with the 257 households (1,485 people) would be affected, including involuntary resettlement of 20 households (133 persons), and in Meghalaya state, 402 households (2,057 people) would be affected including involuntary resettlement of 291 households (1,343 people). Land acquisition and resident relocation are scheduled to be carried out in accordance with the legal processes of Mizoram and Meghalaya states as well as the resident relocation plan prepared according to JICA guidelines. No particular opposition to the project implementation has been found through consultation with residents affected by this project.

⑦ Other/Monitoring: During the construction work of the project and continuing after the roads go into service, the construction contractor and NHIDCL will monitor air quality, water quality, noise, vibration etc. NHIDCL will also monitor the land acquisition process and livelihood restoration plan before and during construction.

2) Cross-cutting Items: None in particular

3) Gender Classification: 'Project requiring a GI Gender mainstreaming needs

survey and analysis'

<Activities/Classification Rationale> as a result of discussion with the counterpart government, it was agreed to implement HIV measures in the project that facilitate gender equality.

(9) Other Important Issues: None in particular

4. Target Outcomes

(1) Quantitative Effects

Indicator	Baseline (Actual value in 2017)	Target (2026) [4 Years after Completion]
Average travel speed in target road sections (km/h)	24 (NH54) 30 (NH40)	40 (NH54) 50 (NH40)
Average travel cost in target road sections (rupee/km per vehicle)	24 (NH54) 27 (NH40)	15 (NH54) 18 (NH40)
Traffic volume of target road sections (PCU/day)	835 (NH54) 4329 (NH40)	3103 (NH54) 8939 (NH40)

Note 1: PCU (Passenger Car Unit): Converted equivalent of a single passenger car

Note 2: Target value set is four years after project completion when contractual maintenance and warranty period with the EPC contractor has concluded.

(2) Qualitative Effects

The expected qualitative effects of the Project include improved quality of life for local residents by increasing the reliable supply of goods and supplies to the area, improved comfort of travel in the target sections, and improved economic development in North East states.

(3) Internal Rate of Return

Based on the following assumptions, the Economic Internal Rate of Return (EIRR) of the project is 16.6% for NH40 and 11.0% for NH54. Rate of Return (FIRR) is not calculated as no tolls will be collected from users

[EIRR]

Cost: Construction cost (excluding tax), O&M cost

Benefits: Reduction of travel time cost, Reduction of vehicle operation cost

Project life: 25 years

5. External Factors and Risk Control

(1) Preconditions: Consensus-building among local residents and relevant organizations will continue in the land acquisition process.

(2) External Factors

1) That the political and economic situation in India and areas surrounding project do not

deteriorate, and no large-scale natural disaster occurs.

- 2) That there are no changes in the India central government policies concerning road construction in the North Eastern Region, the organizational structure of the executing agency and work content.

6. Lessons Learned from Past Projects and Application to the Project

Based on the ex-post evaluation results etc. of the 'Rural and Main Roads Rehabilitation Project' in Guatemala, it is vital to carry out a thorough investigation in advance and consider reinforcing the slope—even when the planned upgrade is on existing roads. This is due to the elevated risk of landslides in road construction in mountainous regions.

The target area of the Project also has natural conditions susceptible to landslides and other soil threats. Therefore, the executing agency has been requested to incorporate measures to prevent slope collapse, take efforts to prevent landslide disasters, and also ensure a budget and necessary arrangements for operation and maintenance that includes disaster recovery.

7. Evaluation Results

This project is consistent with the Government of India's policies on development and solving issues as well as Japan and JICA's assistance policy and analysis. By developing highways in India's North Eastern Region, it will contribute to better connectivity within the region and with outside areas while also fostering economic development in the region. Moreover, given that the project is deemed to contribute to Goal 9 of the Sustainable Development Goals, the need for JICA to support the implementation of this project is high.

8. Plan for Future Evaluation

(1) Indicators to be Used

As indicated in sections 4. (1) - (3)

(2) Timing of the Next Evaluation

Ex-post evaluation: Four years after the project completion