

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: Republic of India

Project: North East Road Network Connectivity Improvement Project (Phase 1) (I)

Loan Agreement: March 31, 2017

Loan Amount: 67,170 million yen

Borrower: The President of India

2. Background and Necessity of the Project

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

In India, roads and railways are the main modes of transport that back the great majority of the domestic logistics services with roads accounting for about 85% of the country's passenger transport and 60% of its cargo transport. Despite this, financial and technological challenges have been stopping India, a country with significant economic growth, from sufficiently developing National Highways in its mountainous regions, while there has been considerable progress in the development of National Highways in its flat lands to form the country's core highway networks. Northeast India in particular has more mountainous terrain than the rest of the country, and 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%). Another factor hampering local logistics is the frequent occurrence of landslide disasters caused by torrential precipitation (with an annual rainfall of over 10,000 mm in part of the state of Meghalaya), putting a constraint on the economic development of the region. Furthermore, this is also the reason that 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, the main industries of which are subsistence farming and public service, the GDP per capita is lower than the national average (34,405 rupees in 2010-2011, compared to the national average of 59,606 rupees), exemplifying how much regional disparity there is across India, which, in fact, is another serious domestic problem. As the region is rich in coal and other resources, the mining industry and high value-added agriculture, like the production of fruits and flowers, are seen as promising for future growth. However, given the lack of sufficient connectivity within the region and with areas outside the region due to poor road infrastructure, improvement of the road network in Northeast India, which should be part of the infrastructure for economic activities, is also essential to stimulate investments in the above industries.

(2) Development Policies for the Road Sector in India and Role of the Project

One policy which the Indian Government has adopted to accelerate the development of roads in Northeast India is to facilitate the development of National Highways running between major cities within the region through the Special Accelerated Road Development Programme for North-East, which refers to the Project as well. The objective of the Project is to contribute to economic development in the region by improving connectivity through National Highway 54 (NH-54) (350.7 km in total, from Aizawl to Tuipang), which is North-South major road in Mizoram and form part of the Kaladan Multi Modal Transport Corridor, the international corridor connecting Northeast India to other parts of India via Myanmar and the Gulf of Bengal and National Highway 51 (NH-51) (51.5 km in total, from Tura to Dalu), which is North-South major road in Western Meghalaya. In addition, the new Modi government sees the regional development of Northeast India, particularly development of the road network, as one of its priority policies.

Furthermore, National Highways and Infrastructure Development Corporation Limited (hereinafter referred to as "NHIDCL") was founded in July 2014, under the Ministry of Road Transport and Highways, to accelerate the development of roads in the border areas (mountainous areas) of India, including Northeast India, which was traditionally under the control of the Border Road Organization (BRO), and transfer discretion over BRO-managed roads and state-managed national highways to NHIDCL so as to enhance the road development system in the mountainous areas of India. The target area of the Project also lies in a zone where the administrative authority has been transferred to NHIDCL from BRO and the state governments.

(3) Japan and JICA's Assistance Policies and Operations in the Road Sector

Japan's Country Assistance Policy for India, established by the Japanese Government in March 2016, states that it is necessary to "develop important infrastructure required to ensure continued investments and a high economic growth rate while India needs to achieve comprehensive and stable high economic growth." In addition, the policy sets "enhancement of regional connectivity" as one of its priority areas and states that with a view to removing the bottlenecks in the infrastructure constraining investment and growth, it is necessary to support the development of transport infrastructure that will act as transport hubs and networks, to strengthen connectivity among major industrial cities and economic zones, as well as regional connectivity, in the country. It also says that Japan-India cooperation towards greater connectivity between regions in the northeastern part of India and other parts of the country, which has been confirmed between the leaders of the two countries, should be promoted. 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 for the development and improvement of infrastructure contributing to the acceleration of regional economic

development and streamlining of logistics, including roads, to resolve bottlenecks in economic growth. The Project is consistent with these policies and analysis paper. As of February 2017, JICA received authorization to provide ODA loans to India in the amount of 175.8 billion yen for 10 projects in the road/bridge sector (which accounts for 14% of the transportation sector in India). Also, in the area of Technical Cooperation, JICA has implemented the Institutional Development Project on the Supervision for Highway and Expressway Operation, Management and Maintenance to help develop expressway management and maintenance manuals.

(4) Other Donors' Activities

The Asian Development Bank has been implementing a national highway improvement project in the target area of the Project, while the World Bank has been implementing a state highway improvement project in the state of Mizoram. The Project's target section of National Highway 51 is adjacent to the target area of the cooperation project by the Asian Development Bank. There is not overlap of target section, with other donor's projects.

(5) Necessity of the Project

The Project is consistent not only with the development themes and policies of the Indian Government, but also with the assistance policies of Japan and JICA, as well as the results of their analyses. Moreover, given the potential contribution the Project can make to Sustainable Development Goal (SDG) 9, "build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation," through safe road management, it can be deemed as highly necessary and relevant for JICA to support it.

3. Project Description

(1) Project Objective

The objective of the Project is to contribute to economic development in Northeast India by enabling smoother traffic flow within the region and between different areas both inside and outside India to increase connectivity, through improving the national highways in the region, NH-51 and NH-54.

(2) Project Site/Target Area

Northeast India (States of Meghalaya and Mizoram)

(3) Project Components

- 1) Road improvement of NH-54 (about 350 km: widening to 12 m, alignment improvement, slope stabilization, paving, and road safety facilities, etc.)
- 2) Road improvement of NH-51 (about 50 km: widening to 12 m, alignment improvement, slope stabilization, paving, and road safety facilities, etc.)
- 3) Consulting services (construction supervision)

(4) Project Cost

125,544 million yen (Loan amount: 96,457 million yen)

(5) Schedule

March 2017–June 2022 (64 months in total). Project completion is defined as the commencement of service (June 2021).

(6) Project Implementation Structure

- 1) Borrower: The President of India
- 2) Guarantor: None
- 3) Executing Agency: National Highways and Infrastructure Development Corporation Limited (NHIDCL)
- 4) Operation and Maintenance System: Operations and maintenance work are planned to be outsourced to private-sector companies under the supervision and responsibility of NHIDCL. As sufficient precedents have not been established for roads in the mountainous areas, it is planned that assistance to help prepare management and maintenance manuals for roads in these areas, as well as capacity building to enhance the management of operations, maintenance work, contract handling, etc. will be provided through the Technical Cooperation Project. The operation, maintenance and management costs will be fully born by NHIDCL. Expenses will be completely covered by national funds as necessary, so the Project is financially secure.

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

1) Environmental and Social Considerations

- ① Category: A
- ② Reason for Categorization: The Project is classified as Category A because it has the potential to exert significant negative impact according to the Japan International Cooperation Agency Guidelines for Consideration of Environmental and Social Considerations (JICA Guidelines).
- ③ Environmental Permit: Preparation of an Environmental Impact Assessment (EIA) report for the Project is not required under Indian law. However, an EIA report was created, and approved in November 2015, by NHIDCL.
- 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, such as water sprinkling, waste management, disposal of excess soil, use of low-pollution machinery, and installation of noise reduction walls. Measures will also be taken to mitigate noise and vibration after the commencement of service, for example, installation of noise reduction walls and use of low-noise paving material.
- ⑤ Natural Environment: As the target area is not situated in or around any susceptible areas like national parks, it is expected that the Project will not cause more than minimal adverse effect on the natural environment.
- ⑥ Social Environment: The Project involves land acquisition of about 846 ha,

resettlement of 1,974 households (10,250 residents) and economic relocation of 228 entities. These land acquisition and relocation procedures will be implemented according to Resettlement Action Plan developed in compliance with the relevant Indian law “The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013” and JICA guidelines. No particular objections to the Project were raised at a public consultation.

⑦ Other/Monitoring: In the Project, each construction contractor and NHIDCL will monitor the air quality, water quality, noise, vibration, etc. during construction work and after the commencement of service. In addition, NHIDCL will monitor the land acquisition procedures and resettlement assistance to residents before and during construction work.

2) Poverty Reduction: The poverty rates in the target area of the Project are below the national average (29.8%), with 21.1% in the state of Mizoram (NH-54) and 17.1% in the state of Meghalaya (NH-51). The Project is not classified as a Poverty Reduction Project.

3) Social Development: As the Project involves a large number of workers, the HIV transmission risk is considered to be rather high.¹ As such, it is planned that the instructions to bidders will contain a provision on HIV/AIDS prevention requiring contractors to cooperate in its preventive measures against HIV/AIDS as part of the Project’s efforts to minimize HIV infection risks during construction work.

(8) Collaboration with Other Donors: N/A

(9) Other Important Issues: The Project can contribute to climate change adaptation, as it is designed to provide greater resistance to landslide disasters, which are anticipated to increase in number and expand in scale due to climate change.

¹ According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), India was ranked third in the world after South Africa and Nigeria in the number of HIV infected people, with 2.1 million infected people (estimated number) as of 2012. (Source: Global Report; UNAIDS report on the global AIDS epidemic 2013)

4. Target Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline (recorded in 2015)	Target (2023) [2 years after completion]
Average rate of travel speed in the target section (km/hour)	11.99 (NH-54) 15.17 (NH-51)	40 (NH-54) 40 (NH-51)
Average travel cost in the target section (rupees/km/vehicle)	24 (NH-54) 30 (NH-51)	15 (NH-54) 15 (NH-51)
Spot traffic volume in the target section (PCU/day)	835 (NH-54) 3,023 (NH-51)	3,103 (NH-54) 5,577 (NH-51)
Annual number of days of road closure (of a minimum of 24 consecutive hours) (days)	NA (NH-54) NA (NH-51)	0 (NH-54) 0 (NH-51)

(2) Qualitative Effects

The expected qualitative effects of the Project include economic growth (increased GDP per capita) in the target area, improved comfort of travel in the target sections, increased connectivity to other areas (inside Northeast India) and enhancement of safe and efficient transport capacity.

(3) Internal Rate of Return

Based on the conditions indicated below, the economic internal rate of return (EIRR) of the Project will be 13.21% for NH-54 and 14.38% for NH-51, while the financial internal rate of return (FIRR) cannot be calculated, as these highways do not charge tolls.

【EIRR】

Cost: Construction cost (excluding tax), operation and maintenance cost

Benefit: Saving of vehicle operating costs and travelling time

Project Life: 25 years

5. External Factors and Risk Control

- The political and economic conditions in India, particularly in and around the target area, will not worsen. No large-scale natural disasters will hit the country/area.
- The policy of the Indian Government and the organization and operations of the executing agency will not be changed.
- There will not be any drastic change in the use of land or facilities in the target area.

6. Lessons Learned from Past Projects

(1) Results of Similar Past Projects

In the “Rural and Main Roads Rehabilitation Project” for the Republic of Guatemala, a landslide partially cut off traffic on a road that had been developed using an ODA loan from Japan, and local people are likely to have to make do with a temporary road for an extended period of time as they have no budget for reconstruction. The lesson learned from this was that when planning construction or improvement of a road in a mountainous area it is essential to take the risk of landslides into full account.

(2) Lessons for the Project

The target area of the Project also has natural conditions that are susceptible to landslides and other soil threats. Consent has already been granted by the executing agency that anti-disaster measures should be taken for slopes to prevent such disasters and a special budget and other necessary arrangements should be secured so that a disaster recovery plan will be included in the operation, maintenance and management framework.

7. Plans for Future Evaluation

(1) Indicators to be used

- 1) Average rate of travel speed in the target section (km/hour)
- 2) Average travel cost in the target section (rupees/km/vehicle)
- 3) Spot traffic volume in the target section (PCU/day)
- 4) Annual number of days of road closure (of a minimum of 24 consecutive hours) (days)
- 5) Economic internal rate of return (EIRR) (%)

(2) Timing of the next evaluation

Two years after project completion

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