

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country:	India
Project:	Bihar National Highway Improvement Project
Loan Agreement:	February 22, 2013
Loan Amount:	22,903 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 2009-10, the road network in India, which broadly includes national highways, state highways, major district roads and rural roads, carried 85 per cent of the total passenger movement and 63 per cent of total freight movement. In 2012, the National Highways in India constitute 76,818 kilometers, or about 2 percent of the total 4.11 million kilometers of national road network. However, they bear about 40 percent of transportation on the road network as a whole. In such a scenario, improving the new national highways and widening existing ones to meet the growing demand for road transportation is an urgent issue. Moreover, developing outworn road facilities such as old bridges and improving traffic conditions around the congested downtowns by developing bypasses are the other issues for better mobility and accessibility.

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

In the 11th Five-Year Plan (April 2007 to March 2012), the Government of India specifies the policy for a combined development of national highways, mainly through the promotion of the national highway development plan (NHDP)¹, and the development of local roads. Along with this, the Government of the State of Bihar formulated “Bihar Approach to 11th Five Year Plan” (April 2007 to March 2012), which stated that the Government will achieve comprehensive growth through the improvement of roads, electricity systems and other infrastructure, as well as establishment of an investment environment. This Project, which aims to establish main national highways in the State of Bihar, is included in the Approach paper.

Recently the Government of India released the 12th Five-Year Plan (April 2012 to March 2017), where road sector is given a priority and a poor capacity is determined to be continuously attacked. Completion of going works on NHDP Phases I & II and constructing another 10,000km of national highways are, to put it concretely, the main targets.

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

In the Japan's Country Assistance Program for India, the “promotion of economic growth” was identified as a priority goal. In response to this, JICA has adopted “support for sustainable economic growth through improvement of the economic infrastructure” as a priority sector. JICA's policy is to support improvements in the efficiency of passenger and freight transport through the sustainable development of intercity core traffic networks, the elimination of bottlenecks and the establishment of logistics hubs and to support economic and social development in India. This Project is consistent with these policies. JICA has so far approved 8 loan projects totaling 131.5 billion yen (4% of the total loan amount to India) for the road & bridge sector. As for technical cooperation, JICA carried out the “Capacity Improvement Project for Sustainable Expressway Development (FY 2010-2012)” to improve skills in the establishment, management and maintenance of expressway networks.

¹ NHDP envisages the development of major national highways spreading more than 50,000km all over India. NHDP is first introduced in 1998 and Phase I – VII is in progress or being planned. In NHDP-I & II, Golden Quadrilateral, aiming at connecting the main four cities of Delhi, Kolkata, Chennai and Mumbai with a total length of 5,846 km, and NSEW Corridor, targeting connecting Srinagar, Kanyakumari, Silchar and Porbandar with a total length of 6,319 km, has been strongly pushed forward. In NHDP-III, 4-laning of national highways up to 12,000km by March 2013 is being targeted.

(4) Other Donors' Activity

Recognizing that the realization of comprehensive growth requires development of the infrastructure in rural areas where many poor people live, the World Bank has been providing funds for the Government of India's local road development plan. Recognizing the importance of the improvement of the infrastructure in the transport sector, the Asian Development Bank (ADB) has also been supporting the development of local roads especially in poor states and northwestern states, including the development of state roads in the State of Bihar.

(5) Necessity of the Project

Though Bihar is one of the most impoverished states of India and 53.5 percent of the State's population lives below the poverty line (2010), which is far higher than the national average of 29.8%, it has achieved a remarkable economic growth in recent years. In FY2011, Bihar's GSDP(Gross State Domestic Product) marked 13.1%, which ranked first among all states in India for 2 years in row. With an increasing population and economic development, the number of vehicles in Bihar increased from 1,020,000 in FY2002 to 2,670,000 in FY2011. However, the road length per million people was only 125.85 kilometers, which is much less than the average of 387.57 for the entire India. It is therefore necessary to immediately establish road networks to cope with the sharply increased demand for road transport.

The section covered by this Project connects the two main national highways² running across Bihar parallel to one another.³ The implementation of this Project will be expected to greatly improve the efficiency of passenger and freight transportation. Since the number of vehicles in Bihar is estimated to increase in the future, it is essential to improve the transportation by improving the main highways and constructing bypasses to overcome traffic congestion and to support the establishment of an investment environment through the development of the road infrastructure. As this Project is consistent with India's policies and Japan's and JICA's aid policies, it is essential and appropriate for JICA to provide support.

3. Project Description

(1) Project Objective

The objective of this Project is to improve accessibility in the State of Bihar, thereby contributing to mitigation of traffic jams and promoting regional economic development including tourist traffic.

(2) Project Site/Target Area

State of Bihar

(3) Project Components (Including the Procurement Method)

This project involves 4-laning of National Highway 83 (Patna to Dobhi), which is a main arterial road in Bihar, as well as constituting bypasses in congested areas.

- 1) Road construction (127 km of main road (including bypasses of about 56 km), service roads, elevated railroad tracks, bridges, tollbooths, etc.)
- 2) Consulting services (work supervision, environmental and social consideration support, etc.)

(4) Estimated Project Cost (Loan Amount)

41,760 million yen (including the agreed loan amount: 22,903 million yen)

² National Highway 2, which connects Delhi and Kolkata as part of Golden Quadrilateral, and National Highway 28, which is a part of the NSEW Corridor

³ A PPP project for 4-laning of National Highway 77 is in progress, which connects Patna at National Highway 83 and Muzaffarpur at National Highway 28.

(5) Schedule

Planned for March 2013 – March 2020 (85 months in total); the Project will be completed when the use of the facilities begins (April 2017).

(6) Project Implementation Structure

- 1) Borrower: The President of India
- 2) Executing Agency: National Highways Authority of India
- 3) Operation and Maintenance System: Same as 2)

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

- 1) Environmental and Social Considerations
 - (1) Category: A
 - (2) Reason for the Categorization: This Project is classified as Category A because it falls under the category of a large-scale project in a sector likely to have an impact and has characteristics likely to have an impact according to the “Japan Bank for International Cooperation Guidelines for the Confirmation of Environmental and Social Considerations” (established in April 2002).
 - (3) Environmental Permit: This Project requires the preparation of an environmental impact assessment (EIA) report under India’s domestic laws, and environmental permission was obtained from the Ministry of Environment and Forests in November 2010.
 - (4) Pollution Control Measures: During the roadworks, measures are taken, including watering, covering of the work equipment to prevent them scattering and the appropriate management of vehicles and heavy machinery. With regard to air pollution and noise after the start of the Project, the installation of soundproof walls, tree planting and other measures are taken if needed.
 - (5) Natural Environment: Because this Project requires the felling of plantation forests, the State Forest Department will plant replacement trees.
 - (6) Social Environment: Because this Project requires the acquisition of sites totaling about 635 ha and the relocation of about 1,000 households, the acquisition of the sites and the relocation of the residents are carried out according to a resident relocation plan prepared and approved by the executing agency.
 - (7) Other aspects/Monitoring: In this Project, the executing agency monitors pollution control measures (air quality, noise, vibration, water quality, etc.), the impact on ecosystems, safety measures during the roadworks, the status of relocation of the residents, etc.
- 2) Promotion of Poverty Reduction
Of the residents affected by the Project, socially vulnerable individuals can receive vocational training and employment support.
- 3) Promotion of Social Development (gender perspective, measures to prevent infectious diseases including HIV/AIDS, participatory development, consideration for persons with disabilities, etc.)
The executing agency hires an NGO to carry out activities to prevent migratory workers from contracting HIV.

(8) Collaboration with Other Donors

JICA cooperates with NGOs to support the relocation of the residents.

(9) Other Important Issues

Because this Project is designed to secure the planned heights of roads and bridges in the case of flooding and aims to cope with the impact of climate change, it contributes to adaptation to climate change.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator)

Indicator	Baseline (Actual Value in 2010)	Target (2018) [1 year after project completion]
Annual Average Daily Traffic (AADT) (PCU/day)	10,962	20,042
Travel time (hours/vehicle) (Patna – Dobhi)	3.38	1.56
Average speed (km/hour)	44	80

2) Internal Rates of Return

Based on the following preconditions, the economic internal rate of return (EIRR) of the Project is 13.80%, and the financial internal rate of return (FIRR) is 0.23%.

EIRR

Costs: Project cost (excluding taxes), operating and maintenance costs

Benefits: Reduction in vehicle running costs and travel time

Project life: 30 years

FIRR

Costs: Project cost, operating and maintenance costs

Benefits: Revenues from road charges

Project life: 30 years

(2) Qualitative Effects

Promotion of local economic development, improvement of road traffic safety and comfort, improvement of convenience by ensuring punctuality when traveling, urban environmental improvement through the mitigation of traffic pollution and adaptation to climate change in the State of Bihar

5. External Factors and Risk Control

Political and economic stagnation/deterioration as well as natural disasters in India and the area surrounding the project sites

6. Lessons Learned from Past Projects

Based on the results of past projects involving the large-scale relocation of residents, it has been pointed out that it is necessary to take measures to secure the means of livelihood and improve the living standards of the people who have to relocate. Under this Project, it is planned to place consultants and NGOs in the project implementation system and comprehensively monitor the acquisition of sites and the relocation of residents so that appropriate compensation and livelihood improvement measures will be carried out according to the resident relocation plan.

7. Plan for Future Evaluation

(1) Indicators to be Used

- 1) Annual Average Daily Traffic (PCU/day)
- 2) Travel time (hours/vehicle) (Patna – Dobhi)
- 3) Average speed (km/hour)
- 4) Economic internal rate of return (EIRR) (%)
- 5) Financial internal rate of return (FIRR) (%)

(2) Timing

One year after project completion