

Bharatmala Pariyojana: The Biggest Revolution in Indian Highways

D. Dash

Roads are the lifeline for any country and the lifeline needs to be better and stronger to improve mobility, boost economy and generate jobs. Though the road network in India has increased from 3.99 lakh kilometers in 1951 to 56.03 lakh kilometers in 2016, a large share of them are less than two-lane while more than 70 per cent of the National Highways (NHs) in India are either two-lane or less.

The first major policy push to widen the NHs was made in 1998 during Atal Bihari Vajpayee government by launching the National Highways Development Programme (NHDP), which had two major components of 5,846 kilometers of Golden Quadrilateral (GQ) connecting the four metro cities of Delhi, Mumbai, Chennai and Kolkata and 7,142 kilometers' network connecting Srinagar to Kanyakumari and Silchar to Porbandar. These networks are known as North-South and East-West corridors.

The second big revolutionary decision to upgrade NHs was taken in October 2017 when the Central government approved the phase-I

Infrastructure for New India

Paving the Roads of Development



BHARATMALA PARIYOJANA: PHASE-I
₹5, 35,000 crore for expanding highways sector
with multi modal integration

SETU BHARATAM PROJECT FOR SAFER ROADS
Making all National Highways free of railway level crossings, by 2019, by building **Railway Over Bridges/ Under Passes**
Total outlay of ₹20,800 Crore

As on 1st January, 2019

of Bharatmala Pariyojana covering 24,800 kilometers with an estimated expenditure of Rs 3.85 lakh crore. The government has set March 2022 target for National Highways Authority of India (NHAI) for completion of the programme.

The massive highway development programme has many firsts to its credit; starting from preparation of the plan to identifying the highway stretches and the new approach of building roads on new alignment. The Road Transport and Highways

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The author is a senior Delhi based journalist.

Speed and Scale of Transformation

Connecting India at Express Pace



Rural road connectivity increased from 56% in 2014 to 91% villages



Average speed of rural road construction



National Highway Network



Speed of highway construction



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One of the main reasons behind the decision to go for a massive revamp of country’s NH network was that the NHDP rolled out in 1998 had reached a certain level of maturity. It was essential to redefine road development and have a macro approach while planning expansion of the national highways network.

The Process

The government undertook a detailed study of the goods (cargo) movement between the high-density corridors scientifically after identifying the Origin-Destination. Since one of the main aims of the programme was to improve cargo traffic flow, a considered strategy was formulated to develop new Economic Corridors. Improved logistics movement has a force multiplier effect on the economy. The Origin-Destination study also considered the integration of economic corridors with the ongoing projects under NHDP.

This study brought out interesting facts of how different stretches of some corridors have infrastructure asymmetry. For example, in the Mumbai-Kolkata corridor, a significant stretch passing through Odisha is two-laned and there are frequent lane changes as well. If this entire stretch is not upgraded to at-least uniform 4-lane facility, the traffic movement will not be smooth. This simply proved the point as to how and why there was a dire urgent need to address such asymmetry on corridors across the country.



Considering that in addition to development of new corridors and feeder routes, there was a need to improve the throughput of the road stretches already developed under the NHDP, the preparatory work focused on de-congesting stretches by building of bypasses, ring roads, developing multimodal logistics parks to enable freight aggregation and disaggregation and effective modal shifts.

Moreover, to cater to the need for infrastructure development in the border and coastal areas to India’s Export-Import (EXIM) trade, the highway development programme has provisioned for improving border roads based on strategic importance, particularly the ones connecting to trading points with India’s neighbours - Nepal, Bangladesh and Bhutan. The coastal road development and port-connectivity roads enhancement have been synergized with the Sagarmala programme.

Components

• Economic Corridors:

The origin-destination study which was commissioned with the aim of improving logistics efficiency identified 44 new Economic Corridors. Some of these are Mumbai-Agra, Mumbai-Kolkata, Chennai-Madurai, Bilaspur-Delhi, Pune-Vijayawada, Indore-Jaipur and Amritsar-Jamnagar. The Economic Corridors are expected to carry 25 per cent of freight in the coming years. As per the plan, these corridors along with national corridors (GQ and North South and East West)

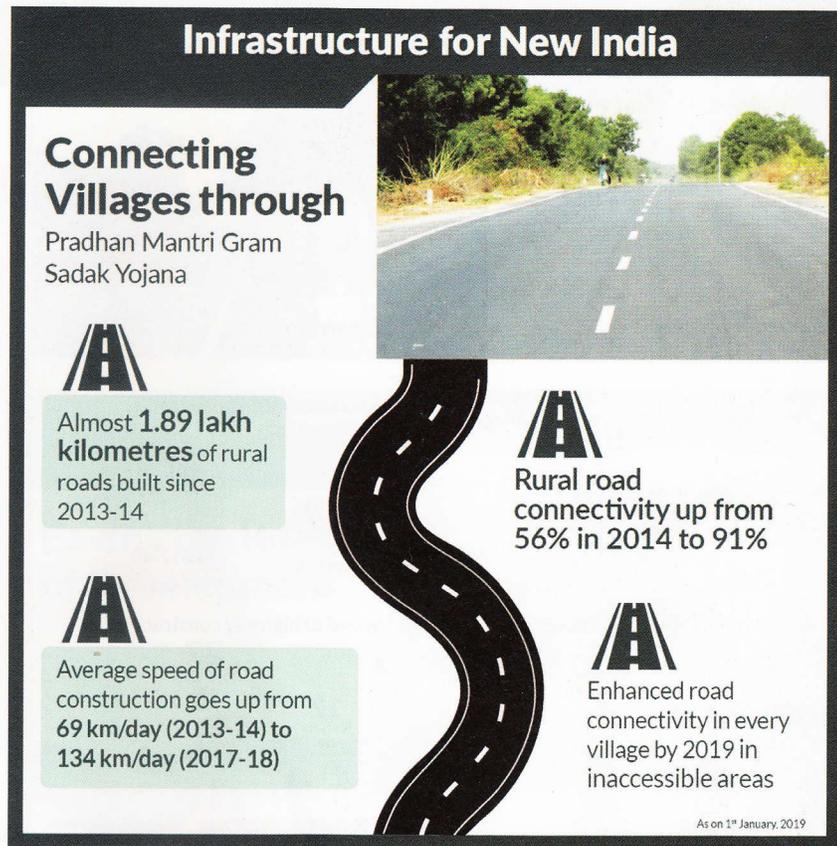
would form India's new Highway Grid. As per estimates, the National and Economic Corridors along with their inter-corridor and feeder routes would be able to carry 80 per cent of our freight traffic.

- **Inter Corridor and Feeder Routes:**

The origin destination study also identified a network of shorter inter corridor routes connecting two existing corridors and feeder routes to the corridor network. These roads are expected to carry around 20 per cent of freight. The effectiveness of the corridors can be improved by development of the feeder routes.

- **Improvement in Efficiency of National Corridors:**

Currently, the NHs including the GQ and North South and East West corridor carry nearly 35 per cent of India's freight. All these stretches will be declared National Corridors. These stretches have shown high growth in traffic volumes by virtue of being the lifeline of India's highway network. The average traffic in the six national corridors is more than 30,000 passenger car units (PCU). Under the Bharatmala programme, all these stretches will be widened to 6-8 lanes. In the past few years, these National Corridors have also developed choke points impacting logistics efficiency. So, to decongest and do away with



these choke points, new Ring Roads and bypasses/ elevated corridors will be built. In addition, multimodal logistics parks will be developed at critical economic nodes along GQ and North South and East West corridors to enable efficient modal transfers, freight aggregation and disaggregation.

- **Development of Border and International Connectivity Roads:**

Around 3,300 kilometers of border roads have been identified to be built and widened along the international border for their strategic importance. Around 2,000 kilometers of roads are required for connecting India's major highway corridor to international trade points to facilitate EXIM trade with Nepal, Bhutan, Bangladesh and Myanmar.

- **Development of Coastal and Port Connectivity Roads:**

Under Bharatmala programme, about 2,100 kilometers of coastal roads have been identified to be built along the coast. These roads would boost both tourism and industrial development of the coastal region. These will also improve connectivity to ports to facilitate EXIM trade. A major focus will be to improve linkage to state government owned and private ports.

#	Component	Length (km)	Cost (in Rs cr)
1	Economic Corridors Development	9,000	120,000
2	Inter Corridor and Feeder Route Development	6,000	80,000
3	National Corridors Efficiency improvement (6-laning of GQ, NS-EW, removal of congestion points, development of logistics parks, etc.)	5,000	100,000
4	Border Roads and International Connectivity	2,000	25,000
5	Coastal Roads and Port Connectivity	2,000	20,000
6	Green field Expressways	800	40,000
Total		24,800	385,000
Existing Projects under implementation		10,000	150,000

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Bridges over Narmada at
Bharuch and Chambal at Kota



India's Longest Bridge -
the 9.15 km long Dhola -
Sadiya Bridge over River
Brahmaputra in Assam.
24x7 with Eastern Arunachal Pradesh

As on 1st January, 2019

• Development of Green-field Expressways:

Bharatmala programme also envisages building expressways close to the National and Economic Corridors where traffic has breached the 50,000 PCUs and there are multiple choke points. About 1,900 km of these stretches have been identified for development of green-field expressways. One such mega project connecting Delhi with Mumbai has started taking shape. Expressways have limited entry and exit points and there is no traffic signal or toll plaza on the main carriageway, which ensures seamless and faster traffic movement.

To ensure there is no procedural delay in approval and roll out of works, the government has empowered NHAI Board to take decision and approve projects. NHAI Board is an inter-ministerial entity, which has representation from Highways and Finance Ministries, Niti Aayog and the Highway Authority. The progress so far has been satisfactory.

Benefits:

Bharatmala Pariyojana once implemented, will enable improvement in efficiency of freight and passenger movement on NHs. The network, as identified under the Bharatmala network, will cater to 80 per cent of the inter-district freight movement in the country. Moreover, the network will connect 550 districts in the country accounting for nearly 90 per cent of the nation's GDP. Moreover, standardized wayside amenities on the corridors will come up, which will improve convenience of passenger movement significantly.

The development of economic corridors and the associated inter corridor and feeder routes will enable improvement in average speeds of vehicles by about 20-25 per cent. Initiatives of building access controlled expressways with features of "closed tolling" system will further improve the average speeds on highways. Improvement in average speed of the freight vehicles will,

in turn, have three major benefits: improved vehicle utilization resulting in faster breakeven and hence lower freight cost per tonne per kilometer; improvement in fuel efficiency of the vehicles due to lower idling time, resulting in lower freight cost and faster and reliable freight transit, leading to a reduction in average inventory carried in freight. The network once developed will enable a reduction of 5-6 per cent in the overall supply chain costs in the economy, the government has estimated.

In addition, upgradation of 24,800 km of NH network in the first phase is expected to generate roughly 10 crore man-days of employment during the construction phase and roughly 22 million permanent jobs driven by increased level of economic activities due to development of the Economic Corridor network.

Funding for Programme

The government has estimated a total expenditure of about Rs 6.92 lakh crore including Rs 3.85 lakh crore for Bharatmala to complete all ongoing works. About one-third of the fund i.e. Rs 2.37 lakh crore will come from fuel cess and another Rs 60,000 crore will come as budgetary support. The NHAI has started the programme of monetizing already completed projects and it targets to generate about Rs 34,000 crore. This scheme is known as Toll Operate Transfer (TOT), which means completed stretches are bid out to private players for collecting toll for certain years. The private players make upfront payment to NHAI to get these works. They are responsible for maintenance of the highway stretches as well.

The government expects it will pump in about Rs 46,000 crore in the programme from its total toll collection. NHAI will borrow another Rs 2.09 lakh crore from market borrowing and the private investment is pegged at Rs 1.06 lakh crore. □

(E-mail: dashreporter@gmail.com)