

Roads

9.44 The Indian road network, the largest in the world aggregating 3.32 million kilometers, consists of 65,569 km of National Highways, 1,28,000 km of State Highways, 4,70,000 km of Major District Roads and about 26,50,000 km of other District and Rural Roads.

9.45 National Highways account for only about 2 per cent of the total length of roads, but carry about 40 per cent of the total traffic across the length and breadth of the country. Out of the total length of National Highways, about 35 per cent is of single lane/intermediate lane width, about 53 per cent is 2-lane standard and balance about 12 per cent is 4-lane standard or more. Considering the importance of the National Highways and the rapid increase in traffic, Government has taken up the National Highways Development Project (NHDP), which consists of the following components:

- (i) NHDP Phase-I: The Golden Quadrilateral (GQ; 5,846 km) connecting the four major cities of Delhi, Mumbai, Chennai and Kolkatta.
- (ii) NHDP Phase-II: The North-South and East-West Corridors (NS-EW; 7,300 km) connecting Srinagar in the north to Kanyakumari in the south, including spur from Salem to Kochi, and Silchar in the east to Porbandar in the west;
- (iii) Port connectivity and other projects— 1,157 kms. and
- (iv) NHDP Phase III-A (4,015 km): 4-laning of over 4000 km of BOT in the year 2005 approved at an estimated cost of Rs.22,000 crore.

National Highways Authority of India (NHAI) is the implementing agency for NHDP programme. NHAI is also to implement four laning of 603 km of National Highways as a part of Special Accelerated Road Development Programme in the North Eastern Region (SARDP-NE).

9.46 On November 30, 2005, 6271 km of roads under NHDP – with the bulk (5,097 km) lying on the GQ – was complete; another 6,179 km was under construction; and cumulative expenditure was Rs.29,486 crore (Table 9.15). The award of contracts of the entire Phase-II, except for stretches in Jammu and Kashmir and West Bengal where there are difficulties of terrain, alignment and environmental clearance, is likely to be completed by March, 2006. It is expected that the GQ would be substantially completed by June 2006, and the NS and EW corridors would be completed by December, 2008. Thirty-one BOT contracts covering 1,600 km under Phase II and Phase IIIA have been awarded. Phase-IIIA is targeted to be completed by December, 2009.

9.47 The constraints faced in the timely completion of NHDP are: (i) delays in land acquisition and removal of structures; (ii) law and order problem in some States; and (iii) poor performance of some contractors.

Corridor management

9.48 The substantial completion of NHDP Phase-I, namely GQ, calls for a shift in emphasis to corridor management — the technique of managing the highways to deliver maximum throughput in terms of speed and traffic volume, while minimizing operational

Table 9.15 : Progress of NHDP – status at end-November, 2005

	NHDP				Port connectivity	Other NHs	Total by NHAI
	GQ	NS&EW Phase I & II	NHDP Phase III	Total			
1. Total length (km)	5846	7300	4015	17161	356	801	18318
2. 4-laned till date (km)	5097	788 (87.2%)	- -	5885 (34.3%)	99	287	6271
3. Under implementation (km)	749	3962	926	5637	251	291	6179
4. Financial - cumulative till date (Rs. crore)	23559	3151	11	26722	2764		29486
5. Length (km) to be awarded	-	2441	3089	5530	7	223	5760

cost and enhancing road safety. The concept of corridor management is being applied on the completed sections of NHDP through operation and maintenance (O&M) contracts. The scope of work, inter-alia includes road maintenance, road property management, incident management, traffic management and engineering improvements. The various safety measures being adopted as a part of corridor management are :

- (i) Timely maintenance of roads.
- (ii) Usage of road safety furniture like crash barriers, road signages, delineators, road studs, median railing, thermoplastic road marking, and plantation of shrubs in the central median to reduce glare of light of vehicles from the opposite direction.
- (iii) Deployment of round the clock route patrol vehicles, ambulances for immediate rescue of accident victims and tow-away cranes for rapid clearance of the highway.
- (iv) Development of wayside amenities to reduce the fatigue of long-distance driving.
- (v) Involvement of NGOs for dissemination of road safety principles among the rural masses living along the high-speed corridors.
- (vi) Conduct of road safety audits and studies for identification and

improvement of black spots on the highways.

- (vii) Development of pavement management system for timely and appropriate maintenance and improvement.

Financing of NHDP

9.49 For implementation of NHDP Phase I and Phase II, the main source of finance of NHAI is the fuel cess (Table 9.16). The present rate of cess is Re.2.00 per litre on both petrol and diesel. A part of this cess is allocated to NHAI to fund the NHDP. The share of NHDP is leveraged to borrow additional funds from the domestic market through bonds that qualify for capital gains tax exemption. Besides, Government has also negotiated loans from World Bank (US\$1,965 million), Asian Development Bank (US\$1,605 million) and Japan Bank of International Cooperation (JBIC) (Jap. Yen 32,060 million) for financing various projects under NHDP. These loans from the multilateral institutions are passed on to NHAI by the Government partly in the form of grants and partly as loans. NHAI also negotiated a direct loan of US\$165 million from Asian Development Bank for one of its projects. The funds provided to NHAI, including the borrowings from the market, are utilized for meeting the expenditure on the projects as well as for

Table 9.16: Financing of NHAI

(Rs. crore)

Year	Cess funds	External assistance		Borrowings
		Grant	Loan	
1999-2000	1032	492	0	0
2000-01	1800	461	120	657
2001-02	2100	887	113	804
2002-03	2000	1202	301	5593
2003-04	1993	1159	290	0
2004-05	1848	1239	361	0
2005-06 (up to November, 2005)	2400	1800	450	10

Note: 1. The receipt of fuel cess and external assistance during 2005-06 (up to November, 2005) is against the approved outlay of Rs. 3,269.7 crore and Rs. 3,000 crore, respectively.
 2. The government has also allocated Rs. 1,400 crore in the year 2005-06 for meeting the viability gap funding of projects under NHDP III which is mainly on BOT (toll) basis. The amount received up to November, 2005 is Rs. 700 crore.

servicing and repayment of borrowings from the domestic market.

Public-private partnership (PPP)

9.50 NHAI has exploited a variety of contractual structures in moving towards PPP. Projects in Phase I involving expenditure of over Rs.5,797 crore being implemented through PPP include Rs.2,354 crore in the BOT–annuity mode and Rs. 3,443 crore in the BOT-toll mode. In Phase II, PPP projects would account for an expenditure of around Rs.11,600 crore.

9.51 NHDP Phase III-A covering 4,000 km at an estimated cost of Rs.22,000 crore has already been approved. Projects under this phase are being taken up only on BOT (Toll) basis and Government is providing the required viability gap funding limited to 40% of the project cost of each sub-project. Additional 6,000 km at an estimated cost of Rs.33,000 crore are proposed to be covered under NHDP Phase-IIIB for which approval to prepare the Detailed Projects Roads has already been given. This Phase generally comprises stretches of National Highways carrying a high volume of traffic, connecting State capitals with the network developed under NHDP Phase I & II and providing connectivity to places of economic, commercial and tourist importance.

Special Accelerated Road Development Programme in the North Eastern Region (SARDP-NE)

9.52 SARDP-NE, framed for improving road connectivity to remote places of NE region, envisages 2/4 laning of about 3,251 km of National Highways, and 2 laning/improvement of about 2,500 km of State Roads and of 1,888 km of roads of strategic importance. This will also ensure the connectivity of 34 district headquarters, out of a total of 85 which are still not connected, to the National Highways in the eight North-Eastern States.

9.53 The estimated cost of SARDP-NE is Rs.12,123 crore, with proposed budgetary support of Rs.9,952 crore and Rs.2,171 crore mobilized through private sector participation. The programme will be implemented in three phases:

- Phase A: Consisting of 1,110 km of National Highways and 200 km State/

General Staff (GS) roads at an estimated cost of Rs.4,618 crore.

- Phase B: Involving improvement of 2,141 km of National Highways and 2,981 km State/General Staff (GS) roads at an estimated cost of Rs.5,920 crore.
- Phase C: Envisaging construction and improvement of 1,027 km of State roads at an estimated cost of Rs.1,585 crore.

Government has recently approved implementation of Phase-A and given approval for preparation of DPRs of roads in Phase-B.

Future plans

9.54 Government has set ambitious plans for upgradation of National Highways in a phased manner in the years to come. The details are as under:

- 4-laning of 10,000 km (NHDP Phase-III) including 4,000 km already approved.
- Accelerated road development programme for the North Eastern region.
- 2-laning with paved shoulders of 20,000 km of National Highways under NHDP Phase-IV.
- 6-laning of GQ and some other selected stretches covering 6,500 km under NHDP Phase-V.
- Development of 1,000 km of express ways under NHDP Phase-VI.
- Development of ring roads, bypasses, grade separators, service roads, etc. under NHDP Phase-VII.

9.55 As a matter of policy, Government has decided to take-up future phases of NHDP proposals mainly on a PPP basis. Implementation of projects through construction contracts will be only in exceptional cases, where private sector participation is not possible at all. Preparatory work has begun in consultation with Planning Commission for seeking Government approvals for the enhanced scope of NHDP.