



STRATEGY FOR FINANCING OF MAINTENANCE OF ROADS IN INDIA

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Indian Road Network

Road classification	Total length
National Highways	92,851
State Highways	242,687
Rural Roads, and Urban roads and other roads	4,629,462
	4,865,000



Indian Road Network (Contd...)

- ❑ The network carries:
 - ❖ Freight - 65%
 - ❖ Passenger Traffic - 85%

- ❑ National Highways constitutes 2% of network, but carries 40% of total road traffic

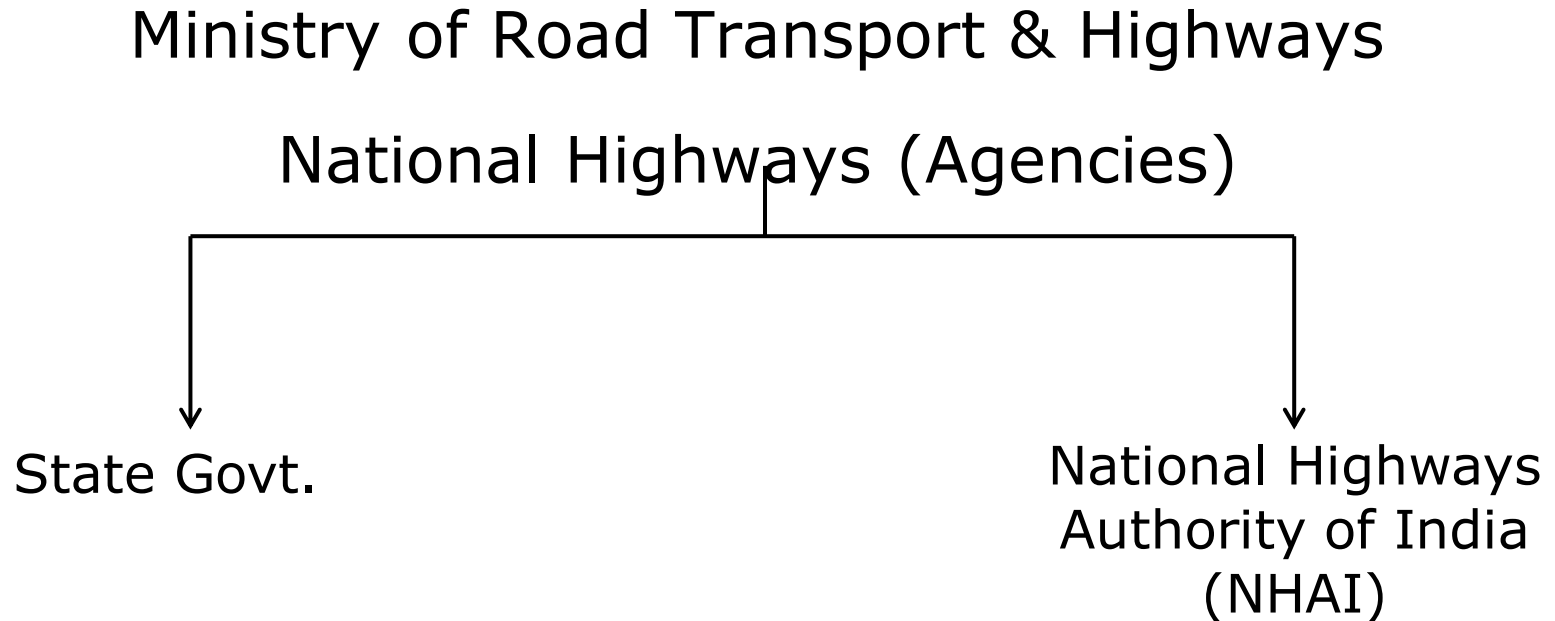


Institutional Arrangement

Road classification	Authority responsible
National Highways	Central Government (through Ministry of Road Transport & Highways)
State Highways	State Governments
Rural Roads	State Government Rural Roads Departments
Urban Roads	Local authorities like corporations, Municipalities
Other Roads	Various Govt. and private organizations



Institutional Arrangement (Contd...)





Institutional Arrangement (Contd...)

- ❑ State Highways Development Corporations constituted by respective states on similar lines as NHAI
- ❑ National Rural Road Development Agency constituted by Central Government for management and technical support to state Govts.



Status of Network

□ National Highways

- ❖ 4 lane carriageways and more – 21,026 kms. (23%)
- ❖ 2 lane carriageway - 42,830 km. (46%)
- ❖ Intermediate / single lane carriageway – 28,995 km. (31%)

□ State Highways

- ❖ Paved - 99%

□ Rural Roads - About 929,000 km. improved as all-weather road.



Status of Network (Contd...)

□ General Deficiencies

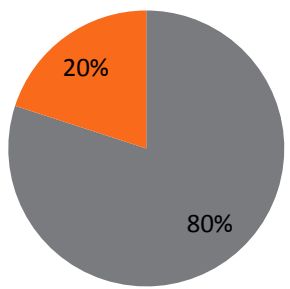
- ❖ Geometric design deficiency, inadequate road safety provision, black spots.
- ❖ Weak pavement and bridges
- ❖ Capacity constraints



Trends for Allocation of Funds for Maintenance

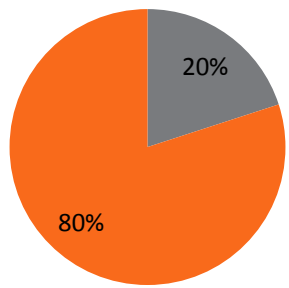
USA

■ Maintenance ■ New Construction



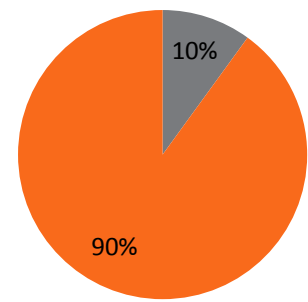
Portugal

■ Maintenance ■ New Construction



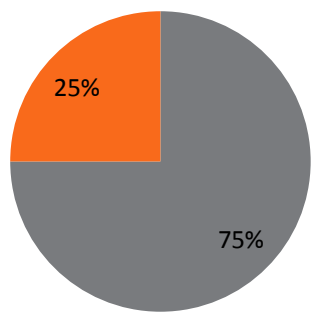
India

■ Maintenance ■ New Construction



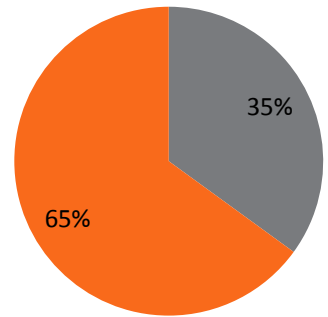
In other countries

■ Maintenance ■ New Construction



I

■ Maintenance ■ New Construction



II



Trends for Allocation of Funds for Maintenance (Contd...)

- ❑ Average Budget allocation for National Highway for maintenance 40% of requirement
- ❑ Other Roads – Similar or worse condition
- ❑ Dependency on budgetary source for maintenance will end up in increased length of unmaintained road.



Management of Roads

- ❑ In 1995, Ian G Heggie of World Bank published 'Management and Financing of Roads' based on his work for remedy to backlog of maintenance in Sub-Saharan Africa. The key concept is **“Commercialization: Bring roads into the market place, put them on fee-for-service basis and manage them like any other business enterprise”**.



Building Blocks of Reforms for Commercialization of roads

- Creating ownership – Involve road users in management of roads.
- Stabilizing road financing – securing stable flow of funds.
- Clarifying responsibility.
- Strengthening management of roads by effective systems and procedures and managerial accountability.



The Reforms have been implemented in India, with due modifications taking into considerations the following:

- Status of road network
- Size and population of the country
- Institutional Arrangement



Implementation of Building Blocks for commercialization

- ❑ Ownership: Involvement of public through people's representatives in Central Parliament and State legislatures.
- ❑ Financing: Additional sources like levy of cess on fuel, levy of user fee.
- ❑ Responsibility: Creation of appropriate agency under Government; Concessions under BOT.
- ❑ Management: Creation of appropriate agency.



Strategy for Financing of Maintenance

- Enhancing Funds for maintenance
- Reduction of maintenance liabilities
- Improving quality of maintenance
- Public Private Partnership for maintenance



Enhancing Funds for maintenance

- ❑ Levy of cess on diesel and petrol under Central Road Fund (CRF) Act, 2000
 - ❖ Non lapsable fund
 - ❖ Exclusively for development and maintenance



Enhancing Funds for maintenance (Contd...)

- ❖ The fund accrued is distributed for National Highways, State Roads and Rural Roads, accordingly to specified proportions in the CRF Act.
- ❖ Present cess Rs. 2 (USD 0.033) per litre. Annual accrual – USD 3.24 billion.
- ❖ Generally utilized for development of NH and Rural Roads and maintenance of State roads



Enhancing Funds for maintenance (Contd...)

- ❑ Levy of user fee:
 - ❖ Enacted by the Government. To be levied on road sections where minimum investment of USD 400,000 per km. has been made
 - ❖ Some states have also levied such user fee.
- ❑ Levy of tax on market commodities in villages – mainly used for maintenance of rural access roads



Reduction of maintenance liabilities

- Development projects
 - ❖ Length requiring maintenance is reduced
 - ❖ Strengthening of roads reduce burden of routine maintenance



Reduction of maintenance liabilities (Contd...)

- ❑ Build, Operate and Transfer (BOT) system under Public Private Partnership.
 - ❖ The road is constructed and developed by private entrepreneur, called Concessionaire, who makes investment.
 - ❖ In some cases, adjacent short stretches of already developed road is combined with new road and concession awarded.



Reduction of maintenance liabilities (Contd...)

- ❖ After construction is completed, the concessionaire operates and maintains the road and collects user fee and retains the same for financing his investment.
- ❖ Concession period - 15 to 25 years
- ❖ Maintenance to a specified standard of level of service.
- ❖ About 15,000 kms. of National Highways have completed under this system.



Improving quality of maintenance

- ❑ Contract formats have been changed
 - ❖ Increase in Defect Liability Period from normal 1 year to 5 years. It solves immediate issue of maintenance after construction has been completed. Besides, it ensures quality of work.



Improving quality of maintenance (Contd...)

- ❑ Performance based contracts:
 - ❖ Parameters of inspection and performance levels are spelt out in specifications. The Contract period ranges from 3 to 5 years.
 - ❖ Maintenance funds have to be provided for selected section of road continuously.



Public Private Partnership for maintenance

Operation, Maintenance & Transfer (OMT)

Concessions – About 2000 kms of roads under OMT

□ Concession Agreement

- ❖ Model Concession Agreement, covering concerns of the concessionaire as well as the owner, has been developed



Public Private Partnership for maintenance (Contd...)

□ Financial Viability

❖ Critical elements

Traffic – dedicated to the corridor

User fee – Prefixed

Capital Cost – It is limited and predictable

❖ Main risk to be considered is rate of growth of traffic



Public Private Partnership for maintenance (Contd...)

□ Technical Parameters

- ❖ Normally out put specifications are stipulated.
- ❖ Very small design and construction work.



Public Private Partnership for maintenance (Contd...)

□ Concession Period

- ❖ Should match with the periodic maintenance cycle
- ❖ Concession period is generally fixed as 4 or 9 years



Public Private Partnership for maintenance (Contd...)

❑ Concession Fee

- ❖ It is the share of toll revenues payable to the Authority by Concessionaire
- ❖ Concessionaire indicates first year concession fee in the bid
- ❖ In subsequent years, it is increased by a fixed percentage



Public Private Partnership for maintenance (Contd...)

- ❑ Selection of Concessionaire
 - ❖ Open competitive bidding from prequalified bidders
 - ❖ The bidder who offers highest first year concession fee wins the contract



Public Private Partnership for maintenance (Contd...)

□ Construction

- ❖ The scope may include construction of some facilities like toll plaza, truck lay byes etc.
- ❖ Concessionaire is however entitled to commence tolling after the concession agreement comes into effect.



Public Private Partnership for maintenance (Contd...)

□ Operation and Maintenance

- ❖ Strict standards are prescribed for high level of service.

□ Monitoring and supervision

- ❖ Authority is not directly involved in implementation
- ❖ The work is monitored and supervised by Independent Consultant, selected by the Authority



Conclusion

- ❑ The strategy for financing of maintenance has been evolved within the constraints but has proved to be effective.
- ❑ This strategy is flexible.
- ❑ There are still some roads having poor condition. It is hoped that the whole network will be covered under maintenance shortly.
- ❑ This sets an example for implementation of reforms with necessary modifications.



Thank You...