

ROAD FUNDS: A CASE STUDY OF SUSTAINABLE ROAD MAINTENANCE IN INDIA

D.P. Gupta*

ABSTRACT

In the past, road maintenance suffered from lack of resources and was a low priority compared with capacity augmentation of main roads and expansion of the road network needed to improve connectivity to villages. There is growing recognition in India that continuing to allocate insufficient funds for road maintenance is not sustainable in the long run. The country has been moving towards creating second generation road funds both at the central and state government levels. In addition, bold initiatives are being taken for undertaking highway projects through private financing. This ensures optimal operation and maintenance during the concession period, which spreads over 15 to 20 years. Toll-based maintenance of highways is another concept gaining momentum in the country. This ensures quality service to road users. It also enhances the availability of upfront capital finance, to the government from the entrepreneur, that can be utilized for the provision and maintenance of road infrastructure. Even at local body levels, resources are generated by levy of cess on agricultural produce and a part of funds raised in this manner is utilized for the maintenance of rural roads. Efforts are also being made in strengthening the institutional arrangements for proper planning of maintenance interventions and their effective delivery on the ground. These experiences are shared in this paper.

Keywords: Road maintenance financing, Central Road Fund, Kerala Road Fund, Uttar Pradesh Road Fund, road funds in India.

BACKGROUND

Roads have come to occupy a dominant position in India's transport system. They are considered critical to economic growth and social development. At 3.2 million km (excluding urban/municipal roads), India's road

* Director (Projects), Asian Institute of Transport Development and former Director-General (Road Development) and Additional Secretary to the Government of India; e-mail: d_p_gupta@vsnl.net.

network is one of the largest in the world. When viewed as assets, roads have enormous value. The current replacement value of the existing network has been estimated at Rs 5,000 billion (equivalent to US\$ 115 billion). Assets deteriorate as a result of normal wear and tear and owing to the ravages of weather and time. The life of a road is subject to an inexorable cycle of construction, inadequate (or non-existent) maintenance, deterioration, collapse and reconstruction. The loss in asset value resulting from the deterioration of existing road networks is high. Regarding as precious infrastructure road assets must therefore be maintained like any other asset.

Road maintenance has suffered in the past due to shortages of resources. In addition, road maintenance has been considered a low priority compared with capacity augmentation of main roads and construction of all-weather roads to provide connectivity to villages. Maintenance is considered a non-plan activity. Budget allocations are often cut at short notice in response to difficult fiscal conditions. In such situations, it is usually the non-plan activities which receive the axe. As a result, maintenance becomes the common casualty.

Often, maintenance is postponed in the hope that fiscal conditions will improve. But this seldom happens and road maintenance continues to be cut or deferred. It is because of this structural problem that both Japan and the United States of America, which are recognized as having well-developed budgetary systems, opted in the mid-1950s for earmarking of road funds to ensure a stable flow of finances to support their road sectors.

I. ROAD FUNDS IN INDIA

There has always been a debate among planners and economists about the merits of earmarking funds for a specific sector. Additional earmarked taxes to fund road sector improvements and maintenance clearly show a medium-term commitment on the part of the Government. It may be added that these funds may continue to be treated as part of the overall government revenues. These are liable to be siphoned off for other purposes if government runs into financial difficulties. However, the second generation road funds being set up in Africa appear to be easier to sustain in the long run.¹ The revenues for such funds are obtained from levies and surcharges designated as “user charges”. The main types of such charges are vehicle

¹ Please see the articles by Steven Brushett and J.O. Haule on the experience of road funds in Africa in this volume.

licence fees, levies on fuel (petrol and diesel) and tolls. India is also moving towards creating such second generation funds for roads to supplement the existing budgetary resources.

A. Initiative at the central government level

The Central Road Fund has existed since 1929. The levy was low and was confined to petrol. It remained unchanged until 1998. As a result, the proceeds to the fund were meager, amounting to only about Rs 220 million (US\$ 5 million) in 2000.

In September 1998, the Government of India decided to levy an additional excise duty of Rs 1.00 per litre on petrol and dedicate the proceeds for the road sector. In March 1999, high-speed diesel became subject to this duty. The Central Road Fund was totally revamped and the revised Act was passed by the Parliament in late 2000. The management of the fund is governed by the provisions of the Central Road Fund Act, 2000. Under the Act, distribution of the CRF is specified as under:

- (a) 50 per cent of the cess on high-speed diesel for development of rural roads;
- (b) The remaining 50 per cent of the cess on high-speed diesel and the entire cess collected on petrol as follows:
 - (i) 57.5 per cent for development and maintenance of national highways;
 - (ii) 12.5 per cent for construction of road over/under bridges over the railways and erection of safety works at unmanned railroad crossings;
 - (iii) 30 per cent on development and maintenance of state roads (10 per cent of this amount is kept as a reserve for the implementation of schemes of interstate and economic importance).

At first, annual accruals to the fund were about Rs 55 billion. Currently, this levy is Rs 2.00 per litre (annual accruals Rs 120 billion, equivalent to US\$ 2.8 billion).

The Central Road Fund Act includes maintenance of national highways and state roads (excluding rural roads) in addition to development. However, currently proceeds out of these funds are used mainly for:

- Augmentation of capacity in respect of selected national highways,
- Improvement of state highways,
- Providing all-weather access to unconnected settlements with populations of or more 500 (250 in case of hills, deserts and tribal areas).

B. Initiatives at the state government level

A few states have also set up dedicated road funds. The annex gives some brief examples. Uttar Pradesh is the only state with a dedicated fund specifically meant for maintenance. Box 1 gives general details.

Box 1. Uttar Pradesh Road Fund

(i)	Year of establishment	1998
(ii)	Purpose	Maintenance of state roads
(iii)	Source	Increase in sales tax on <ul style="list-style-type: none"> • Motor spirit (petrol) from 14 to 20 per cent • High-speed diesel from 16 to 20 per cent
(iv)	Annual proceeds	Rs 4 billion (2004-05)
(v)	Collection	By oil companies
(vi)	Mechanism	After collection, oil companies transfer the proceeds to the consolidated fund of the state.
(vii)	Management	<ul style="list-style-type: none"> • Advisory Committee (22 members) is headed by the Minister of Public Works; representatives of government departments and users are members; • Allocations are made as per plans approved by the committee; • Rules and regulations have been approved by the Accountant-General; • Details of expenditure and progress are kept by the Engineer-in-Chief, State Public Works Department.

Source: Uttar Pradesh Public Works Department.

The finance commissions, set up every 5 years, also examine the requirements of maintenance in several sectors of the economy and make recommendations for allocation of maintenance funds for state roads. The finance departments of the states would need to ensure that the amounts recommended are allocated to the road agencies.

C. Public-private partnerships

India has also begun to upgrade and augment the capacity of main roads through private sector financing on a build-operate-transfer basis. The Government of India and several states have modified their existing legal provisions for enabling projects to be awarded to private entrepreneurs for a specified period of concession during which they are allowed to levy fees and tolls on road users. They are offered financial incentives, such as tax holidays, duty-free import of road construction equipment and provision of government grants to meet the financial viability gap. Once the concession is granted, the private entrepreneur is obligated to construct the facility and thereafter operate and maintain it at his cost. This ensures a high-level of maintenance and quality service to road users during the concession period. Usually, a period of 15 to 20 years is allowed after the opening of the facility.²

At the end of the concession period, the facility reverts to the government. Normally, such a facility may require further capacity augmentation or upgrading to meet the increased traffic demand and the government is likely to offer the same stretch on the same terms.

II. ROAD MAINTENANCE ARRANGEMENTS

A. Toll-based maintenance

Several projects for capacity augmentation of main roads (national and state highways) are being undertaken by the Government either out of its own funds or with external assistance from the World Bank, the Asian Development Bank and the Japan Bank for International Cooperation (JBIC). The Government is contemplating opening these roads to private entrepreneurs for toll-based operation and maintenance upon opening the facility to road users. This will bring about improvement in the level of service, higher productivity of road transport and savings in vehicle operating costs. Box 2 gives brief details of this concept.

² Interested readers are referred to an article by B.N. Puri in volume 73 of the Bulletin. The article is also available at <<http://www.unescap.org/ttdw/PubsDetail.asp?IDNO=143>>.

Box 2. Concept of operation and maintenance of highways through private financing

The concept involves concessions to private entrepreneurs to operate and maintain highways for a given period after the project is completed through government budgetary sources or other funds. The entrepreneur is permitted to collect tolls from the road users at the rates fixed by the Government. A reasonable increase in toll rates is allowed with time which could be yearly or once in three/five years. Such an increase in toll rates may be linked to the consumer price index or wholesale price index.

The concessionaire will, for a given period, pay the Government upfront fees as a lump-sum and in yearly or six-monthly installments. This payment could be used to supplement the highway budget or alternatively for paying grants to meet the financial viability gap of the BOT entrepreneurs engaged for capacity augmentation of the highway.

Apart from operation and maintenance of the highway, the Government can also stipulate provision of certain asset enhancement and corridor management features, such as:

- Land management
 - Prevention of encroachment
 - Control of ribbon development
 - Access control
 - Regulating use of right-of-way by utilities
- Tackling of safety hazards and traffic bottlenecks
- Control of overloading of vehicles
- Incidence management

Complications with this scheme arise if traffic volumes exceed design capacity before the end of the concern period. This can be addressed by granting right of first refusal for capacity augmentation to the concessionaire or by amending the concession period. This has to be thought through and the stipulations must be made in a transparent manner.

The Government also has to safeguard the public interest and ensure proper transfer at the end of the concession period. This should ensure that the facility is in reasonably good condition at the time of transfer.

It is noteworthy that, sometime back, the state government of Madhya Pradesh took the bold initiative of undertaking toll-based maintenance of state highways through private financing. Table 1 gives brief details of two such cases.

Table 1. Examples of toll-based maintenance of state highways

Serial No.	Particulars	Bhopal-Dewas state highway	Jaora-Nayagaon state highway
1.	Length	143 km	103 km
2.	Scope of work	Improvement of minor works like culverts; routine and periodic maintenance; renewal of road by premix carpet on 28 km length per year; construction of toll booths at two locations; bringing berms into proper condition	Improvement of culverts and other cross drainage works, drains, etc.; routine and periodic maintenance; toll booths at two locations; renewal of riding surface as per approved programme – 30 km per year on average; bringing berms into proper condition.
3.	Period of concession	Six months for improvement works and three years for maintenance (project already completed)	1,791 days (started early 2000)
4.	Toll rates	Car: Rs 10 Bus: Rs 25 Truck: Rs 35	Car: Rs 10 Bus: Rs 25 Truck: Rs 35
5.	Offer by entrepreneur (criteria of work award)	Fixed concession period of three years and six months, including time for completion of improvement works; maximum offer of payment by the entrepreneur to the government: Rs 44.6 million paid by entrepreneur to state government in 12 quarterly installments spread over 3 years.	No grant by the state government and no financial offer by the entrepreneur, but work awarded on the basis of least concession period.
6.	Transfer	Transfer in good condition to the state	Transfer in good condition to the state

Source: Madhya Pradesh Public Works Department.

In this context, it may be asserted that the “user pays” approach prevents road maintenance from becoming a burden on the state exchequer, and the level of service provided for road users improves in the process.

B. Performance-based maintenance

With the assistance of the World Bank, the state government of Andhra Pradesh introduced performance-based maintenance contracts on four highway stretches with a total length of 1,200 km in four districts. Payments on the contracts are linked to performance parameters of both routine and periodic maintenance. The National Highways Authority of India has also taken up maintenance contracts on some national highway stretches. The level of service to road users was enhanced in these schemes. However, funds for such contracts are being provided out of the government budget.

C. Community participation in road maintenance

Some states in India levy cess on food grains through their market committees and the proceeds are utilized, among other items, for the construction of link roads and their maintenance in rural areas. This is because there is a general understanding among farmers that a good road network in their areas allows them to fetch a better price for their produce. This gives them an incentive to increase production as the size of the market increases due to a well maintained road system. It also helps them to obtain their consumer goods and other inputs more cheaply and improves their access to schools, health care and market facilities.

The states of Punjab and Haryana started these practices in the early 1970s. Rajasthan followed immediately thereafter. Uttar Pradesh and Madhya Pradesh have also joined such moves. Funds in such cases are managed by market committee boards.

In the sugar-cane belts of some states, sugar cooperatives contribute funds for repair and maintenance of roads. Similarly, in coal field areas, mining authorities contribute towards road rehabilitation and maintenance.

Some of the states are studying the international practices of routine maintenance through community-based micro-enterprises. A few pilot projects are likely to be taken up in Uttar Pradesh and Himachal Pradesh.

D. Utilizing funds under poverty alleviation and employment creation schemes

The Ministry of Rural Development provides funds to the states under several schemes aimed at providing employment opportunities and bringing about poverty alleviation. One such scheme is *Sampoorna Grameen Rozgar Yojana* (SGRY), aimed at rural employment. SGRY is open to all rural poor who are in need of wage employment and are prepared to do manual work. A part of the funds under this scheme are used for construction of earthen tracks in rural areas. Recently, another scheme, called the National Food for Work Programme (NFWP), was launched in 150 of India's most undeveloped districts in an attempt to increase the generation of supplementary wage employment. Like SGRY this programme is open to all rural poor who are in need of wage employment and are prepared to do manual unskilled work. For the year 2004-05, an amount of Rs 20.20 billion has been allocated for this purpose in addition to 2.0 million tonnes of food grains. Since routine maintenance of rural roads is a labour-intensive activity, a part of the funds available under such programmes can be utilized for this purpose.

E. Strengthening institutional arrangements

Along with creating sustainable arrangements for financing road maintenance, there is a need to reform the institutional system of delivery of maintenance works. Maintenance planning can be improved by establishing road management units at the field level and using maintenance management system tools so that maintenance works are identified and prioritized based on road conditions and traffic. In addition, training workers in order to enhance their skills in various maintenance jobs has to be a continuous process.

CONCLUSIONS

Roads are huge assets and, as such, need to be preserved. Maintenance has recently emerged as a key issue in India for sustaining investments in the road sector. Political commitment to this issue is solidifying, although in many states it is not profound. Several strategies for the mobilization of additional resources are being adopted to provide an adequate and steady flow of funding for road maintenance. These strategies span across the central Government, state governments, local authorities and community-based organizations. The private sector has also evinced interest in financing operations and maintenance for high-density highway corridors on long-term contracts. The delivery system is also steadily improving, with pressure building

up from road users. The momentum has to be kept up as there is still a large backlog due to past neglect in maintenance. India is confidently meeting the challenge of upgrading and expanding the existing road network and its maintenance.

Annex

Dedicated funds for roads at the state level in India

Kerala

The state of Kerala created the Kerala Road Fund in 2001. The Fund's objective was to mobilize non-budgetary resources for the development and maintenance of the state road network. Box 3 gives a summary of the salient features of the Kerala Road Fund.

Box 3. The Kerala Road Fund

Legal position

The Kerala Road Fund was created to demonstrate greater commitment to the development and maintenance of the PWD road network and to mobilize greater non-budgetary resources (user charges, private sector involvement and external funding). It was constituted under the Kerala Road Fund Act 2001, which became law on 23 November 2001.

Purpose

The Road Fund is to finance:

- Routine recurrent and periodic maintenance of Public Works Department roads;
- Development of existing road network system including upgrading roads maintained by the PWD;
- Construction of new roads wherever necessary;
- Development of such safety projects as are deemed essential for safe and smooth traffic;
- Research related to maintenance and development of roads;
- Any cost-sharing for donor-funded projects intended for any or all of the purposes mentioned above.

Sources of funding

The Road Fund shall consist of:

- All moneys received from the Central Road Fund established under the Central Road Fund Act, 2000;

(continued to page 56)

(continued from page 55)

- The contribution made by the Government;
- All fees, fines and other amounts collected by the Government according to the provisions of the Kerala Highway Protection Act, 1999;
- All payments made by the concessionaire as per the concession agreement;
- All amounts credited to the Bridges Fund established under section 12 of the Kerala Tolls Act, 1976;
- The user fees collected by the Government agency or the statutory body under the Kerala Road Fund Act;
- Grants or loans or advances made by the Government of India, the Government of Kerala or other institutions;
- All returns on investments made by the Road Fund Board directly or through a government agency or statutory body;
- Any amount borrowed by the Road Fund Board;
- Any other amount authorized for credit to the Fund under the provisions of the Road Fund Act or rules made thereunder or any other law for the time being in force;
- Every year, the Government shall contribute to the Fund an amount equal to 10 per cent of the tax collected by them in the previous year under the provisions of the Kerala Motor Vehicles Taxation Act, 1976, and the said amount shall be charged to the Consolidated Fund of the State.

Projects

Projects under the Road Fund can be taken up in association with private entrepreneurs or financing institutions on a cost- and benefit-sharing basis. If proposed projects are not likely to be financially rewarding enough to attract private participation, incentives in the form of a share of the costs involved could be given.

(continued to page 57)

(continued from page 56)

Management

The Board shall consist of the following members:

- Chief Minister, ex officio, who shall be the Chairman of the Board
- Minister in charge of Public Works, ex officio, who shall be the Vice-Chairman of the Board
- Minister in charge of Finance, ex officio
- Minister in charge of Transport, ex officio
- Principal Secretary to the Government in charge of the Public Works Department, ex officio, who shall be the Member Secretary of the Board
- Law Secretary, ex officio
- Chief Engineer, Roads and Bridges, ex officio
- Three persons nominated by the Government from among the heads of financial institutions engaged in the business of infrastructure, scheduled banks or technical or engineering personnel working in national-level institutions.

There shall be an executive committee consisting of (a) the Minister in charge of Public Works (Chairman of the Executive Committee), (b) the Principal Secretary to the Government in charge of the Public Works Department (Vice Chairman of the executive committee), (c) Finance Secretary to Government, (d) Law Secretary, (e) Chief Engineer, Roads & Bridges, and (f) two members nominated by the Board from among the nominated members of the Board.

Madhya Pradesh

The state of Madhya Pradesh has recently created a *kisan sadak nidhi* (farmer's road fund) through levy of a cess on agricultural produce, 85 per cent of the proceeds are earmarked for the improvement and maintenance of the major district roads and rural roads. An amount of Rs 1.2 billion (US\$ 28 million) per year is available out of this fund.

Karnataka

The state of Karnataka has recently created a dedicated fund for rehabilitation and maintenance of rural roads. The fund is called Chief Minister's *Grameen Raste Abhivrudhi Nidhi* (CMGRAN). An amount of Rs 300,000 per km for periodic renewal and Rs 40,000 per km per year for routine maintenance for black-top rural roads is allocated to the *Zilla Parishads* (district-level local bodies). For water-bound macadam and gravel roads, the norms for routine maintenance are Rs 25,000 and Rs 20,000 per km per year. This is a good scheme for protecting the investments being made in the development of rural roads in the state.

Uttar Pradesh

The state government of Uttar Pradesh created a dedicated fund for the maintenance of state roads in 1998. The fund is financed through an increase in sales tax on motor spirit and high-speed diesel. Oil companies transfer the proceeds to the consolidated state fund after their collection. Then the funds are allocated to the state road fund. These funds are managed by an advisory committee headed by the Minister of Public Works. Rules and regulations for the use of funds for different categories of roads have been formulated and were approved by the Accountant-General of the state. Current accruals are estimated to be about Rs 4 billion. Consequently, there has been a significant increase in allocations for road maintenance. Planning and implementation arrangements are being strengthened for the efficient use of funds and effective delivery of maintenance operations.