

## Resource Mobilisation for Road Construction

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### ROAD DEVELOPMENT

Road development in India has been sluggish, in the sense that it has not kept pace with the development requirements of providing efficient road network for transportation of passenger and freight traffic. The total road length in the country increased from 3.99 lakh kms in 1951 to over 23 lakh kms in 1993, accounting for a six-fold increase. But the situation appears to be alarming when the growth of road length is juxtaposed to the growth of population, vehicles and traffic. During the period 1951-91 while the population has been growing at a compound growth rate of 2.15 percent, the vehicle population was growing at the rate of 11.2 percent, passenger traffic at the rate of 9.4 percent and freight traffic at the rate of 9.7 percent. The road length, however, increased only by 4.32 percent during the above period. In fact vehicle population in the country increased eightyfour-fold as against the six fold increase in the road network during the above period, with the result we have only 70 kms of road length per 100 square km of area and 261 kms per 1,00,000 of population. The traffic density (vehicles per 100 kms of road length) increased from 76 in 1951 to about 1160 in 1993. The quality of the roads is equally deplorable. It continues to be primitive and not vehicle-friendly. The national highways constitute less than 2 percent of our road network. About 50 percent of the roads are surfaced. It is estimated that because of the poor condition of our roads, there is a loss of about Rs. 15,000 crore to the economy every year. It is thus clear that the development of roads, both in terms of quality and quantity,

has not been commensurate with the economic development in the country. This has happened precisely because of the inadequacy of resources allocated for road development.

### FINANCIAL OUTLAY DURING PLANS

The share of outlay on transport decreased from 22.1 percent in the First Five Year Plan to 12.9 percent in the Eighth Five Year Plan. Within the transport sector the major recipient has been the Railways. Roads got 6.9 per cent of the total outlay and 31.1 percent of the outlay of the transport sector in the First Five Year Plan, during the Eighth Plan, these shares were 3.0 percent and 23.5 percent respectively. The allocation of funds during the different Five Year Plans is given in Table-1.

It is observed from Table-1 that the outlay on road has not been commensurate with either the traffic load carried by it or the revenue generated by the road sector for the exchequer.

### REVENUE

Roads in India earn a sizable revenue for the exchequer. The revenue in the form of motor vehicle tax and fees, taxes on traffic, import duty and excise duty on motor vehicles and accessories, tyres and tubes, high speed diesel oil, motor spirit and sales tax on motor spirit and lubricants increased from Rs. 48 crore in 1950-51 to about Rs. 9500 crore in 1992-93. The details of the revenue earned by the Central and State Governments from road transport during the period 1951-1992 are given in Table-2.

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**Table-1 : Public Sector Plan Investment in Transport Sector**

Plan	Total Plan Outlay (Rs. crore)	Outlay on transport (Rs. crore)	Outlay on road (Rs. crore)	% of 3 to 2	% of 4 to 2	% of 4 to 3
1	2	3	4	5	6	7
I	1968	434	135	22.1	6.9	31.1
II	4672	1100	224	23.5	4.8	20.4
III	8577	1983	440	23.1	5.1	22.2
IV	15778	2522	862	16.0	5.5	34.2
V	39426	5543	1701	14.1	4.3	30.7
VI	109292	13962	3807	12.7	3.5	27.3
VII	179277	29457	6335	16.4	3.5	21.5
VIII	434100	56141	13210	12.9	3.0	23.5

**Table-2 : Revenue from Road Transport**

(Rs. in crore)

Year	Central	State	Total
1950-51	35	13	48
1960-61	112	55	167
1970-71	452	231	683
1980-81	1423	750	2173
1990-91	4569	3035	7631
1992-93	4792	4739	9531

**REVENUE Vs. EXPENDITURE**

The situation appears to be alarming if the expenditure on road and road transport is juxtaposed to the revenue realised from the sector. During the period 1980-85, about 36 percent of the revenue realised from road transport was spent on road and road transport but in 1992-93, the expenditure was less than 27 percent. This is not to argue that the entire amount realised from road transport should be spent on road development which is against the basic canons of public finance. Further, road is a public good with the feature of non-excludability. Once road is provided, everybody has the right to walk on the road without any liability to pay towards it. But given the importance of roads in the economic development of the country, atleast during initial stages of development, countries generally prefer to spend more on road than what they earn

from road transport. But in India, the expenditure on roads and road transport constitutes only about 27 percent of the revenue from the road transport. The revenue and expenditure during 1980-85, 1985-90 and 1992-93 are given below :

**Table-3 : Revenue and Expenditure from Road Transport during the period 1980-1993**

Period	Revenue	Expenditure	Expenditure as a percentage of revenue (%)
	(Rs. in crore)		
1980-85	14175	5083	35.9
1985-90	26792	8376	31.3
1992-93	9500	2560	26.9

The road expenditure as a percentage of road revenue for the year 1992 in respect of a few selected countries are presented in Table-4

**TRAFFIC**

The share in outlay of road transport is in sharp contrast to the relative shares in traffic. While the share of Railways in passenger and freight traffic decreased from 68 percent and 81 percent respectively in 1951 to 22 percent and 61 percent respectively by 1987, the share of road transport during the period increased from 32 percent and 12 percent to 78 percent and 39 percent respectively. It is estimated that more

**Table-4**

Country

Bahrain  
Yemen  
U.S.A.  
Switzerland  
Finland  
Spain  
Australia  
Costa Rica  
Iceland  
Denmark  
Italy  
U.K.  
Netherlands  
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**Table-4 : Road Expenditure as a percentage of Road Revenue in Selected countries**

Country	Road Expenditure as a percentage of road revenue (%)	Road taxes as a percentage of Govt. receipts (%)
Bahrain	134	
Yemen	109	
U.S.A.	78	5
Switzerland	77	8
Finland	77	14
Spain	69	17
Australia	63	7
Costa Rica	62	7
Iceland	55	17
Denmark	36	4
Italy	32	17
U.K.	30	12
Netherlands	3	4
India	27	

Rs. 10 lakh per km of road length it would require a sum of Rs. 90,000 crore over the next 6 years. In addition, resources are needed for maintenance of the existing road network and improving their quality.

### RESOURCE MOBILISATION

If the past trend of allocation of funds is any indication, the plan funds would not be even enough for maintenance and upgradation of the existing roads. Resources, have therefore, to be mobilised through other sources. The private sector is unlikely to come in a big way since the services of road are not easily marketable, it requires huge investment and at the same time its gestation period is very high. Credits from multilateral/bilateral funding agencies also would not be available in such a magnitude. Therefore the funds are required to be raised from within the economic system and the Government has to play the main role in the road construction. This paper suggests two additional means of resource mobilisation for road construction and development.

### PRIVATE SECTOR PARTICIPATION IN ROAD CONSTRUCTION

A suggestion is being made out that India should learn from the experience of South Asian Countries like Thailand where private sector has successfully built road infrastructure. This approach has also been experimented in India. Since early 1980s, guidelines have been framed to attract private entrepreneurs to construct road stretches like a by-pass or highway/expressway section and to charge toll from the users. This did not appear attractive to the potential entrepreneurs because of high elasticity of demand by potential users of road as shown in figure-1.

If toll rate exceeds OP, there will be no demand for use of road. However, if the toll rate is OP1, demand will be OX. The supply curve (SS) does not intersect the demand curve at any point and hence there will be no construction of roads.

The elasticity is high because the users have the option of using a parallel stretch where

now carry about 80 percent of the passenger traffic and 60 percent of the goods traffic. According to an estimate the road transport carried 1622 billion passenger kms and 567 billion tonne kms in 1991. These estimates relate to the traffic carried by road transport as compared with the traffic carried by the railways. It is, however, forgotten that road is not synonymous with road transport whereas rail track is synonymous with rail transport. The traffic on roads also include all pedestrian movement, carriage of luggage by people themselves and other means of transport such as two wheelers etc.

### INVESTMENT ON ROAD CONSTRUCTION

Road Development requires heavy investment and long gestation period. To avoid bottlenecks it is necessary to estimate and plan the investment to be made on road construction for a planning horizon. Even if the requirements of economic development are ignored and the road length is assumed to grow according to the past trend, i.e. 4.32 percent annual compound rate, the road length by 2000 would be 31.81 lakh kms. This means the additional road length of 9 lakh kms is to be constructed in another six years. Conservatively estimated at the rate of



no toll is charged. However, if the toll rate were very nominal, the user will prefer to pay the toll than diverting himself to another uncomfortable road. But if the toll rate is high he would definitely switch over to an uncomfortable road. This does not happen in Thailand because of the high purchasing power of the users who value time and comfort more than money. Hence toll-charged roads are patronised in Thailand. In India, however, majority of the users prefer to sacrifice comfort and time rather than money. Until the users of roads become rich enough to appreciate the value of time and comfort associated with privately built stretches of road, private roads cannot be patronised. Therefore, the limit on toll rate comes on the way since a toll which can be charged without losing users would not ensure adequate return to the entrepreneur. The other option is that the entrepreneur can be allowed to build unique (i.e. not parallel/bypasses) roads which has to be used. But this has the danger that the private entrepreneurs may hold the country to ransom.

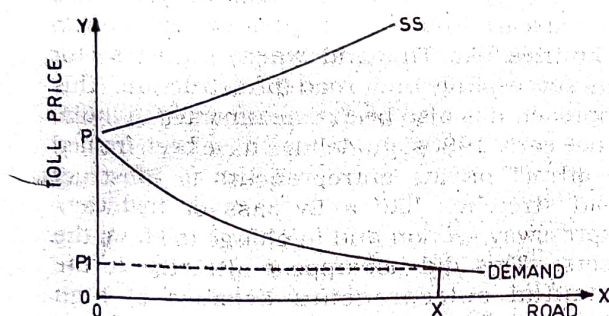


Fig. 1

It may, however, be borne in mind that under the guidelines the private entrepreneur realises only the toll from the use of roads, whereas other revenue related to use of roads is appropriated by the Government. For example, if the vehicle owner has paid motor vehicle registration fee (i.e. road tax), he would hesitate to pay separately for separate stretches of road and hence his elasticity of demand is very high.

Besides, the entrepreneur takes only toll into account to compute his rate of return which is not turning out to be attractive. If he gets a share of road tax from Government, probably return would workout to be attractive.

An additional problem that one loses sight of, is that if private sector comes forward in large numbers, the country will have millions of stretches of road owned by millions of private entrepreneurs. The formalities associated with the collection of toll would definitely hinder the smooth movement of goods and passengers. A levy of octroi is any indication, leave aside the complications in determination and administration of the toll rate for different distances by different agencies and problems associated with acquisition of land for road construction.

It is, therefore, suggested that the private operators build the road, own it but take a share of the revenue from road transport to the exchequer. The share should be adequate to provide the entrepreneur an attractive rate of return. After the entire investment is ploughed back, the ownership of the roads could be transferred to the Government. This would in fact amount to the Government borrowing for road construction and paying an interest on the borrowing and charging a higher rate of road user tax instead of toll.

### PUBLIC Vs. PRIVATE GOODS

Road is a public good jointly used in equal amounts by more than one user and further, when it is jointly used, use by one person does not alter the availability of road to another user. Public good is different from private good at least in two respects. Firstly private good permit exclusion principles which render them marketable. But road being a public good, it is beyond the economic philosophy to make roads marketable at toll prices and thereby deprive few potential users who cannot afford to pay. Secondly, in case of private goods, benefits flow to a particular user implying that the benefits are internalised and consumption is rival. Therefore, exclusion is applied without loss of efficiency. But in case of public goods,

consumption cannot be excluded. If goods are non-rival, they should be provided by the government.

With prices and quantities, individual good shows willingness to pay. Since private and social consumption of good (e.g. demand curves are different).

Figure 1 shows demand curve D, D1 and D2. B purchase schedule, the interest price is by A and is an effect equals principle the will toll price total cost total a give individual in Figure 1.

output A and the price is OI solution.

road cannot ensure



consumption is not rival. Therefore, free market cannot efficiently allocate resources to public goods. If these goods have to be produced it should be done by public agency only.

With private goods, each consumer regards prices as given and purchases different quantities to equalise his marginal rates of substitution with the given prices. Each individual's demand curve for a given private good shows the amount of the private good he is willing to purchase at the given market price. Since private goods are divisible in consumption and since two people cannot simultaneously consume the same physical output of the same good (e.g. the same apple) the market or total demand for a private good is obtained by horizontally summing the individual demand curves as is shown in figure-2.

Figure-2 shows that  $D_1$  and  $D_2$  are demand curves of A and B. The market demand curve  $D_{12}$  is obtained by horizontal addition of  $D_1$  and  $D_2$ , adding the quantities which A and B purchase at any given price.  $SS$  is the supply schedule and equilibrium is determined at E, the intersection of market demand and supply. Price is  $OC$  and output  $OH$ , with  $OF$  purchased by A and  $OG$  by B where  $OF + OG = OH$ . This is an efficient solution because marginal benefit equals marginal cost for each consumer. This principle cannot apply to demand for roads, as the willingness of individual to use a road at a toll price cannot be added up horizontally. The total demand curve for roads indicating the total amount people would be willing to pay for a given quantity is derived by summing the individual demand curves vertically as shown in Figure-3.

$SS$  is the supply schedule. Equilibrium output equals  $OH$ , which is consumed by both A and B. The combined price equals  $OK$ , but the price paid by A is  $OM$  while that paid by B is  $OL$ . The equilibrium at E is an efficient solution.

From the above analysis, it appears that road is a service where principle of exclusion cannot be applied and the toll pricing will not ensure efficient solution. An efficient solution

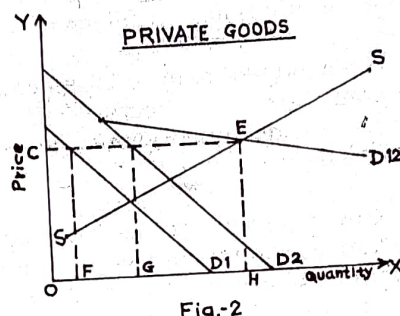


Fig.-2

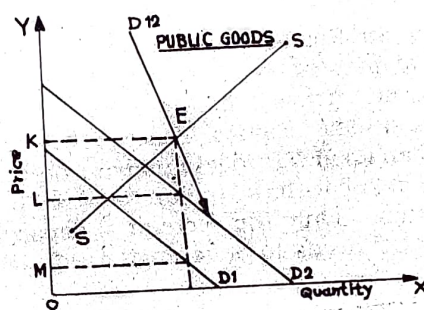


Fig.-3

is possible, if we assume that the Government (comprising of potential users) buy the services of road from the private entrepreneurs and pays for it. In that case,  $D_{12}$  in Figure-2 becomes demand curve of the Government and  $SS$  is the supply curve of the private entrepreneur.  $OH$  of roads is supplied at  $OK$  price paid by Government which in turn would collect from the potential users in the form of road user tax.

### MOBILISATION OF BLACK MONEY

Estimates indicate that the amount of black money in India's economic system is more than Rs. 1 lakh crore. This money is not having any productive use. This money could be diverted and used for building the nation. The Government can mop up a part of the black money by issuing Road Construction Bonds with following features :

- The bonds should be bearer bonds and could be in the nature of negotiable instrument



- The money deposited in these bonds should become double in fifteen years time
- The bonds should mature for redemption on completion of 15 years. The entire amount of redemption should be treated as white money
- The Government/any agency of the Government should not ask any question at the time of either issue or redemption of the bonds to the depositor/bearer/payee regarding the source of this money.

Indian Roads Construction Corporation (IRCC) at present is not having any business whatsoever. It has a manpower of about 200 people and some facilities. This can be converted into Indian Road & Bridges Finance Corporation (IRBFC) in line with the Indian Railway Finance Corporation. Only the secretarial department of the IRCC needs to be strengthened. IRBFC

could raise resources from market on behalf of the Government of India and pass it on to the Government to be utilised for construction of roads. The bonds should be guaranteed by the Government of India and IRBFC could levy a service charge of about 0.25 percent on the fund thus collected.

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*The views expressed in this paper are of the author only and not necessarily of the Government.*

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