FUNDING OF TRANSPORTATION PROJECTS THROUGH PPP MODELS IN INDIA

Tauqeer Khan, P.K.Sarkar & Vinay Maitri
(sarkarpradip52@gmail.com, vmaitri@gmail.com)
School of Planning and Architecture: New Delhi
www.spa.ac.in

ABSTRACT

Urban transport financing has become quite complex in developed countries. The situation has become more complex and is aggravating in developing countries. It has come to a position where urban transport projects cannot survive on budgetary provisions due to resource crunch. As a result of this shortage of funds, plan preparation for provision of urban transport facilities has tended to become a mere academic exercise.

Studies on municipal finance describe the familiar story of an ever-widening gap between needs and resources. This would have to generate the financial resources for the purpose. In this paper, an attempt has been made to review the various approaches for funding urban transport projects in general and their applications in particular. There are large numbers of highway projects undertaken in the country on a large scale on the concept of Public Private Partnerships. These include Highway projects under BOT (Toll), BOT (Annuity), BOT with grant, Special Purpose Vehicles etc. These projects under the PPP concept have provided an impetus as these projects are of great success. The Paper finally examines the comparative benefits of new Model Concession Agreement (new MCA) for future PPP projects in spite of huge success of existing PPP model.

1. BACKGROUND

The importance of urban transport in enabling of urban growth and ensuring its well being is being appreciated. In an urban area, activities get distributed over space. It is the urban transport that enables their interaction, interlink-age and integration. The urban transport is the most important single component instrumental in shaping urban development and urban living. While urban areas may be viewed as engines of growth, urban transport is, figuratively and literally the wheel of that engine. In 1981, the contribution of urban centres to the national GDP (Gross Domestic Product) India was estimated at 44.4 percent.[1] It is, therefore, necessary to provide an efficient transport system for the urban areas. An efficient urban transport system in a city will benefit everybody including non-users of the system. While cities and towns are growing rapidly and are doubling in their population size in a period of about two decades, the travel demand within them is increasing at geometrical proportions by four to eight times. Three factors are contributing to this phenomenon. The first is the increase in population size. There are more people moving and creating demand for other movements like goods and services. Secondly the mobility, expressed as per capita trip rate (PCTR) is continuously increasing in different types of cities.(1) . This is due to the change in the socio-economic characteristics of the trip maker and wide variety of opportunities offered by the city.

Thirdly, due to the continuous physical expansion of the city and distribution of activities over a wide spatial frame, the trip lengths are increased with the increase in travel demand and expansion of cities have created additional burden on existing infrastructure. For an efficient transport system in urban areas, there is a need to plan and develop it to meet the immediate and future needs.

Urban transport financing has become quite complex in developed countries. Even in the United States, it has become exceptionally difficult to finance urban transport due to constant shortage of funds. As a result, many specialised approaches have been created to help yield every possible dollar. The situation has become more complex and aggravating in developing countries and has come to a position where urban transport projects cannot survive on budgetary provisions due to resource crunch. As a result of this shortage of funds, plan preparation for provision of urban transport facilities has tended to become a mere academic exercise. In this paper, an attempt has been made to review the funding of urban transport projects through PPP models in India

2. APPROACH OF FUNDING FOR URBAN TRANSPORT PROJECTS

Many transportation projects have been delayed on account of lack of adequate resources. The construction work on the Calcutta's Rapid Transit System (RTS) has progressed in a chequered and halting manner which has already taken more than 15 years. The MRTS facilities in Bombay and Madras were also taken up in a limited number that highlights the impact of financial constraints on the need to look for alternative financing strategies for urban transport.

There has been a decline in the outlays in transport sector over the years. Urban transport in particular has not received significant attention. An estimated 2972 million dollars need to be invested in two plan periods for forty metropolitan cities for development of urban transport. To generate such a heavy investment is an uphill task for the government. Alternative sources of financing are in practice but it is all being carried out in a piece meal fashion without achieving integrating, ideas and policies. Moreover there is no unified mechanism at present which can look after the financing requirements of urban transport. The following part of the section makes an attempt to study the sources of funding and suggest a suitable mechanism for financing urban transport.

3. PUBLIC FINANCING OPTIONS

In circumstances where project risks is perceived as onerous, crowding out private capital, the State/ Concession grantor may mitigate project risk through a variety of instruments, such as:

a) Equity Guarantees
b) Debt Guarantees
c) Exchange Rate Guarantees
d) Grant/Subsidies
e) Subordinate Loans
f) Minimum Traffic and Revenue Guarantees
g) Shadow Tolls

The use of **public** financial support for private toll roads leads to different criteria for award of concessions as mentioned under:

a) Lowest toll level
b) Shortest duration of the concession
c) Highest payment in the government for existing infrastructure
d) Lowest subsidy required from the government

4. FINANCE MECHANISM OF NATIONAL HIGHWAY AUTHORITY OF INDIA

There are a number of mechanisms developed to raise funds in the Government of India. These include:

4.1 Cess

In a historic decision, the Government of India introduced a Cess on both Petrol and Diesel. This amount at that time (at 1999 prices) came to a total of approximately 444 millions dollars per annum. Further, Parliament decreed that the fund so collected were to be put aside in a Central Road Fund (CRF) for exclusive utilization for the development of a modern road network.
Today, the Cess contributes between 1101 millions dollars to 1331 millions dollars per annum towards NHDP.

4.2 Loan Assistance from International Funding Agencies

Loan assistance is available from multilateral development agencies like Asian Development Bank and World Bank or other overseas lending agencies like Japanese Bank of International Co-operation. NHAI proposes to tap the market by securing cess receipts.

4.3 Public Sector Participation

i) Traditionally, the road projects were fully financed and controlled/supervised by the Government. The implementation of road projects was purely dependent on the availability/allocation of funds out of the budget of the Government.
ii) It was assessed, at the time of the preparation of the Tenth Plan that for National Highways alone, 365895 millions dollars is required for removal of the deficiencies. As it is a difficult proposition for the government to generate above fund from its own mechanism, it attempted to evolve various options for project financing.
iii) It is in the context that alternative innovative means of financing have gained importance for providing an adequate and sustained support for financing the road project.
iv) Private Sector Participation:
    a) With a view to attract private investment in road development, maintenance and operation, National Highways Act (NHAI Act) 1956 was amended in June 1995.
    b) In terms of these amendments, the private persons can invest in the NH projects, levy, collect and retain fee and is empowered to regulate traffic on such highways in terms of provisions of Motor Vehicle Act, 1988. From this Act of amendment, the Govt. of India launched major programme of road development such as Golden Quadrilateral, Road Development programme fro North-South and East-West Corridors
    c) As a result of this initiative, a large number of private entrepreneurs have come forward and provided a major impetus for road development programme in terms of strengthening and widening national and state highways.

4.4 Incentive announced by the Government for Private Sector:

Several incentives have been announced by the Government to attract private sector participation and foreign direct investment, which include the following: cost the Government has to bear:

a) Project Feasibility Study
b) Land for the Right of Way and Way side amenities
c) Agreement to help for shifting of utilities

d) Environment clearance, cutting of trees etc.
e) Foreign Direct Investment upto 100% in road sector
f) Provision of subsidy upto 40% of project cost to make projects viable. The quantum of subsidy to be decided on a case-to-case basis.
g) Concession period allowed upto 30 years.
h) Arbitration and Conciliation Act 1996 based on UNICITRAL provisions.
i) 100% tax exemption in any consecutive 10 years
j) Declaration of the road sector as an industry
k) Easier external commercial borrowing norms.
l) Right to retain toll – Toll rates are indexed to the wholesale price index.

5. TYPES OF PUBLIC PRIVATE PARTNERSHIPS IN CONTEXT OF HIGHWAY DEVELOPMENT IN INDIA:

While there are a number of forms of Public Private Partnerships, the common forms that are popular in India and have been used for development of National Highways are:

a) Build Operate and Transfer (BOT) Toll basis.
b) Build Operate and Transfer (BOT) Annuity basis.
c) Special Purpose Vehicles (SPV) basis.

5.1 BOT (Toll) Model

This method works in the following manner:

a) In BOT (Toll) Model, the concessionaire (private entrepreneur) is required to meet the upfront/construction cost and the expenditure on annual maintenance.
b) The concessionaire recovers the entire upfront construction cost along with the interest and a return on investment out of the future toll collection.
c) The viability of the project greatly depends on the traffic (i.e. toll). However, with a view to bridge the gap between the investment required and the gains arising out of it, i.e. to increase the viability of the projects, capital grant is also provided (upto maximum of 40% of the project cost has been provided under NHDP).

5.2 BOT (Annuity) Model

a) This is slightly different than BOT model. The model takes into account annuity to be paid to the client.
b) In BOT (Annuity) Model, the concessionaire (private sector) is required to meet the entire upfront/construction cost and the expenditure on annual maintenance.
c) The concessionaire recovers the entire investment and a pre-determined cost of return out of the annuities payable by the client every year.
d) The selection is made based on the least annuity quoted by the bidders (the concession being fixed)
e) The client (Government/NHAI) retains the risk with respect to traffic (toll), since the client collects the toll.

5.3 Special Purpose Vehicle

a) The NHAI has also formed Special Purpose Vehicle (SPV) for funding road projects which has separate legal entities formed under the Companies Act, 1956.
b) It involves very less cash support from the NHAI in the form of equity/debt as the rest of the funds come from Ports/Financial Institutions/Beneficiary organizations in the form of equities/debts.

c) The amount spent on developments of roads/highways is to be recovered in prescribed concession period by way of collection of toll fee by SPV.

5.4 Advantages of PPP models

a) There are number of advantages associated with these models. These are described as under:
b) Involvement of the private sector leads to greater efficiency.
c) The private sector has more flexible procurement and decision-making procedures and therefore, it can speed up implementation efforts.
d) Implementation of projects under Public Private Partnerships (PPP) has the following advantages:

1. Better quality since the concessionaire (private sector) is to maintain the road for the period of concession.
2. Early completion of the project, since the concessionaire could save interest and earn early toll (in the case of BOT project)/ additional annuity instalments (in case of Annuity project)
3. No cost overruns (price escalations).
4. The Client (Government/NHAI) does not have the burden of maintaining th e highways.

6. PROJECTS UNDERTAKEN THROUGH PPP

There are large numbers of highway projects undertaken in the country on a large scale on the concept of Public Private Partnerships. These include Highway projects under BOT (Toll), BOT (Annuity), BOT with grant, Special Purpose Vehicles etc. These projects [(2)] under the PPP concept have provided an impetus as these projects are of great success.

6.1 BOT (Toll) Projects

a) So far ninety four (69 NHAI + 25 MoRTH) numbers of projects valued about 8464 millions dollars have been taken up on Built Operate and Transfer (BOT) basis for a total length of 1376.22km
b) Out of these, forty three projects have been completed and 51 projects are under progress.

6.2 BOT (Annuity) Projects

Twenty-five numbers of projects covering a total length of 1376.22 km, has been taken up on Annuity basis of which all projects except only nine projects are completed.

6.3 Special Purpose Vehicles (SPV)

Twelve numbers of projects valued about 519 millions dollars have been taken up under SPV funding while five number of projects amounting to 197 millions dollars have been completed so far. The remaining seven number of projects amounting to 322 millions dollars are in progress on SPV basis. It would be worth mentioning that there is a significant growth in the total PPP projects over a period of time as can be seen in the Table 1

Table 1: Growth of PPP Projects in National Highways over the years

TIME	NO. OF PPP's	Cumulative no. of PPP's (BOT Toll + BOT annuity + SPV)
1996	0	0
1997	0	0
1998	1	1
1999	2	3
2000	1	4
2001	4	8
2002	14	22
2003	2	24
2004	3	27
2005	2	29
2006	35	64
2007	21	85
2008	19	104
2009	5	109

Source: Ref 7

It is further interesting to note the distribution of different types of PPP projects for Golden Quadrilateral connecting four metro cities in India & NS-ES corridor projects as can be seen in the Table 2. The total number of PPP road based projects is highest for North – South corridor.

Table 2: PPP Projects on Golden Quadrilateral and NSEW corridors

Stretch	Number of BOT contracts	Number of Annuity contracts	Number of SPV contracts	Total number of PPPs	Proportion of length under PPP (%)
GQ:Delhi-Mumbai	2	-	2	4	2.04
GQ: Mumbai-Chennai	2	1	-	3	2.67
GQ:Kolkata-Chennai	1	5	-	5	3.16
GQ:Delhi-Kolkata	1	2	-	3	1.49
NS	13	12	-	25	14.16
EW	1	4	-	5	2.39

Source: Ref 7

In regard to exclusive annuity based PPP projects, for GQ corridor, the number project sections awarded so far along with their expected costs can be seen in the Table 3.

Table 3: Annuity Concessions Awarded to Date

Road	Annuity Amount (Millions dollars)
Golden Quadrilateral	
Panagarh - Palsit	123
Palsit - Dankuni (Durgapur Expressway)	88
Makarastra Border - Balgaum	112
Ankapalli - Tuni	65
Tuni - Dharmavaram	62
Dharmavaram - Rajamundry	66
Nellore Bypass	22
Other Projects	
Tambaram - Tindivanam	93
TOTAL	638

Source: Ref 7

As far as State wise PPP projects are concerned, there are total 258 projects out of which 73 are already completed so far. The details of the various stages of the PPP projects are presented in the Table 4.

Table 4: Summary of PPP Projects in State Highways

Sl	Project Categories	No of Projects	Project Costs (millions dollars)
1	Completed Projects	73	1852
2	Projects under Implementation	62	12508
3	Projects in the bid process	41	3901
4	Projects where feasibility study has commenced	44	3016
5	Projects in the pipeline for 2011-12	38	2785
Total		**258**	**24062**

Source: Ref 8

7. APPROACHES OF PPP FOR FUTURE ROAD DEVELOPMENT PROGRAMME

A Committee on Infrastructure headed by the Hon'ble Prime Minister has proposed a massive infrastructure developmental programme for the next seven years.
The programme envisages an investment of 38142 millions dollars on following developmental projects[5]
The details of cost of different projects as indicated are presented in the Table 5**.** The sources of financing these projects are also presented in Table 6. Table 7 presents the cost of the projects per year to be met by private and Government sectors**.**

a) Completion of Golden Quadrilateral (GQ) and EW-NS corridors of around 14,000 km..
b) 4-laning of 10,000 km under NHDP Phase III
c) 2-laning with paved shoulders of 20,000km of National Highways under NHDP Phase IV
d) Augmenting highways in North East under Special Accelerated Programme
e) 6-laning of selected stretches of National Highways under NHDP Phase V.
f) Development of 1000km of expressways under NHDP Phase VI.
g) Construction of ring roads, flyovers and bypasses on selected stretches under NHDP Phase VII

Table 5- Likely Cost of Different Projects (at 2004 Prices) for the Year 2005-06 to 2011-12

(Figures are in million US dollar)

Project	Likely Cost	To be Met out of				Private Sector Participation
		Budgetary Support (Excl. Cess & EAP)	EAP	Market Borrowings	Total	
NHDP Phase I & II (For the balance 9000km)	931		222	622	843	89
NHDP Phase III (10,000km)	1220	222	222		444	776
Accelerated Road Development in North East Region	55	55			55	
NHDP Phase-IV (20,000km in first 7 years)	554	288	222	44	554	
NHDP Phase-V (6-laning of 5000km)	388	33			33	355
NHDP Phase-VI (Expressway of 1000km)	333	44			44	288
Others	333	133			177	155
Total	3814	775	666	666	2150	1663

Source: Annual report NHAI 2006

Table 6. Indicative Sources of Finance as Gross Budgetary Support (GBS) [4]

(Figures are in million US dollar)

Cess (For 7 years @ 4% growth)	532
External assistance	665
Budgetary Support (other than Cess & EA)	820
TOTAL	2017

Source: Annual report NHAI 2006

Table 7: Cost of project Per Year to be met out by Different sectors [4]

(Figures are in million US dollar) Total Requirement (per year)	545
Met by Private Sector (per year)	238
By Government Support (per year)	307

Source: Annual report NHAI 2006

The Government has planned that all the future NHDP projects i.e. NHDP Phase-III to Phase IV will be implemented through public private sector. Out of the above proposals, the Government has approved 4-laning of 4000km of National Highways under Phase-III and preparation of detailed project reports for balance 6000km under NHDP Phase-IIIB. Actions have been initiated for getting the approval of the government for the remaining projects.

8. PPP MODEL FOR HIGHWAY DEVELOPMENT

In the last few years Indian highway sector has attracted huge interest of private sector, where large number of projects ware awarded on PPP model with huge negative grants. This interest of private developers clearly demonstrates the confidence in the prevailing PPP model. Acknowledging the huge success of prevailing PPP model in the country, the Government of India has now taken a policy decision that all future highway projects, like NHDP-IIIA, IIIB, V, VI, etc., will be developed under PPP model.

However, in spite of huge success of existing PPP model, NHAI (on behalf of GoI) is now promoting a new Model Concession Agreement (new MCA) for future PPP projects. We have very carefully reviewed the new MCA [(9)] and feel that the issues presented below in Table 8 would hamper the interest of private investors in PPP projects

Table 8 Comparisons between Existing & New Model Concession Agreement

S. No.	NHAI Existing CA	New Model Concession Agreement (MCA)	Developer's Perspective
1	Traffic risk is with developer.	Limits revenue upsides/downsides, where revenue below a threshold level will be compensated by the NHAI and revenue above a cap will be taken by the NHAI.	Developers are willing to take traffic risk; limiting revenue works more like an annuity. ***For recently floated 4/6 laning tender of NH10 (Bahadurgarh-Rohtak section), toll revenue was capped on the upside but no guarantee was given on the downside by the NHAI.***
2	Scope of project frozen upfront (4/6lane) with capacity enhancement through a separate bid process.	Scope of project includes capacity enhancement after a pre-determined period and the Concession Period is a variable linked to traffic growth.	Variable Concession Period complicates the business plan of developers.
3	Indexation of user fees – 100% variation in WPI.	Indexation of user fees – 40% variation in WPI, additional fee for bypasses, structures, etc.	Toll rates under MCA do not account for full inflation; New MCA leads to differential toll rates across different toll roads.
4	Grant capped at 40% (with additional grant if justified for low traffic corridors) of the TPC, the drawdown as per Developer's requirement.	Grant capped at 20% of TPC during construction with further 20% during O&M if required.	Makes the projects with low traffic further unattractive; Debts would go up making it difficult to service the Debt.
5	Additional Tollway: Provides protection against a toll highway or otherwise.	Additional Tollway: New MCA provides protection only against construction of additional toll way.	It should cover improvements to existing alignments as well as alternative transport systems also.
6	Design and O&M	New MCA provides enough flexibility on the	Significant effort for measuring Project

S. No.	NHAI Existing CA	New Model Concession Agreement (MCA)	Developer's Perspective
	parameters are pre-specified.	Project design and O&M, as it is based on output specifications.	parameters from time to time and scope for manipulation.
7	Provides provision of tolling local toll traffic on concessional rates.	Local traffic to be completely exempted from tolling.	Contradicts the concept of pay for use; Projects close to urban areas will have significant local traffic. Though enough capacity is to be provided for local traffic and exemption of the local traffic from paying toll would affect the project commercial viability.
8	DPR cost as per NHAI.	Capital cost as approved by Senior Lenders in financing package.	MCA protects Developers and Lenders risk on the project cost.
9	No provision for penalizing overloading.	Additional fee for overloading.	Developers appreciate the countercheck on overloading.
10	Clearances from MoEF and Indian Railways by Developer.	NHAI to provide clearances from MoEF and Indian Railways.	NHAI is better placed to obtain these clearances.

9. CONCLUSIONS

Decision for identifying various types of funding options for transport projects has to be taken on the basis of on the merits of the transport projects with a view to minimizing the risk associated with the project. In order to have a fair , transparent and successful PPP, various stages need to be viewed as independent stages which will look into self contained assessment of risks and returns, mitigation strategies, etc.. Feasibility and economic gains [(6)] of a project is dependent on several controllable and uncontrollable factors. It is critical to identify both sets of factors and shield private players against factors beyond their control. While developing and implementing transport projects based one PPP concept, there are various types of delay encountered such as bureaucratic hassles, land acquisition, non-adherence to quality of work highlighted by the supervising independent consultant work etc. Government [(9)] should have a monitoring system to ensure that such delays do not take place in the first instance; accepting full responsibility in exceptional cases, making prompt reimbursement of losses arising out of it, to the concessionaire. After clearance of the project, all government agencies at all levels should not interfere in the implementation of the project as long as it is safe from any hazards and environmentally viable.

It is therefore imperative to appreciate the various components of the projects in terms of its financial implications and to arrive at the potential form of the models as described in the earlier sections.

Note: one US dollar is equal to 45.095 Indian Rupees as per May, 2011

REFERENCES

1. Mensah G D, Thesis report "Financing urban transport." School of planning & architecture. 1994
2. Chaterjee, Vinayak (2006), "Infrastructure Investments and PPP", presented at an EU-funded Project Workshop on Public Private Partnership in Infrastructure Industries and Regulation, New Delhi,10 April.
3. Official website of NHAI http://www.nhai.org
4. Planning Commission. 2006. "Towards Faster and More Inclusive Growth: An Approach to the 11th Five Year Plan". Draft
5. India's Transport Sector: The Challenges Ahead, Volume 1: Main Report, May 10, 2002
6. Govind Ballabh "Scope of Public Private Participation in Indian Railways infrastructure Service Expansion", Rail Transport Journal, July-Sept,20073.
7. Anant TCA & Ram Singh " Distribution of Highways Public Private Partnerships in India: *Key Legal and Economic Determinants",* Department of Economics, Delhi School of Economics, University of Delhi
8. Compendium of PPP Projects in State Highways, Secretariat for Infrastructure Planning Commission, Government of India, Yojana Bhawan, Parliament Street , New Delhi - 110 001, www.infrastructure.gov.in June 2010
9. Vinay Maitri & P.K. Sarkar " Theory and Applications of Economics in Highway and Transport Planning" 2010,. Standard Publisher Distributors, New Delhi, India