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Public Private Partnership In Civil Engineering

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Abstract This report majorly focuses on the principles of Public Private Partnership (PPP), its different forms and their suitability as a possible procurement route to be used for the development of road sector in a developing country like India. The report also critically analyse the viability of Private Finance Initiative (PFI) and basic procurement routes for road projects. The report recommends the most suitable types of PPP for the new and maintenance project.

Keywords: - Public Private Partnership, Procurement, Private Finance initiative

1. INTRODUCTION

The country's economic status is dependent on the infrastructure it possess and roads play the major connectivity network. India has road network over 4.1M km & is second largest in the world. In India's transportation sector road transport has been dominating segment with a share of 4.7% in India's gross domestic product (GDP) in 2009 -2010 and also over past 5 years number of vehicles on the Indian road has been increasing about an average speed of 10% per annum. Hence the progress of road network is utmost important in the perspective of swiftly growing economy and PPP models can help in achieving the development of the road network (Haldea, 2013).

1.1 Sector overview (Proposed project)

Country: INDIA

State: Maharashtra

City: Mumbai – Navi Mumbai.

Mumbai is the financial capital of India and Navi Mumbai is its satellite city which is developing into business hub with a proposed international airport. This will increase the traffic flow from Mumbai to Navi Mumbai but the route connecting Mumbai to its satellite city is via Vashi which is consumes lots of time. So the new road is proposed which will shorten the time. The road is from Sewri to Chirle. Figure 1 illustrates the proposed route.



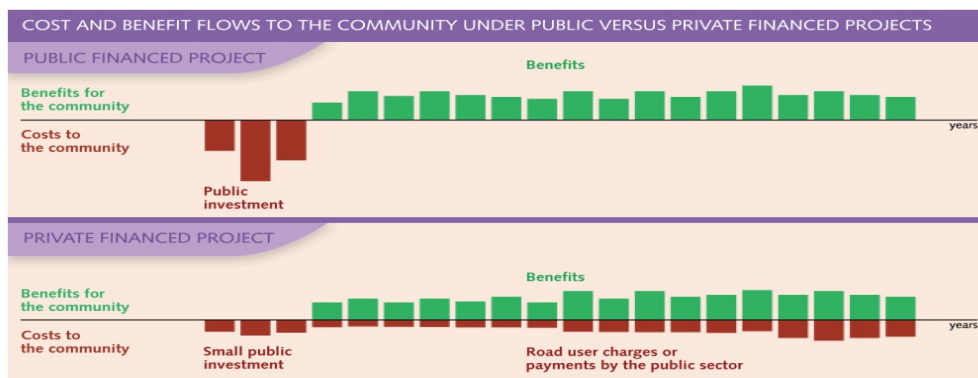


Fig.No.1: Proposed Road

Table 1: Assumption for the proposed project

Traffic volume analysis	Highest traffic on each toll plaza
Projected traffic growth	5% per annum
Lanes	6 Lanes
Length	25km

II. Principles, Merits & Demerits of Public Private Partnership

To understand potential principles of PPP, it is paramount to define the PPP of which there is no generic definition available and hence every government has tailored it to their suitability. According to ministry of finance, Government of India (GOI), PPP can be understood as an arrangement between government entity (GE) and private entity (PE) for provision of public assets and services. The investments and management is done by private sector. Allocation of risks between GE and PE is well defined. PE has to conform to certain performance standards measured by GE and receives payments accordingly (Public Private Partnerships in India, 2011). Several of the crucial principles of PPP includes the following:-

2.1 Merits

Transference of risks to the private sector protect Public sector against the potential cost overrun. Project will be on time and on budget because the risk of cost & time overrun is contractually allocated to private partner (Lammam *et al*, 2013).

Private partner will consider the whole life costing while constructing road and maintain quality standards as he probably has to operate and maintain that project for a prolonged duration. Payments to private sector are generally performance based, leading to efficiency on the part of private sector.

PPPs funded by the private entities allows the stretching of the project cost for the public sector over a prolonged duration of time, in line with the expected benefits. Public funds are thus released for investments in field where private investment is futile.

2.2 Demerits

- Private funding will lead to high rate of interest on the capital amount invested by the private entity leading to high capital cost of the project.

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- The contracts of PPP model for the complex project like the proposed one is more complex so the tendering phase will take longer time.
- The project duration will be long-termed of about 30 years, but in India the political mandates last for only 5 years or less. Political instability may cause some uncertainties or roadblocks in the project.

III. Suitability of various formats of public private partnerships for the proposed project

A. 3.1 Types of PPP formats

Lease agreements: As the capital investment of the proposed project is huge and in this structure of PPP capital investment is borne by public sector it is not a viable option for the new project.

Concessions: The public entity grants the right to construct, operate and maintain an asset for a specific period of time mentioned in a contract to a private entity. Capital investment is generally borne by private entity, while the ownership of the asset is retained by the public sector.

BOT-Toll: In this model the Concessionaire gets his revenue from charging toll from users. This model decreases the financial weight on the public sector while allocating the traffic risk to the private entity.

This model is widely used for the road projects in India and can be suitable for the new proposed project.

BOT-Annuity: In this model, the Concessionaire is guaranteed of a base profit in the way of annuity payments.

In this model the traffic risk is allocated to the Government and also it bears the risk pertaining to toll income so, this model is not suitable for the proposed project.

Hybrid PPP (Interest free loan + Toll): The structure of this model is same as the BOT-Toll except that the loan provided to the private entity is interest free.

Joint venture (JV): The public entity form a joint venture company with the participating private sector entity with the former having minority shares.

Build Own Operate (BOO): As mentioned the ownership of the asset lies with the private entity, the government would have minimal control over the asset and also privatization of transportation sector is not viable, so BOO is not a suitable option for proposed project.

B. 3.2 Suitable format of PPP for the proposed project

❖ **BOT-Toll** is the most suitable format for the proposed project.

	Key Parameter	BOT-Toll
Responsibility	Asset ownership	PUBLIC-PRIVATE
	Capital Investment	PRIVATE with 20% VGF
	Operation & Maintenance	PRIVATE
Risks	Construction	PRIVATE
	Finance	PRIVATE
	Operation & Maintenance	PRIVATE
	Traffic risk	PRIVATE

Table 3: Illustrates the risks and responsibilities of the project allocated to Public and private sector using BOT-Toll

Benefits:

Private partner will bear the cost of designing, construction and the recurring cost of the operation and maintenance. The construction risk as well as traffic risks will be allocated to the private sector. The construction of the road will take less time as the private entities revenue will start once the operation of the toll start.

Proposed Project via BOT-Toll:

Proposed project name	Sewri to NhavaSheva
PPP format	BOT-Toll
Concession duration	35 Years (including construction period of 5 years)
VGF	20%
Toll Collection	Yes (According GOI policy)

Example of successful BOT-Toll project

Project name: Vadodara-Bharuch
 Place: Gujarat
 Details: 6 laned, 83.3 km length
 Project started on Jan 2007 & the estimated completion date was Sep 2009 but was completed on July 2009 so was successfully completed before time.

IV. Suitable PPP approach for maintenance of existing projects

In India roads are in a deplorable condition due to lack of maintenance. New GOI wants to improve the condition of the existing roads, because of its importance to nation’s economy, there is a lot of scope for maintenance project and it can be accomplished successfully via operation and maintenance concessions PPP models. Such a concession transfers the fiscal liability of operation and maintenance to the end user while simultaneously increasing the efficiency of the road's operation and maintenance.

- ✓ **Operate Maintain Transfer (OMT) Concessions** is the suitable PPP model for the operation and maintenance of existing roads in India.

Risk sharing mechanism under OMT contracts

Type of Risk	Allocation	Details
Traffic Risk	Concessionaire	Entire traffic risk is to be bore by the private concessionaire
Toll Collection Risk	Concessionaire	Entire toll collection risk is to be bore by the private concessionaire
Financing Risk	Concessionaire	-
Political Risk	Government Authority	All direct and indirect risk are allocated to the government authority

Source:CRISIL Research

Table 4: Risk sharing mechanism under OMT contracts

V. Comparison between chosen PPP model of new proposed project an maintenance project

SR.NO	Format	Comparison aspects								
		Design	Finance	Build	Operate	Maintenance	Duration	Traffic risk	Revenue	
									private	Govt.
1	BOT-Toll	Yes (by Private partner)	Yes (by Private partner) With 20% of VGF	Yes (by Private partner)	Yes (by private partner)	Yes (by private partner)	Maximum of 30 years	Private partner	Toll	Toll
2	OMT	NA	Yes (by private partner for maintenance)	NA	Yes (By private partner)	Yes (By private partner)	4 to 10 years	Private partner	Toll	Revenue share/ premium

Table 5: This Table compares the key aspects like responsibilities, risks etc. of BOT-toll and OMT.

VI. Viability of private finance initiative (PFI) for road projects

PFI is one of the form of PPP where the construction, operation & maintenance of a project is financed by the private sectors. In PFI schemes private sectors forms a consortium of companies who work in partnership to form a Special Purpose Vehicle (SPV). SPV is then responsible for forming a contracts with the public sector to deliver required services.

PFI schemes are complex in nature it includes contractual agreements between three different types of the organisation:

1. The public sector (Ministry of transport/GOI).
2. The private sector who is responsible to provide the required services.
3. Lenders and investors (Banks, Foreign Direct Investment, equity providers)

VII. Viability of prevalent routes of procurement for new and maintenance project

To ensure the success of the project, selecting an appropriate procurement route is important. A solid procurement route considers design, construction, operation and maintenance of a project as whole which in turn makes sure that the delivery team work as an integrated team, further increasing the efficiency of the deliverance of the project.

There are four types of basic procurement routes namely:

1. Traditional
2. Design and Build
3. Management contracting
4. Construction management

Conclusion

In this report principle, merits and demerits of PPP were studied and this study was used to find the suitable procurement route for new and maintenance road project in India. It was found that BOT-Toll was the most suitable procurement route for proposed project and OMT was for maintenance project. Study also concluded that PFI scheme is viable for the road projects and viability of prevalent route was also studied.

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