

Study of different Public-Private Partnership (PPP) Model for the Road Infrastructure

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Abstract - India has the second largest road network in the world, with over 5.53 million kilometer including all expressways, highways, MDR, ODR. Due to insufficient fund the road development fails to meet the growing up needs. This raise to involvement of private sector in development of road. In most developing countries public private partnership is relatively new trend in urban infrastructure. Government both at national level and state level are focusing to implement their projects through PPP model. The public private partnership models that have been used currently in execution of national highway projects are built operate transfer (BOT) toll, BOT annuity and hybrid annuity models. This paper focuses on the concept and current status of PPP in India and study of various PPP models.

Key Words: PPP, BOT, HAM, Road, NHAI.

1. INTRODUCTION

India has one of the largest road network in the world aggregating about 5.3 million km. The major source of financing for road projects in India is budgetary allocation. These allocations have resulted in an increase in the length of road network from 0.4 million km in 1950-51 to 5.3 million km in 2015-16. Due to lack of fund the development of road network has failed to keep pace with growth in traffic.

To give boost to the economic development & to change face of road network, government in 1998 introduced PPP system. In order to improve the quality of the road network to world class standards, Government have started various programmes at central and state levels.

For example the central government has introduced various structural reforms to promote private sector participation in the development of road network. The private sector has been playing an important role in the development of this sector. The concept of Public Private Partnerships (PPPs) has emerged as a viable option for road network development especially in the context of developing countries.

The term PPP refers to long term contractually regulated coordination between public and private sector for the fulfillment of public task in combining the necessary

resources of partners and distributing existing project risk according to risk management.

1.1 NEED OF PPP

PPP is needed in various road infrastructure project due to various difficulties occurred in project financing of various conventional project. PPP is needed to transfer the workload of government sector to the private sector. Also quality of work is maintained by the authority of government sector. By introducing PPP the private technology and innovation in providing better quality of work is also assured. To complete the project on time and within the budget PPP is required.

As government is not willing to spent more fund on road infrastructure project due to small amount of capital. PPP will be useful for providing fund for the project in some extent. Also the possible risk of investment of fund is distributed between the government and private sector. By using PPP we can achieve sustainable development in the road infrastructure project.

There are various PPP models each one is unique and can be designed to meet exact needs of local community. Public authorities may lack specialist project management skills necessary to complete project which can be possible by involvement of the private sector.

1.2 PPP Advantages and Disadvantages

PPP advantages

- Ensure the necessary investments into public sector and more effective public resources management;
- Ensure higher quality and timely provision of public services;
- Mostly investment projects are implemented in due terms and do not impose unforeseen public sectors extra expenditures;
- A private entity is granted the opportunity to obtain a long-term remuneration;
- Private sector expertise and experience are utilized in PPP projects implementation;

- Appropriate PPP project risks allocation enables to reduce the risk management expenditures;
- In many cases assets designed under PPP agreements could be classified off the public sector balance sheet.

PPP disadvantages

- Infrastructure or services delivered could be more expensive;
- PPP project public sector payments obligations postponed for the later periods can negatively reflect future public sector fiscal indicators;
- PPP service procurement procedure is longer and more costly in comparison with traditional public procurement;
- PPP project agreements are long-term, complicated and comparatively inflexible because of impossibility to envisage and evaluate all particular events that could influence the future activity.

1.3 Challenges of PPP in India

There are various types of challenges that PPP models are facing in India. These challenges are:

- **Risk allocation:** Infrastructural projects sometimes carried out some risk related to construction risk, financial risk, market risk, demand risk etc. This risk goes to concessionaire party depending on the type of PPP model used for the project.
- **Land Acquisition:** Most of the roadway project delays due to acquisition of land because of various policies. Land acquisition issue is the primary one in which landowners is compensated based on the value of land prior to development.
- **Project Cost:** Some projects of PPP model fails due to project cost which is not match with the overall costing of the project. Delaying of the projects due to lack of sufficient finance which is not provided by the government bodies in time to meet project completion in estimated time.
- **Corruption:** Due to involvement of too many people and processes PPP projects are always subjected to the risk of corruption.
- **Financial availability:** The financing of PPP projects is done by debt financing and equity financing. Due to various complexities they produce several challenges. With Indian infrastructure being

highly leveraged funding the PPP projects is getting difficult.

2.0 Project implementation modes for Highways in India

- Build-Operate-Transfer(BOT)-
 - Build-Operate-Transfer(BOT)-Toll
 - BOT-Annuity
- Hybrid Annuity Model

Build-Operate-Transfer (BOT)

BOT - It is a type of arrangement in which a private entity has authority for the financing, construction and - operating a facility for a given period of time, the client remains a major service consumer. After the concession period is over the facility is transferred to the client, who usually is the government. The risk of failure of project is shared by private entity and client during the concession period.

BOT Stands for- BUILT, OPERATE, and TRANSFER.

- **BUILT:** Private entity defines the objective and goal of project. Private entity set up the facility for Designing and Planning of project along with financing budget is made before starting of the project.

- **OPERATION:** Project execution and monitoring is done in progressive cycle according to the plan made before starting of the project. Project trial is done before users are allowed to use it.

- **TRANSFER:** At the end of the concession period private entity transfers the ownership of the facility to the client. While during concession period private entity is permitted to collect tolls (user fee) and by operating the facility for specific period of time.

BOT (Toll)

Private entity is required to raise fund for Constructional, Operational cost and expenditure on annual and periodic maintenance. A Grant is also issued in order to bridge the gap between the investment required and the gains arising out of it and increase the viability of project.

Private entity is awarded project through a systematic process. There is two stage bidding process. Bidders/Private entities provide information specified in ROQ- Request for Qualification during the first stage. The pre-qualified bidders are invited to submit their bids. On the basis of the lowest financial grant bids can be invited for the project that required for the implementation of project. The bidder could offer to share the revenue for the project instead of seeking a grant. For evaluation of the bids the grant/revenue sharing is the sole criteria and the project is awarded to the bidder quotes the highest revenue sharing or if not sharing of revenue is required, project is awarded to lowest bid.

In BOT (Toll) model there are various commercial and technical risk relating to construction, operation and maintenance of the project which is allocated to the private entity. The main risk that a private entity faces is Traffic Revenue Risk. As forecasting traffic demand is crucial in transport. Traffic forecasting effect the project cost as well as project revenue. If the traffic forecasting is overestimated the traffic revenue risk arises.

BOT (Annuity)

Private entity raises funds for construction, operational cost and expenditure on annual maintenance. On each annuity payment date as per the annuity payment schedule the granting authorities’ pays the concessionaire annuity. Private entity recovers the entire investment and predetermined cost of return out of annuities.

In BOT (Annuity), model the Private entity is selected through two stage bidding process. The interested parties submit their financial, technical and managerial stage during the first stage. The parties which are qualified in first stage are invited to submit their financial bid which includes cost of construction, operation and maintenance of the facility along with their profit percentage The Contract is awarded to the bidder with lowest quote of an annuity. In this variant of PPP model the Granting Authority will pay to the private entity a fixed semi-annual annuity. This amount will compensate for the expenses incurred by the private entity in construction, operation and maintenance of the facilities and returns there on.

In this model of PPP, risks related to construction, operation, management and maintenance are assumed by private entity while the land acquisition, Permission, Traffic Problems are allocated to the Government.

Hybrid Annuity Model

The hybrid annuity model was conceived in the previous financial year 2015-16 to bring back private participation in highway projects, which had dried up in the last few years. The model is a mix of EPC and BOT formats, with the government and the private enterprise sharing the total project cost in the ratio of 40:60, respectively. Under this new model, government provides 40% of the project cost during the construction period and the release of funds is linked to the progress of construction.

The private player needs to raise the rest 60% in the form of equity and loan. Since the overall requirement is less, the private bidder needs to put less equity. Similarly, as the loan requirement is less in comparison to the other modes such as PPP, banks will also be comfortable to lend. Government pays back the rest in installments during the entire contract period and it is linked to the performance of the private player and the asset.

The recovery of entire investment is assured as government takes all the risks including collecting user fee and thereby the rise or fall in the total collections does not impact the private participant’s return from the project. It

brings greater comfort to the private players and banks to take up such projects.

2.1 Risk Allocation

The Committee has been provided with following information regarding division of risk on private party and the Government in case of various models.

Type of Risk	Risk shared in BOT(Toll) Mode	Risk shared in BOT(Annuity) Mode	Risk shared in Hybrid Annuity Mode
Financial Risk	Private	Private	Shared between Private & Government
O&M Risk	Private	Private	Private
Revenue Risk	Private	Government	Government
Political Risk	Government	Government	Government
Time & Cost over-run during construction	Private	Private	Private

3. CONCLUSIONS

The roads and highways plays a key role in development of the country. The Indian government has taken various steps to enhance the condition of the National Highways network. The government of India assented PPP for the development of road network. BOT (Toll), BOT (Annuity) and HAM are the three PPP models that have been used in completing the National Highway projects in India. The selection of the type of PPP models depends on the risk profile and financial viability of the project.

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