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Identification, Assessment and Mitigation of Risk Involved In construction phase of NH6 (DBFOT Model)

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Abstract - Due to policy change in the mid-1990s, India in terms of highway development achieved a good pace. The National Highway Development Programme (NHDP) was launched in 1997 to construct a massive highway network in a relatively less time. The Public Private Partnerships (PPP) model was used for highway development in India, given the intrinsic advantages associated with it over conventional methods. Pursuant to the policy decision, a big number highway development contracts were awarded under the Build , Operate and Transfer (BOT) variant of PPP model and other variants with further development of policy's Design, Build, Finance, Operate and Transfer (DBFOT) models were awarded . DBFOT is one of the models of the PPP in infrastructure development. Under this model there are 16 projects are completed and the 9 projects are in the process. From which I am considering the NH6 road project which was constructed between the stretch songadh to fagane. In this study we find out the factors which are responsible for the delay in the construction of the project.

The objective of this paper is to identify the risk involved in the construction phase in national highway under the DBFOT model. Also to mitigate the measures to reduce the risks in construction phase

Key Words: **National Highway, DBFOT Model, PPP model, Risks, Mitigate**

1. INTRODUCTION

National highway is one of the major part of the transportation engineering. The highway plays an important role in the transportation of goods and services, passengers etc. In Highway there are several types such as National highway, state highway, and District Highway and village roads. Now a days the highways are constructed with the help of various PPP models depending on the range of responsibilities and risk allotted to the public and private sector players. This range varies, depending on the sectors of infrastructure and contexts. Although the relevant public sector authority takes a decision on the selection of the form of infrastructure-PPP, the form is often negotiated with potential private sector actors.

Why this is necessary because ensure the necessary investments into public sector and more effective public resources management. Also the DBFOT project risks allocation enables to reduce the risk management expenditure. In many cases assets designed under PPP Agreements could be classified off the public sector balance sheet. Enlargement of focus from only creating an asset to delivery of a service, including maintenance of the infrastructure asset during its operation lifetime.

1.1 PPP Model

A public private partnership (PPP,3P OR P3) is a cooperative arrangement between two or more public and private sectors, typically of a long term nature. It involves an arrangement between a unit of government and a business that brings better services or improves the city's capacity to operate effectively. PPP are primarily used for infrastructure provision, such as the building and equipping of schools, hospitals, transport systems, and water and sewerage systems. PPPs have been highly controversial as funding tools, largely over concerns that public return on investment is lower than returns fo the private funder. PPPs are closely related to concepts such as privatization and the contracting out of government services.

1.2 Objective

1. To identify the risk factors involved in construction phase of DBFOT model.
2. To suggest the mitigation measures on the risk involved in DBFOT model

2. DBFOT (Design, Build, Finance, Operate and Transfer)

This is one of the most common type of model which can be classify under the PPP model. Now a days all types of highways are constructed with the help of DBFOT model. Under this model there are 16 projects are completed and he 9 projects are in the process. The construction of the NH6 highways is under this model.

1. Design:

The design of the project is carried out in this process and it can be completed with the help of concessionaire.

2. Build:

Build consist of actual construction of the project. The build consist of te various works such as road construction , Metro rail etc.

3. Finance:

This is one of the major part of the DBFOT model in which the arrangement of the finance which can be arrange by the concessionaire of the project.

4. Operate:

The operation phase consists of the operation and maintenance of the work up to the concession period is not over. The maintenance is carried by the concessionaire party of the project.

5. Transfer:

It is the last stage of the DBFOT model. The project is handed over to owner. The consent orient will dissolve further operation if any and maintenance will rest in favor of owner or government.

Table -1: Description of the Project work

Title	Description
Work Name	Four laning of NH6 (Phase III)
Model Of PPP	DBFOT(design, build, finance, operate and transfer)
Owner	NHAI(National Highway Authority of India)
Name of concessionaire	ILFS infra ltd., Mumbai
Stretch	Fagane (MH) to Songadh (GJ) 140.79KM
Cost of project	Rs. 1885 corer
Concession period	910 days
COD	75%
Toll Location	Near Icchapur (15 km from sakri)
Date of Appointment	9th November 2016

From the above data the work is carried out between the fagane to songadh of 140.79 km. The project is breakdown at the construction phase which is completed upto the 60% of total work. The work of this project should be stopped from the September 2019 due to some risk are involved during the construction work. The project is carried under the DBFOT model of the PPP. This work is stopped during the build phase i.e, in the construction phase.

Fig -1: Quality of bridge work

The main aim of this project is to find out the risk involved in construction phase with the help of questionnaire survey and volumetric traffic survey for the land acquisition for the toll plaza. From the questionnaire and traffic survey there are five risks are observed to stop the work. They are as follows:

1. Local Public

Local public from the area where the toll plaza are to be constructed should not be give any space for the material storing and making it hard to complete the task.

2. Land Acquisition

Land acquisition is yet not be completed due to the disputes between the farmers and the contractors on various reasons like they are demanding more money than sanctioned by govt.

3. Variation in Estimate

While doing completion of the land acquisition and disputes of local public the work is not completed fast. So the completion of the project is vary due to which the penalty for the contractor is apply. Due to which the contractor demanding the more money than the offered estimate.

4. Local Politics

Political players creating influence on local public as well as tend to disturb officials on work. Because the some materials needed for the completion of work such as JCB, dumpers, moorum, soil etc.

3. CONCLUSIONS

With the help of the questionnaire survey taken with some farmers and village peoples which are live near the work in progress and some engineers which are working on the site there are 4 types of risks are observed during the construction phase of NH6 under the DBFOT Model of construction. The content of questionnaire consist of 14 questions which are commonly observed from which 4 factors are identify they are as follows:

1. Local Public
2. Land Acquisition

3. Variation in Estimate
4. Local Politics

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