

# Assessment of Risk in Highway Project.

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**Abstract:** A comprehensive feasibility study is the basis for the decision makers to decide whether to support or reject the project. A feasibility report is prepared to present an in-depth techno economic analysis carried out on the projects. So a detailed technical and financial analysis is necessary for the feasibility study of a project. For a construction project, it is very important to take into consideration the various risks involved in the project at various stages while assessing the technical and financial feasibility of the project. The risks vary widely from sector to sector, project to project and stages to stages and it is to be identified by means of suitable quantitative technique.

Key words: PPP, Feasibility Study, Highway Project.

## I. INTRODUCTION

Traditionally in India, the road projects were fully financed, controlled and supervised by the government the implementation of road projects was purely dependent on the availability of funds, their allocation and release out budget of the government. As the development, construction and maintenance of road involves huge cost, the government has not been in position to allocate the required funds to the road sector this is particularly because the government has cater for the development of various sector and also for the social cause including health care and education Because of the above constraints, commercialization of the infrastructure project has become the need of the day besides reducing the burden of the budgetary allocation of the

government commercialization also helps in increasing efficiency of deployed resources in the project through employment with view to attract private investment in road development , maintenance and operation , national highway Act (NH Act) 1956 was amended in June 1995. In terms of amendments made the private sector can invest in the NH projects, levy collect and retain free from the road users; they are also empowered to regulate traffic on such highway in terms of provisions of Motor vehicle Act -1988 .Several incentives have been announced by the government to attract the private sector participation and foreign direct investment. These schemes are called PPP (Public private partnership) schemes.

## II. LITERATURE REVIEW

This paper concludes that the risk management framework proposed by this project will be easier to apply than others. It incorporates the findings from this research and provides step-by-step guidelines for foreign companies who intend to invest in India's infrastructure projects in the future.

Albert P. C. Chan, et.al [July 1, 2011.] has focused on how risks should be assessed and allocated for PPP projects in China in his paper titled, Empirical Study of Risk Assessment and Allocation of Public-Private Partnership Projects in China. It also assists in risk response planning and control for future PPP project in China.

Schaufelberger.J.E, and Wipadapisut [ April 1, 2003.] has focused on study of build-operate-transfer (BOT) project financing strategies from the perspective of project sponsors in his

paper titled, Alternate Financing Strategies for Build-Operate-Transfer Projects. This paper shows the financing strategy for a BOT project includes the selection of the appropriate mix of equity and debt financing, and the identification of appropriate financing.

Waghmare.A.P, and Dr. Pimplikar.S.S [ May-Jun 2012,] has focused on the parameter investment value will be increased when treatment is done on risk .his paper has to be evaluated and calculated the influence of the identified risk towards the project feasibility. Also, risks that overshadow the construction project have to be calculated as an influential factor towards the failure of a project. This paper investigates to know the feasibility of project investment by calculating the risk factors and treatment. The author used Risk probability matrix to obtain the risk priority, which then continued with financial analysis for the feasibility study and also sensitivity analysis.

Shou Qing Wang, et. Al. [May/June, 2000.] have focused on Evaluation and management of political risks in china's BOT projects. This paper is based on the findings from an international survey on risk management of build-operate-transfer (BOT) projects in developing countries, with emphasis on infrastructure projects in China. It discusses specifically the criticality of the political and force majeure risks.

### III. RESEARCH METHODOLOGY

The analysis of the risk in market, preliminary to estimate the potential size of the market and get an idea about the market share that covered market capacity. These are very important, yet difficult, aspects of project analysis. It needs an in-depth study and assessment of various factors like patterns of consumption growth, income and price elasticity of demand, composition of market, nature of competition, availability of substitutes, reach of

distribution channels, and so forth. Yet, in many cases project feasibility studies seem to undermine the importance of market and demand analysis, technical analysis, financial analysis and risk analysis. There are certain parameter which is important for depth analysis of market risk are as follows

- Define the objectives of study.
- Case to case analysis.
- Collection of data required form market for risk management.
- Conduction of market survey
- In depth analysis of market specification.
- Estimate market demand.

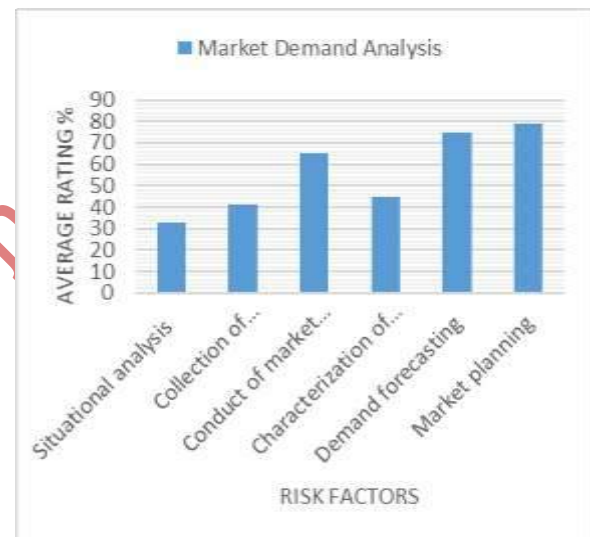


Fig1 Market Demand Analysis

Technical analysis is carried out to ascertain the suitability and availability of various technical inputs to the project. Many good project ideas and laboratory scale product prototypes may not have processes or equipment available for manufacturing on commercial basis. Furthermore, the technical analysis provides necessary inputs to estimate the total cost of project investments and also the future operating costs. Technical analysis also forms an essential part of the Detail Project Report (DPR) to be submitted to the financial institutions for obtaining term loans for the project.

The technical analysis of market risk

- Capacity of project.
- Investment outlay □
- Latest developments □
- Ease of absorption □
- Use by other units

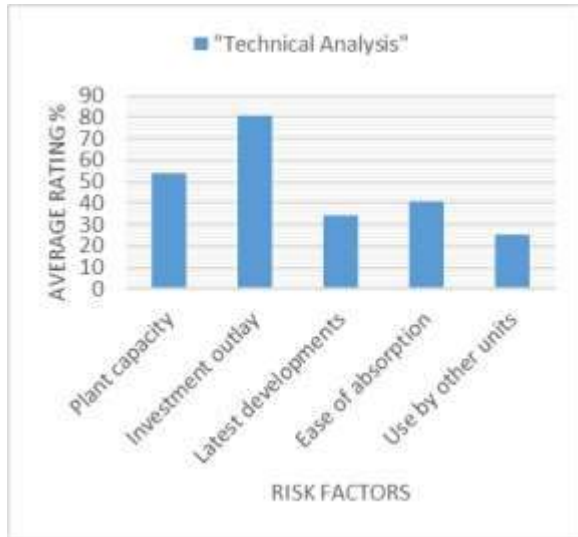


Fig 2 Technical Analysis

The financial analysis covers estimation of the total cost of project set up, proposed scheme of financing the project and projection of operating results for the life of the project. To judge a project from the financial angle, we need information about the following:

- Cost of project
- Means of financing
- Estimates of Revenues
- Projected Balance Sheet.



Fig 3 Financial Analysis.

Risk Management includes maximizing the results of positive events and minimizing the consequences of adverse events. Risk has two elements: the likelihood or probability of something happening, and the consequences or impacts if it does. Risk Management provides a structured way of assessing and dealing with future uncertainty.

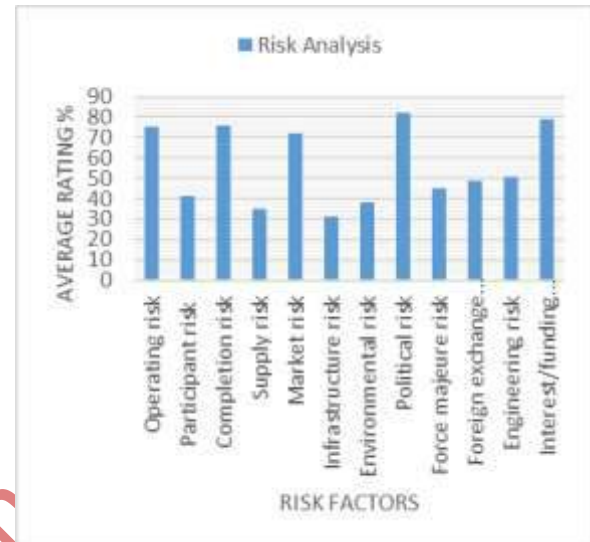


Fig 4 Risk Analysis

The riskier the activity is, the costlier the consequences if the wrong decision is made. Knowing how much risk is involved will help decide if costly measures to reduce the level of risk are justifiable.

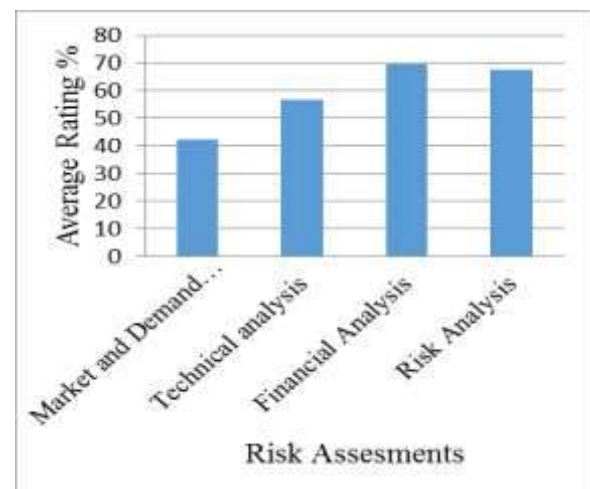


Fig 5 Risk assessment for average Rating of Factors

#### IV. CONCLUSION

- In the political risks, the private parties perceive that the risk due to poor decision making process of the government has high level of criticality. Even the public party gives a rating of significant level of criticality to this risk. So this is a considerable issue.
- In the commercial risks, interest rate risk and risk due to Government Restriction on Profit and Tariff have the high level of criticality according to the private parties.
- In the development risks, the private parties have rated the approval risks to have high criticality because it is beyond the construction consortium's control.
- In construction risks, cost overrun risk and cost escalation risk in the operating risks have high criticality.

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