

CONSTRUCTION INDUSTRY SURVEY AND STUDY OF RISK MANAGEMENT IN BUILDING CONSTRUCTION

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ABSTRACT

Construction industry is very vast industry in growth of nation and also plays an important role in growth of GDP. In construction industry like building, bridges, highways, infrastructure the various operations and activity are worked out and they are inter related with each other. Some factors increase the risk in project. They delay project schedule and also overrun project by time & cost. Therefore risk identification, risk analysis and risk management plays an important role in any construction project. Construction industry is improving the social, economic and environmental development of country. The industry is vulnerable to various technical, sociopolitical and business risks. The record to cope with these risks has not been very good in construction industry. As a result, the people working in the industry bear various failures such as failure of abiding by quality and operational requirements, cost overruns and uncertain delays in project completion. In light of this, it can be said that an effective systems of risk analysis, assessment and management for construction industry remains a challenging task for the industry practitioners. The aim of this research is to identify and evaluate current risks and uncertainties in the construction industry. Through the survey, aim to make a basis for future studies for development of a risk management framework to be adopted by contractor, owner, designer & project manager in Nashik city.

Keywords: Risk, Overruns, Delay, Risk Management, Risk Factors Etc.

I. INTRODUCTION

The Construction sector has been contributing around 8 per cent to the nation's GDP (at constant prices) in the last five years (2006–07 to 2010–11). GDP from Construction at factor cost (at constant prices) increased to `3.85 lakh core (7.9 per cent of the total GDP) in 2010–11 from `284798 core (8 per cent of the total GDP) in 2006–07. In this construction projects will assume a critical role in the growth of the country's economy. As per the 12th Sectorial Investment Plan released by the planning commission of the Indian government The funds requirement of the construction industry is approximately USD 1 trillion with the modernization requirements of the construction industry estimated to be to the tune of US\$150–200 billion. Further, as per the High Powered Expert Committee

(HPEC) Report for estimating the investment requirement for urban infrastructure services, The investment requirement for urban infrastructure over the 20-year period (2012–31) is estimated at `39.2 lakh core at 2009–10 prices. Now a day's construction industries are more concentrating and involved in complete project within time and schedule ,gain more profit, decreases the losses and neglecting risks which is responsible for all those reasons which is responsible for overturn the project by time or finance. In India construction industry is involved in growth of GDP of country. Risk is involved in every business, and the Indian construction industry is no exception, Because of the nature and theSize of the projects, the construction industry in India continues to face challenges around shortage of talent, rise inmaterial and labor costs, and changes to socioeconomic conditions. Finances are a major source of worry in India, asInternational funding is limited. Risk is often referred to as the presence of potential or actual threats or opportunities that influence the objectives of a project during construction, commissioning, or at time of use. Risks can come from various sources including uncertainty in financial markets, threats from project failures at any phase in design, development, production, or sustainment life-cycles, legal liabilities, credit risk, accidents, natural causes and disasters, deliberate attack from an adversary, or events of uncertain or unpredictable root-cause.

1.1 Overview of Risk and its management

In construction sector the actual meaning of risk is, it is a unknown and uncontrollable condition in witch project goes to overt urn by cost and time .risk effect on social, financial, environmental, political, business aspect of project. The truth of a problem or risk is often obfuscated by wrong or incomplete analyses, fake targets, perceptual illusions, unclear focusing, altered mental states, and lack of good communication and confrontation of risk management solutions .This makes the Human Factor aspect of Risk Management sometimes heavier than its tangible and technological counterpart.

1.2 Significance of the study

Forany type of risk can mitigate at the occurrence of it. For this purpose the factors witch affect's on it is also most responsible. Every problem has a one source of occurrence and hence it is more important to identify. Construction industry has various type of operations and various type of activates .Therefore for the risk management purpose it is necessary to identify the factors.

II. METHODOLOGY

2.1 Analysis Method

In this Qualitative methods will be used which are based on descriptive scales, and are used for describing the likelihood and impact. The aim of this present work is to find out the important factors affecting on performance of construction project. The effect of this factors on overall project may betechnical, social, economic and environmental aspect, financial. The questionnaire interview was carried out among 30 construction companies which are located in the Nashik region of Maharashtra (India). The 30 interviews took place over a 5-7 week period Between September to November 2016 and each lasted approximately one hour. The questionnaire was carried through face-to-face interviews and it consisted of 30 closed ended questions. The interviews reflects the opinion of experts from 30 firms, it is believed that they can give an idea about the important factors affecting on construction

projects in the Nashik region, Maharashtra (India) construction industry. Descriptive survey is preferred because it gives answers to the questions and does not consume much time of the respondents. The entire analysis will be carried out by Relative Important Index, and then by the score computed ranking will be done.

2.2 Relative Important Index

RII test on survey responses is primarily used to determine the impact of risk factors by assigning a risk rating to each Variable. For the purpose of this research the aim of the analysis was to establish the relative importance of the various factors identified as responsible for occurring of risk in various construction projects. The score for each factor is calculated by summing up the scores given by the respondents. *RII* was calculated. Relative important index is a regression-based index which summarizes the magnitude of response. *RII* is useful because it takes into account because the no. of questions and their responses given by various different groups. By using this method we can rank a particular aspect by means of the score computed which depends upon the total responses received in terms of scale by the highest scale value multiplied by number of responses.

$$RII = \Sigma W / A \times N$$

Where,

W= Weighting given to each factor by the respondents and ranges from 1 to 5

Where '1' is not important '5' highly important

A= Highest weight

N= Total no. of respondents

Using the Equation above, the indexes were ranked for contractor-related risks, owner-related risks, designer-related risks and project management team-related risks. Based on the survey results, the *RII* is also used to determine the frequency and impact rating of the risk

III RESULT

Overall 30 questions was prepared and sent to 30 various companies through personal meetings and getting response from various faculty of company. In this survey each company is authorized and also well reputed.

TABLE 1. show the questionnaire response from contractor and their ranking

Sr. No.	QUESTION FOR CONTRACTOR	RII	RANK
1	Delay in mobilization	0.673333	7
2	Abnormal Increase in material prices compared to the original bid amount	0.713333	5
3	Improper construction methods/quality control	0.746667	4



4	Frequent change of subcontractors/vendors	0.68	6
5	Poor site management and supervision by the contractor	0.806667	2
6	Safety accidents at work site	0.8	3
7	Failure to disclose changes and resulting extra work	0.6	8
8	Bankruptcy	0.813333	1

TABLE 2.show the questionnaire response from owner and their ranking

SR. NO	QUESTION FOR OWNER	RII	RANK
1	Inadequate/unclear definition of project scope	0.786667	5
2	Delay in handing over the site to contractor	0.82	1
3	Failure to disclose site conditions and circumstances which the contractor may encounter	0.82	2
4	Failure to make timely payments to the contractor	0.806667	3
5	Change orders or variations (additions, deletions and modifications)	0.493333	8
6	Holding key decisions in abeyance	0.673333	6
7	Owner's improper intervention during construction	0.66	7
8	Bankruptcy	0.806667	4

TABLE 3 shows the questionnaire response from designer and their ranking

SR. NO	QUESTION FOR DESIGNER	RII	RANK
1	Defective design	0.813333	1
2	Documents not issued on Time	0.746667	2
3	Design changes	0.56	6
4	Complex/no executable Design	0.486667	8
5	Inadequate and/or unclear details in drawings	0.633333	4
6	Use of primitive/obsolete design technology	0.553333	7
7	Designer leaving the project midway	0.7	3
8	Insufficient data collection and survey before the design	0.606667	5

TABLE 4 shows the questionnaire response from project manager and their ranking

SR. NO	QUESTION FOR PROJECT MANAGER	RII	RANK
1	Project manager's technical Capability	0.786667	2
2	Holding key decisions in Abeyance	0.64	5
3	Lack of coordinating ability and rapport of project manager with other contractors at site	0.573333	6
4	Lack of leadership quality of project manage	0.793333	1
5	Lack of effective monitoring and feedback by project manager	0.726667	3
6	Chances of project manager leaving the project	0.646667	4

IV CONCLUSION

The main aim of this survey to find such points that may effect on increase in risk occurrence and it effect on overall project. The survey results indicate the risk factor highlighted have a high impact even if the probability of occurrence of risk for contractor, owner, designer and management team. Another important understanding from the research is that the sources of risk occurrence in the success of a project. The factors which impact on the schedule and cost of a project. These survey results are made based on the RII value assigned to the risk factors associated with the project

management team, owner, designer & contractor. The owner of the project plays an important role in throughout project. Hence Out of various factors considered in the research, those specific to the owner, contractor, designer and project manager are subject to deviation from the expected levels. A better risk response strategy needs to be devised to manage the risks. The main factors for contractors are - Bankruptcy, Poor site management and supervision by the contractor and Safety accidents at work site. The factors which effect on project by owner are -Delay in handing over the site to contractor, Failure to disclose site conditions and circumstances which the contractor may encounter and Failure to make timely payments to the contractor. The factors for designer are - Defective design, Documents not issued on Time and Designer leaving the project midway. Management team will be having some factors if they have lack of experience. It happens in most of new team of management. the factors for management are - Lack of leadership quality of project manage, Project manager's technical Capability and Lack of effective monitoring and feedback by project manager This factors has caused construction projects to become increasingly more complex to manage and completion. The research outcome suggests that the Indian construction industry needs to employ innovative technologies and better risk management strategies to overcome these challenges.

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