

A Review on Risk Assessment and Management in Construction Project in India

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ABSTRACT

Risks are very general in the construction industry. The construction industry is broadly linked with a high risk and uncertainty due to the nature of its working environment. Thus, the need of risk management is required. Risk management is to identify risk, analyze risk and provide most suitable treatments. Risk analysis is done to identify these risks in the project and manage it accordingly. By using probability and impact method, which is a very easy method, we can manage risk at construction projects. This paper presents a review of the need for risk management in the construction project.

Keywords: construction risk management, impact, probability, risk factors

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INTRODUCTION

Construction projects are coming up with a very complex and dynamic nature which is always unique and the risks of a number of different sources emerge. Building projects are instinctively complex and dynamic, and involve multiple feedback processes. Many interested parties – individuals and organizations actively involved in the construction project – and their interests can be positively or negatively affected by project performance. Several participants with different knowledge and skills usually have different expectations and interests. A successful construction project is generally considered to be one that produces a quality of installation that meets or exceeds. The project looks for time and budget expectations. Because of the nature of the various activities involved, construction projects can be complex and involve a number of uncertainties such as uncertainties about timing and delivery costs, work problems, time and cost of the tasks they perform, environmental conditions, and quality of work done by subcontractors. These

uncertainties can lead to project risks and may be the cause of the failure of a construction project to reach the predetermined target. The research work focuses on the major risk factors that affect the construction project.

Risk

Uncertainty about a situation can often indicate risk, which is the possibility of loss, damage, or any other undesirable event. Most people desire low risk, which would translate to a high probability of success, profit, or some form of gain.

- i. Financial risk
- ii. Legal risk
- iii. Management risk
- iv. Market risk
- v. Political risk
- vi. Technical risk
- vii. Environmental and natural risk
- viii. Social risk

RISK MANAGEMENT

Risk management in a project that involves anonymous who might have projects. Risk management means how to

handle the risk and how to make the right decision at the right time. The main purpose of project risk management is to identify different types of risk, in the form of threats and opportunities that exist for a project and understand the impact they may have on project goals. Risk management also includes the development of strategies to prevent undesired risks or threats that occur or to minimize its impact on the project if it occurs. Risk management processes guarantee planning, identification, analysis, monitoring, and control in the best interest of the project.

Risk Management Process

- (a) Risk identification
- (b) Risk analysis and evaluation
- (c) Response to risk

Risk Identification

Risk identification is the first and perhaps the most important step in the management process as it tries to identify the source and type of risk.

Some of the methods used to identify the risks are as follows:

- Brainstorming
- Delphi technique
- Interviews
- Checklists
- Experiential knowledge

Risk Analysis and Evaluation

The risk analysis is the systematic use of information available to determine the frequency with which you can verify and judge the magnitude of the sequence, probably the specified events. On the other hand, risk assessment is the process for deciding risk management priorities by evaluating risk to the predetermined standard, target risk levels, or other criteria.

The types of risk analysis are:

- Qualitative risk analysis

- Quantitative risk analysis

Risk Response

This can be done by the following methods:

- Accepting
- Avoiding
- Monitoring
- Transferring
- Mitigating

LITERATURE REVIEW

Zhou and Zhang [1]: Risk assessment and risk management for deep foundation pit engineering are essential for quality and safety in civil engineering owing to the needs of urban construction projects. However, indecision and fuzziness continue to challenge revisions of the probability and penalties of risks in this area. Therefore, a fuzzy comprehensive evaluation method based on Bayesian networks (BNs) is proposed to assess the risks of deep foundation pit construction. This procedure has five main parts: modeling of BNs, determination of occurrence prospects of risk events, assessment of penalties, calculations of risk value and membership degree of risk rating, and definitions of risk acceptance criteria. The prospect of every risk event is calculated by using deductive BN techniques. Then the importance of each event is calculated by using fuzzy analysis (i.e., statistical consequence distributions and weight coefficients of risk events are strong-minded through the database). A fuzzy comprehensive assessment model with a membership function is also presented, and each risk event in the deep foundation pit construction is rated. In addition, risk defenses and control measures are suggested on the basis of the risk assessment results and are applied to risk management in deep foundation pit construction [1].

Subramanyan et al. [2]: The emphasis of the present research is to recognize factors

that influence the smooth completion of a project and develop a risk assessment model. Student's *t*-test, an implication test, has been functional to know the significance of test findings on the general construction industry. The risk-reply plan suggested in this paper will be useful in justifying the opposing effects of risk in project completion in the Indian construction industry [2].

Mahendra et al. [3]: This study has current significant impact on construction projects in rapport of its primary objectives. Construction projects which are intricate in nature, hesitation, and risks in the same can grow from different sources. The best of the construction industry is not acceptable in terms of managing up with risks in projects. Risk management is a procedure which consists of identification of risks, assessment with qualitatively and quantitatively, reply with a appropriate method for handling risks, and then control the risks by monitoring. This study proposes to apply the risk management technique which includes well-documented procedures for the one-stop solution all types of hazards most likely to occur during any construction project lifecycle [3].

Renuka et al. [4]: explain infrastructure development will increase the growth of countries' economy and generates a large amount of job opportunities. Hence those projects involve a large amount of investment to carry out. In view of that, if any sort of wastage (either time, resources, etc.) occurs, that would lead to huge monetary losses. These losses occur due to various risks associated with such mega projects. So, these risks play a crucial role for the completion of project within the time schedule and planned budget. This study mainly deliberates the critical risk factors and its assessment techniques through a comparative study of various international construction projects. About

50 pertinent articles published over the last 25 years have been reviewed. The appraisal resulted that a simple logical tool will be developed for each project task to measure the risk easily and quickly, which will inspire the practitioners to do the risk analysis in their project [5].

Jaber [6]: This study purposes to classify and evaluate key risk factors and their incidence and strictness, and then their impact in different types of construction projects in Iraq. A questionnaire survey was shown and a total of 65 critical factors were identified and categorized into eight groups. These are: (1) financial related risk, (2) legal related risk, (3) management risk, (4) market-related risk, (5) political and security related risk, (6) technical related risk, (7) environmental related risk, and (8) social related risk. Seventy-five respondents participated in the survey representing 22 clients, 21 consultants, and 32 contractors. The results are presented on the basis of their frequency, severity, and importance [4].

CONCLUSION

This document contains a review of risk management, using probability (probability) and impact method. By applying a simple method, you can easily identify potential risk factors. It also gives the ability to identify which of the identified risks have the greatest impact on time, cost, and quality. These risks can be rejected or mitigated by the right action. The research has shown that the most common action was the risk mitigation. In addition, it was found that the results of the probability and impact method vary among the projects because each project and scope are unique. In risk management, today's situation is of paramount importance, since it can reduce the risk associated with building to a high level. If used efficiently on time, costs, and brilliance, quality results can be produced.

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