

Project Assessment of Risks in Construction Industry

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ABSTRACT-- In the construction industry the project manager's responsibility is to monitor cost, time and quality. Because of various risks involved in construction, it is difficult to maintain time, cost, and quality as planned. The main purpose of this dissertation is not only to identify the list of risks involved in construction industry but also to find the key risks that can be significantly influence the construction and mitigation measures. Risk management (RM) comprises of risk identification, risk analysis, response planning, monitoring and action planning tasks that are carried out throughout the life cycle of a project in order to ensure that project activities are met. Although the methodological aspects of RM are well-defined, the philosophical background are rather vague. For identifying the list of risk involved in construction industry Post project appraisal method is used in this thesis. Post project appraisal determines the extent to which a project met the budget, timetable and the key deliverables. The questionnaire survey had been carried out in many companies, after the completion of the survey, the results were analyzed. By the result analysis the risks are found and the recommendations were provided.

Index Terms— Risk, construction, industries, project, companies, cost, questionnaire.

INTRODUCTION

Construction industries in the Indian market have to be competitive in order to return the value to stakeholders. Contiguously construction represents one of the most relevant sectors of the Indian economy. Completing project faster than the normal duration is always challenging task to management as it often demands many paradigm shifts. Long construction projects have failed to achieve the time, cost and targets that clients and their consultants aim. It is widely known that there are difficulties in meeting every project objectives and some degree of compromise is nearly inevitable. Innovative construction techniques and material can take time while budget constraints can reduce overall quality.

The project manager is delineate as the person or body responsible for the overall delivery of the project to time, cost and quality targets required by the client or end user.

Common causes of risk include

- Inadequacy of understanding project objectives, all alternatives and issue that are to be considered during design and construction.
- Inadequacy of timely resolution of issues as raised by project stakeholder.
- Inadequacy of knowledge of poor tracking.

- Inadequacy of compliance with project requirements.
- Insufficiently skilled staff.
- Inadequacy of roles and responsibilities.

In the construction business, victory is typically measured by three basic performance criteria often called the triple constraint: cost, schedule, and quality.

The last years, safety has also been playing an important role, because deficient safety performance on site reduces the project economic revenues. Moreover, accidents have some intangible liability effects in the project participants, namely contractors, owners, project managers and designers. Time, cost and quality are pulling in opposite directions and any change in one variable shows impact on one or both of others.

Project involves doing something which has not been done before and which is therefore unique. Construction projects are distinct from operations due to their unique nature but this aspect should not be considered as an excuse of failure due to various uncertainties and risks, major capital projects are not an exception for budget overruns and schedule slippages. The construction industry has a major credibility problem. The costs are often grossly underestimated, and schedule that is prepared sometimes are unrealistic. So, in order to ensure greater level of success and minimize or if not eliminate failures implementation of Risk Analysis and Management (RA&M) techniques is needed.

RA&M not in isolation but as an integral part of project management will benefit those involved in projects where it is employed and without doubt, the outcome of project itself. Project risk includes the process concerned with illuminating, scrutinizing and responding to project risk. It includes maximizing the results of positive events and minimizing the consequences of adverse events.

NEED FOR STUDY

Construction projects involve great deal of time and capital, so effective construction project risk management skills are required if the projects are to be completed within the established timeline to meet cost elimination and quality requirements. Risk is inherent everywhere especially in construction projects. The activities that are present in the construction industries could result in fatal injuries, financial disasters, disruption and delayed operation, etc. There are many reasons for using risk management, but the main reason is that it can provide significant benefits far in excess of the cost performing it.

WHY DO YOU NEED RISK ANALYSIS AND MANAGEMENT

- To avoid expensive disruption and delays to the project.
- For understanding of the project, this in turn leads to the formulation of realistic plans, in terms of cost estimates and time scales.
- For better understanding project objectives all alternatives and issues that needs to be considered during the design and construction for handling true cost and schedule.
- For increasing understanding of the risk in the project and their possible impact, this in turn leads to minimization of the risks for a party and/or the allocation of risks to the party best suited handle them.
- It gives knowledge to risk in projects, which allows assessment of contingencies that actually reflect the risk and which also tend to discourage the acceptance of financially unsound projects.

OBJECTIVE OF THE STUDY

- To prepare the questionnaire survey for identifying the data about risks in construction industry by Post Project assessment Method.
- To identify the key risk based on the data collected by the questionnaire survey.
- To evaluate the identified risks by analyzing and finding the possible measures to the construction industry in order to avoid the identified risks in the future projects.

SCOPE OF STUDY

Mostly risks are inherent in construction industry. Risks cannot be ignored but it can be managed.

- Thus this study helps to identify the key risks and possible measures to deal with risks in the construction industry . The risks that are

observed in the questionnaire can happen to any construction projects.

- The target of this thesis work is not to list out risks that the construction industry is facing but to find out the key risks by ranking that can significantly influence the delivery, quality and safety of construction project.

METHODOLOGY

Risk management may be described as “a systematic way of looking at areas of risk and consciously determining how each should be contemplated”. It is a management tool which aims at illuminating sources of risk and ambiguity, determining their impact, and progressing management response.

Among various methods involved in risk assessment and management, have selected the method of Post Project Assessment identify the risks involved in the construction industry.

Post Project Assessment is the method is the documentation method performed by external post project appraisal unit usually after the project completion that covers all project information and results of strategic decisions to learn from mistakes and transfer knowledge.

The methodology adopted in this project is given below

- Study of literature related risk analysis and risk management capabilities.
- Preparation of questionnaire.
- Site visit to construction project site.
- Questionnaire survey and within charges and managers and collection of data from site.
- Analyzing the questionnaire
- Remedial measures to be proposed and the present data to be recorded for future references.
- Conclusion, recommendation and suggestion for future study.

METHOD OF SURVEYING

The general methodology of this study relies largely on the survey questionnaire which will be collected from the local building contractors of different sizes by mail or by personnel meeting. A thorough literature survey was initially conducted to identify the risk factor that affect the performance of construction industry as a whole.

This study has adopted the more general and broad definition of risk as presented by Shen et al 2001 on China's construction joint ventures and more risk factors from other literature. Interviews with industrial practitioners were conducted to check the potency of questionnaire

QUESTIONNAIRE STRUCTURE

The questionnaire was tested with a pilot survey for clarity, ease of use and value of information that could be gathered. The questionnaire survey is divided into two parts. The first part consists of general information like type of company, value of their project etc and the second part consist of the construction risk factors for evaluation.

Risk factors for this study are tabulated into eight categories namely,

1. Financial risk
2. Legal risk
3. Management risk
4. Policy and political risk
5. Technical risk
6. Environmental risk

QUESTIONNAIRE DESIGN

The survey questionnaire is designed to probe the cross sectional behavioral pattern of the construction risks in construction industry. The questionnaire was prepared for the pilot survey was formulated by seeing the relevant literature in the area of construction risk. The interviewer was free to ask question that focused on issues during the course of interview. The freedom to follow the interview to ask for clarification and the focus on specific projects, risk practices and knowledge made the interviews insightful.

RISK RATING

A Likert scale of 1-3 was used in questionnaire. A Likert is a type of psychometric response scale often used in questionnaire and is the most widely used scale in survey research. When respond to a Likert questionnaire item respondents specify their level of agreement of statement. The scale is named after Rensis Likert, who published a report describing its use. The respondents were required to indicate the relative critically, effectiveness of each of the probability of risk factor and their impact to the management.

CONCLUSION

The following are the proposition from this thesis work,

Shortage of skilful workers is the major risk faced by almost all companies. This is because the skilled workers migrating between companies very often due to high demand in the market.

Though inflation rate in India remains lower than in many other developing countries this causes construction industry a hefty price. Rising fuel prices have also be behind rising inflation in India. There is no single window entry for the investors and developers like in other developing and developed countries, which causes great

time delay. Thus both the state and central government should make a single window system for the approvals.

Delay in the project is also the main risk, but this delay is looped with various factors and risks directly or indirectly. The delays in projects are caused because of lack of communication, shortage of supply of materials and design errors. The delays may also be caused by slow decision making and financial issues.

The risk of competition from other companies constitutes a major problem to the small and medium sized companies. Due to the policy of Indian government that 100% FDI is allowed in the construction sector while allowed foreign companies to enter the market, created a firm competition to the local companies both technically and financially.

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