RISK ASSESSMENT OF CONSTRUCTION BUILDING PROJECTS

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***ABSTRACT*:** The construction industry has now turned out to be one of the fastest growing industries of today that has significant effect on the economy of India Large development projects when deferred cause increment in the general spending plan. The undertaking must be planned and sorted out property and precisely to finish it inside given time with good quality work. This study specify that all the construction projects, all over the world, have huge number of risks and to complete the project, efficiently and successfully, risk management is essential. The risks can be recognized by questionnaire survey. The risks are identified and then it is evaluated by various technique like qualitative analysis to know the occurrence probability of risk and impact of these risk on project goals. When any risk arises, they have severe or simple impact on project and it affects cost, schedule of project, time, and quality. Therefore, for the project to be succeed, the risk management is required.

1.0 INTRODUCTION

The construction industry has now turned out to be one of the fastest growing industries of today that has significant effect on the economy of India. If we were to take a case, in the greater part of the creating nations the primary development exercises which if carried out add to right around 85% of the average capital resources, around 15% of their Gross domestic product, and more than around half of the capital that is been put resources into the fixed assets. The construction business always gives high work openings. Numerous tasks experience both significant time and cost overruns. Large development projects when deferred cause increment in the general spending plan. The undertaking must be planned and sorted out property and precisely to finish it inside given time with good quality work. This has expanded the competition between the construction firms in the country. The construction firms and the customer's behavior have made changes because of these events.

OBJECTIVES OF THE RESEARCH

- To analyse and make a brief study on various risks those are very often to occur in the construction project.
- Segmenting and classifying the risks depending on the different matrix and then categorize the risk as high, moderate, and low.
- Formulate a risk mitigation plan.
- To make a work to increase the probability of occurrence of positive events by proper prediction of risks.
- Providing practical recommendation and ideas for development of the risk management method and develop their performances.

2.0 LITERATURE REVIEW

The following literature survey includes summary of research papers presented in popular journals on topics almost like current field of study.

(1)J.G Perry, R.W. Hayes .

This paper displays about idea of the risk management inside the management of construction projects. The primary importance is on the commitment which can be made on the elusion of cost and time, attacks ordinarily connected with main

projects. The three major stages of risk management is identification, investigation and reaction are conserved and details about theory briefly explained out. The risk management especially fit under three phases of life of construction projects, pre-sanction and development of agreement strategy and arrangement of documents and its application to every one of these stages are represented.

(2)Kinnaresh patel .

There are many challenging projects ongoing in the world which include variety of complexion procedures working simultaniously. Dealing with these procedures can be a quite challenge for the management. One of the measure task is identifying the risk that is involved. Risk management contains identifying risk, evaluating risk either quantitatively or subjectively, picking the correct technique for handling of risk, and after that controlling or recording the risk. This study distinguishes the strategies for risk recognizable proof, management and its observation from the Indian construction industrial players. Time and cost management fully consolidated with the identification process and time limitations and project management with adequate experience are basic while identifying the level of risk for mega projects as well as complex projects. The objective of this study is to advocate for a method of risk mitigation which includes a very well-documented process, which helps as a one stop-solution to all the risks that would arise in the future.

(3)M.J. Mawdesley .

This paper describes about how to understand and it gives solution for the construction risks, actual on the human risk factors. For this purpose many questionnaires are created and it is implemented in personal interviews with construction experts. Now a days risk management has been normally applied across construction sectors. It is very hardly includes the outcome of human factorals. This paper classifies the human risk factors mainly in the construction, the human risk factors are cannot be ignored at any cost these are considered to be in the project risk management. Another procedure of evaluating risk to similarly incorporate human risk components have to be created, in which human risk factors are recognized and examined symmetrically, all through the risk and significance is given for incorporating human risk factors in the improvement project management.

(4)Pattel Ankit Mahendra Et.Cl.

Conducted study on risk management for applying in construction project which includes new procedures for all types of risks most likely happens during total life of project uncertainty and risk are picked up or collect from various sources in project, that are composite or difficulty in nature with the record of submission of risk not suitable in construction projects. The journal paper defines techniques of identifying the risks, evaluating and analyzing the risks involved. The risk management carryout especially protected by the project team members and then handled with care. Due to insufficient knowledge about risk managemental processes, it is not applied or useful in the construction projects. This paper describes the risk management should be conducted at the starting stage for the betterment of the project results. It has been concluded that there is requirement for all around recorded way to deal with unravel every one of the risk in projects.

(5)Pawel szymanski

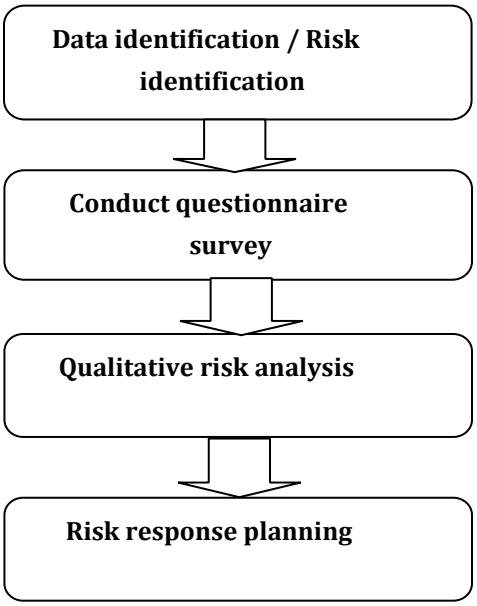
This paper helps in identification and classification of the risks as the risk is present everywhere and every area of life in one such is construction industry where the risk always present. Analysis is done in part or in detail, including escorts and even stake holders by doing this we can effectively manage the risk coming in future and can be translated into clear benefits to project. The first step is identify the risk in the very main stage and determining which type of risk, how it is affecting to the project,and characteristics of risk and estimating possibility of its incidence to project. This paper reviews different type of risks present in stages of construction.

(6)Saied A. Kartam .

This paper informs, the work is done on the basis of questionnaire survey on biggest Kuwaiti country contractors, and the main thing they consider is risk under construction projects. The important thing risk under construction management are time and the cost of the projects. In this study the Kuwaiti contractors first give concentration on the evaluation, allocation and risk on site areas. This paper represent two types risk management procedures, the priors is preventive, these risks were

occurs at the beginning of the project works and mitigative, which are the main object to resolve during process of construction in less time. The exploration found that temporary workers demonstrate more readiness to acknowledge risks, that are authoritative and lawful related as opposed to different kinds of risks. The exploration comes about similarly showed that the utilization of the formal hazard investigation strategies in the Kuwaiti development industry is restrictial.

3.0 METHODOLOGY



3.1 Risk identification

Risk identification is a repetitive process because as the project progresses new risk develop through the project life cycle. The risk valuation format should be continuous to allow the comparison between the effects of one risk even on the other. The identification process in the organization includes the project team members. For the purpose, the several risk arising in the construction process from the formulation, mobilization and construction stage are categorized and listed.

3.2 Questionnaire survey

The questionnaire survey has been conducted on construction companies and the case study and the rating were given.

3.3 Qualitative risks analysis

Qualitative risk analysis involves evaluating the probability and impact of the various risks and listing the risks so as to improve the performance of the project by making the risks with high priority. The valuation of the priority identified risks is done on basis of likelihood or probability of occurrence of risks, the corresponding impact of the risks if it happens and as well as urgency of risk response.

3.4 Risk Response planning

The Risk Response planning includes determining methods to decrease or take out any threats to the project, also the chances to decrease their impact. It is followed by the qualitative risk analysis. Risks with high priority are addressed by risk response plan. A risk response owner or risk expert will be allotted to take the responsibility of controlling the risk by introducing essential activities and resources to the budget, project schedule and management plan as required. The risk response also responsible for reducing the probability and impact of threats and sometimes to increase the probability and impact opportunities.

4. RESULTS AND DISCUSSIONS

DATA COLLECTION

The questionnaire survey done on ten construction companies and their average results are shown below:

In the table,

- P - Probability
- I - Impact
- U - Urgency
- PR – Priority

TECHNICAL RISKS

SL.No.	RISKS		P	I	U	PR
1	Type of contract	T1	2	2	2	3
2	Project preliminary plan	T2	3	4	4	4
3	Delays occurs in design and drawings than expected	T3	3	4	4	4
4	Managing resources	T4	4	4	4	4
5	Inadequate investigation on site	T5	3	4	4	3
6	Unknown productivity of resources	T6	3	4	4	4
7	Changes in project scope and requirement	T7	2	3	3	3
8	Design errors and faults	T8	3	4	4	4
9	Subcontractors	T9	2	2	2	2
10	Insufficient contractor experience	T10	2	2	2	3
11	Failure to carry work as per planning, scheduling	T11	2	3	3	3
12	Improper scheduling and delay of contactor	T12	3	4	4	3
13	Controlling and monitoring and execution	T13	2	3	3	3

FINANCIAL RISKS

SL.No.	RISKS		P	I	U	PR
1	Investment on projects	F1	2	2	3	3
2	Availability and undulation in foreign exchange	F2				
3	Delays in worker wages	F3	3	4	4	4
4	Increase in cost of materials	F4	3	4	3	4
5	Releasing of funds	F5	2	2	3	3
6	Import procedures	F6	2	2	2	3

LOGISTICS AND CONSTRUCTION RISKS

SL.No	RISKS		P	I	U	PR
1	Non availability of transportation services	L1	2	3	2	2
2	Difficulties in disposing plant and equipment's	L2	2	2	2	2
3	Unfamiliarity with local bodies	C1	2	2	3	2
4	Demands on use of local firms and	C2	2	2	2	2
	agents					
5	Technologies	C3	2	3	3	3
6	Absence of protection on construction site	C4	3	4	4	3

MANAGEMENT RISKS

SL.No.	RISKS		P	I	U	PR
1	Company relation problems	M1	1	1	2	2
2	Inadequate assigning works	M2	2	2	2	3
3	Unsatisfactory skilled staff	M3	2	2	2	3
4	Uncertainty about relationship between project employees	M4	2	2	2	2
5	Clashes between project group	M5	1	2	2	2
6	Resource allocation	M6	2	2	3	3

POLITICAL RISKS

SL.No.	RISKS		P	I	U	PR
1	Before tendering	P1	2	2	2	2
2	Acceptance of contract	P2	1	2	2	2
3	Public complaints	P3	2	2	2	2
4	Finalization of contract	P4	1	1	1	2
5	Resident tolls	P5	1	2	2	2
6	Permissions, clearance, approvals	P6	3	4	4	3

ENVIRONMENTAL RISKS

SL.NO.	RISKS		P	I	U	PR
1	Natural disasters	E1				
2	Weather and seasonal variations	E2	3	4	3	3
3	EIA reports	E3				

5. REMEDIES AND SUGGESTIONS

- **Project description:** Clear understanding of what the project is, how it is to be achieved and explaining the complete results of the project.
- **Project purpose:** Suitably defining the purpose of the project and if possible tying the purpose of the project with the planned goals and objectives of the management.
- **Project goals:** This is one of the most essential elements in project preliminary investigation. Providing clear, assessable and actionable objectives, so that the project can be measured against the goals after completing. Clear documentation of the goals is necessary as the ultimate success of the project depends upon the success of its definite goals.
- **Project requirements:** Finding the requirements of the service or product that is to be developed. Requirements contain elements such as time, cost, quality and safety.
- **Project assumption:** Assumptions made with respect to the budget, schedule, at the beginning have to be considered.
- **Project milestone:** Setting up of milestones, helps to track the schedule and finish the project on time.
- **Well defined project scope:** The project preliminary survey should be carried properly. The need, scope, requirements of the project should be thoroughly studied.
- **Involvement of client:** The client or his representative should be involved in the process of planning. Any modifications in the plan should be carried to the notice of concerned individual and modification should be done in the plan.
- **Conducting frequent meetings with client:** Common meetings should be conducted with the clients to brief him about the flow process of planning and designing. This will improve the connection with the client and increase client's satisfaction.
- **Issuing deadlines:** The staff involved in process of planning should work professionally to finish the work in time. Providing deadlines will give maximum output of staff.
- Following up fund requirements, need and gap.
- Suitable supervision and assignment of activity by explained staff.
- Recording the cash flow, and noting the transactions and constraints on their use.
- Agreement at several phases of process should be prepared.
- Management has to adopt the most useful ways get best production by utilizing materials, machine, men and energy at lowest cost.
- Plants and equipment's should existing with all supporting resources for maximum efficiency, which can support in completing project goals associated to costs, time, scope, and schedule.

6. CONCLUSION

The methods to classify project risks, that have been particularized for construction projects, have been presented from various point of view from construction companies and firms that may be helping the development of dealing with project in the planning and construction stages.

The project has studied various factors related to risks and some of outcomes are listed below:

- The risks management process starts prior to project itself.
- There must be proper coordination between every distinct involved with project to implement better risk management practices.
- Record of all the risk occurred and occurring, occurs in future should be maintained.
- Every organization big or small should be adopt risk management practices to reduce effect of risks arising in the project and its impact to reach the project goals.
- The project should be properly scheduled and monitored.
- Clear understanding of the project scope explaining of the complete outcome of project.
- Repetitively changes in design should be avoided in the projects.
- Wages of the workers should not be delayed.
- Procurement of materials should be timely on site.

From the results, it is safe to say that majority of the construction projects have no systematic procedure in place to deal with risks. Risk management is done in a very informal mode..

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