



iJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 Issue: III Month of publication: March 2019

DOI: <http://doi.org/10.22214/ijraset.2019.3301>

www.ijraset.com

Call: ☎ 08813907089

E-mail ID: ijraset@gmail.com

Implementation of Risk Management in Construction Industry

Manoj Sharma¹, Jayshree Singh², Shivendra Singh Yadav³

¹Associate Professor, Civil IPS CTM Gwalior, RGPV University Bhopal (M.P) / India

²Assistant Professor, Civil IPS CTM Gwalior, RGPV University Bhopal (M.P) / India

³Research Scholar, M. Tech Civil IPS CTM Gwalior, RGPV University Bhopal (M.P) / India

Abstract: Risks have important impact on construction comes in terms of its primary objectives. Construction comes that is tortuous in nature, uncertainty and risks within the same will develop from completely different sources. The record of the development trade isn't acceptable in terms of header up with risks in comes. Risk management is a process which consists of identification of risks, assessment with qualitatively and quantitatively, response with a suitable method for handling risks, and then control the risks by monitoring. This study proposes to use the risk management technique which has well - documented procedures for the one stop resolution all kinds of hazards possibly to occur throughout any construction project.

Keywords: Risk, Risk Management, Construction Projects, Risk Management Process.

I. INTRODUCTION

Risk may be outlined because the event that negatively affects the project objectives like time and schedule, cost, quality of labor. Risk Management is that the method of distinguishing the potential risk related to risk and responding to those risks. Risk in any project could be an alternative instead of fate. According to the characteristic of the development trade, that has high uncertainty, thus it'll occur several risks throughout the development section and or operational building? Risk in construction has been the article of attention owing to time and price over-runs related to construction comes. Risk is gift all told the activities during a project; it's solely the quantity that varies from one activity to a different. . Risks and uncertainties inherent within the industry area unit quite the other industries. Many industries became a lot of proactive regarding exploitation risk management techniques in project. However, with relevancy the development trade, constant isn't used normally. Risk is an integral component of any project. Risk is gift all told comes regardless of their size or sector. No project is totally free from risks. If risks are not properly analyses and strategies are not trained to deal with them, the project is likely to lead to failures..

II. OBJECTIVES

The main objectives of this study include the following

- A. To identify the causes of risk in construction projects.
- B. To identify the approaches for solving the problems regarding risk.
- C. To minimize the effect of risk in construction project

III. METHODOLOGY

In this paper, general focus has been created on the danger factors. The target of this study is to spot the foremost reason behind risk within the construction project and access the relative importance of those causes, from the aspects of construction contractors and consultants. The study was performed on the idea of form, divided into two main components. Half one associated with general info for each the corporate and respondent. Each contractors and consultants were more requested to answer the queries bearing on their expertise in housing industry. half two includes the list of known causes of risk in housing industry on the idea of form distributed arbitrarily to contractors & consultants operating in construction comes, response were collected . The data gotten inside the survey was poor down by Relative Importance Index (RII) technique. During this paper, general focus has been created on the overall ideas of risk management. Risk identification has been through with the study of literature. A form was developed when the known factors poignant risk. Risk assessments are often through with the help of qualitative and measure. Risk response can be planned on the idea of the result of the study. Risk management is that the last step within the method of risk management.

IV. CONCEPT OF RISK ANALYSIS AND MANAGEMENT

Risk management could be a method that identifies the project risks, analyses them, and confirm the actions to avert the threats on any project. All steps within the risk management method ought to be enclosed to handle risks, so as to implement the method of the project. thanks to the character of construction comes, risk management could be a important method.

Risk associated with construction industry can be broadly categorized into:

S.NO	RISK CATEGORIZED		
1.	Technical Risks:	1. Construction Risks:	2. Physical Risks
	Incomplete	Labour productivity	Damage to structure
	Design	Labour disputes	Damage to equipment
	Inadequate	Site condition	Labour injuries
	Specification	Equipment failures	Equipment and material
	Inadequate site	Design changes	Fire and theft
	Investigation	Too high quality	6. Socio-political Risks
	Change in scope	Standard	Changes in laws and regulations
	Construction	New technology	Pollution and safety rules
			Language/Cultural barrier
4.	Organizational Risks	5. Financial Risks	Law and order
	Contractual	Increased material cost	War and civil disorder
	Relations	Low market demand	Requirement for permits and their approval
	Contractor's	Exchange rate fluctuation	
	Experience	Payment delays	7. Environmental Risks
	Attitudes of participants	Improper estimation	Natural Disasters
	Inexperienced work	Taxes	Weather Implications

V. FACTORS AFFECTING RISKS

- 1) *Management Stability*: Management stability suggests that the complete management share identical goal or objective for any project. Therefore, it'll be useful to attain the project objectives with a lot of ease. If the management is unstable then it will result in have an effect on the project objectives.
- 2) *Staff expertise and Experience*: If the employees for any project are sufficiently practiced and with completely different experience the chance of quality, price and alternative objectives may be achieved.
- 3) *Team Size*: For larger groups of any project there area unit additional possibilities of prevalence of drawback as a result of miscommunication.
- 4) *Resource Availability*: If the project is available with a good amount of resources then the response to the problem will be good. Because if the project is available with greater amount of resources than it can deal with different risks with ease.
- 5) *Time Compression*: If the project schedule is extremely compressed there square measure additional probabilities of prevalence of risks in comes. once longer is on the market for the project, then it is coped up by reducing risk impact on the project.
- 6) *Complexity*: If the project is very complicated there square measure a lot of probabilities for the incidence of drawback within the project.

VI. RISK MANAGEMENT PROCESS

Risk management is the process which consists of identification, assessment, response, control as shown in figure no. 1.

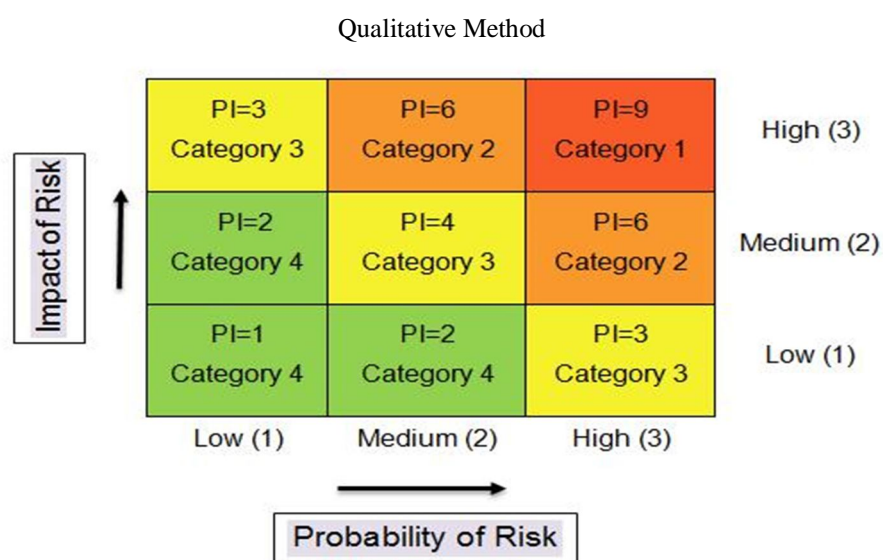


Figure: 1 Risk Management Process

A. Risk Identification Can Be Done By The Following Methods

- 1) **Brain Storming:** This is one among the foremost standard techniques. Generally, it's used for plan generation; it's additionally terribly helpful for risk identification. All relevant persons related to project gather at one place. There's one assistant United Nations agency is making known regarding varied aspects with the participants and so once write the factors. Before closing it the assistant review the factors eliminate the inessential ones.
- 2) **Delphi Technique:** This technique is comparable to group action however the participants during this don't grasp one another and that they don't seem to be at a similar place. They'll determine the factors while not consulting different participants. The supporter like in brain storming sums up the known factors.
- 3) **Interview/Expert Opinion:** Experts or personnel with adequate expertise in a very project may be an excellent facilitate in avoiding/solving similar issues over and all over again. All the participants or the relevant persons within the project may be interviewed for the identification of things touching risk.
- 4) **Past Experience:** Past expertise from constant quite project, the analogy will be fashioned for identification of the factors. once scrutiny the characteristics of comes can offer insight regarding the common factors.
- 5) **Checklists:** These are straightforward however terribly helpful planned lists of things that are potential for the project. The check list that contains an inventory of the risks known in comes undertaken within the past and also the responses to those risks provide an advantage in risk identification.

B. Risk Assessment Can Be Done By The Following Methods



C. Quantitative Methods

- 1) **Sensitivity Analysis:** This is administered to spot the unsure project elements which can have most impact on the result of the project. once a risk model is formed a sensitivity analysis is administered to envision the sensitivity of various components of the model on project outcome. to try and do these the values of one variable at a time is modified and therefore the impact of those changes is then seen on the project.
- 2) **Risk Acceptance:** Ultimately it's inconceivable to eliminate all threats or profit of all opportunities – we are able to document them and a minimum of offer awareness that these exist and are known, some term this “passive acceptance. This strategy is adopted once it's inconceivable or sensible to reply to the danger by the opposite ways, or a response isn't even by the grandness of the danger. once the project manager and therefore the project team arrange to settle for a risk, they're agreeing to handle the danger if and once it happens.
- 3) **Contingency Plan:** This involves the employment of a pullout arrange if a risk happens. Contingencies may be within the style of someday unbroken in reserve to contend with unknown risks or within the style of prices to contend with unknown risks.
- 4) **Risk Control:** Is the final step of the method. when we've got enforced response actions, we tend to should track and record their effectiveness and any changes to the project risk profile. Did the response actions have a positive or negative impact on achieving project objectives? Responses taken in risks ought to even be documented for future reference and project plans.

VII. CONCLUSION

Risk management technique seldom utilized by the participants in construction comes. The participants accustomed handle the risks with a casual approach. this method isn't used due to less data and awareness among the development business. the danger management technique ought to be applied into any construction project at the initial stage of the project to induce most advantage of the technique. Hence, there's thriving have to be compelled to have a well-documented procedure that ought to be a 1 stop answer to any or all hazards that ar seemingly to occur throughout project life cycle. There ought to be additional wholesome approach towards risk management rather than the current irregular approach towards the risks.

REFERENCES

- [1] Akintoye, A.S. and MacLeod, M.J.; "Risk analysis and management in construction"; International Journal of Project Management (1997) .
- [2] Baker, S., Ponniah, D., and Smith, S.; Risk response techniques employed currently for major projects, Construction Management & Economics (1999).
- [3] Dariusz Skorupka.; "Risk management in building projects"; AACE International Transactions (2003) .
- [4] Dr. M. J. Kolhatkar, Er. Amit Bijon Dutta, "Study of Risk in Construction Projects", ;GRA (2013)
- [5] Akintoye, A.S. and MacLeod, M.J., 1997. Risk analysis and management in construction. International Journal of Project Management, Vol. 15, No.1, pp. 3138.
- [6] Dey, P.K., 2002. Project Risk Management: A Combined Analytic Hierarchy Process and Decision Tree Approach. Cost Engineering, Vol. 44, No. 3, pp. 1326.
- [7] Royer, P.S., 2000. Risk management: The undiscovered dimension of project management. Project Management Journal, Vol. 31, No.1, pp. 613.
- [8] Raz, T., Shenhar, A.J. and Dvir, D.,2002. Risk management, project success, and technological uncertainty. R&D Management, Vol. 32, No. 2, pp. 101109.
- [9] Akintola S Akintoye and Malcolm J MacLeod "Risk analysis and management in construction" International Journal of Project Management Vol. 15, No. 1, pp. 31-38, 1997.
- [10] Li Bing and Robert L. K. Tiong,1999. "Risk management model for international construction joint ventures" Journal of Construction Engineering and Management, ASCE, Vol. 125, No.5, PP, 377-384.
- [11] Daud Nasir, Brenda McCabe and Loesie Hartono,2003. "Evaluating Risk in Construction-Construction Schedule Risk Model", ASCE Journal of Construction Engineering and Management, Volume 129, Issue 5, pp. 518-527
- [12] Elkingtin P. and Sallman C.,2002. Managing project risks: a case study form the utilities sector. International Journal of Project Management. Vol. 20, No. 1, pp. 49-57
- [13] Lyons T. and Skitmore M. 2004. Project risk management in the Queensland engineering construction industry: a survey. International Journal of Project Management. Vol. 22, pp. 51- 61
- [14] Pinto J.K. and Prescott J.E., Variations in Critical Success Factors Over the Stages in the Project Life Cycle, Journal of Management,1988, Vol.14, pp. 5-18
- [15] Ward S. C. and Chapman C.B , "Risk management perspective on the project life cycle", International journal of Project Management, Vol.13, Issue 3, pp. 145-149.



10.22214/IJRASET



45.98



IMPACT FACTOR:
7.129



IMPACT FACTOR:
7.429



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089  (24*7 Support on Whatsapp)