

# Risk Management in Construction Project

S. Sathyajith, M. Naveen, S. Bharathivasan, A. S. Hariharan, M. Manoj Kumar

**Abstract:** There is an several kind of risk occurrence due to increasing of construction projects which leads to excessive effects in time and cost basis. It is based on identification, evaluation and management of risk in construction project. Finally, we provide the suggestion to avoid risk and how to rectify the following risk occurrence. That's why we collected the data in Gantt chart from construction officials and also to receive the information about construction project by questionnaire. From that we analyses the risk by using software like primavera. The data collection is based on two suspects as government and private organization. Apart from that, we referred number of journals which gave some ideas to manage the risk and provide the solution to avoid risk during construction work and also provide kind of solutions for construction risk sector.

**Keywords:** Gantt Chart, Primavera, Risk Identification, Risk Assessment, Risk Factors, Risk Control.

## I. INTRODUCTION

The aim of this project report is to make aware of risk that occur during construction work and give some reasonable solution in construction project with procedures. A brief discussion on application of risk management, hence, somewhat better outcome, avoid risk and value of constructor and client were studied.

### A. Objective

1. To define risk management strategies.
2. To rectify the possible risk.
3. To counteract and manage the risk factors.

## II. DEFINITION OF RISK & RISK MANAGEMENT

### A. Risk

Risk is the possible rate of loss in various aspects, it may be positive or negative risk which depend on factors we are considered.

### B. Risk Management

It is the art of managing risk that are caused by some uncertainties. It involves identification, analyzing, monitoring and controlling the risk. The main aim of this project is to outline the risk in construction which based on time and cost budgets. To monitor, minimize and control the probability or impact the unfortunate events. To maximize the realization of opportunities.

**Revised Version Manuscript Received on March 05, 2018**

**S. Sathyajith**, B.E. Student, Department of Civil Engineering, Park College of Engineering and Technology, and Anna University, Coimbatore (Tamil Nadu), India.

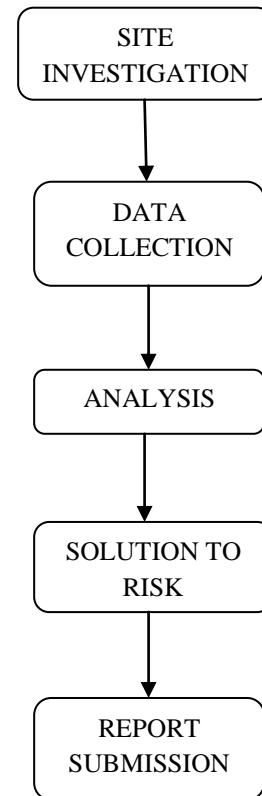
**M. Naveen**, B.E. Student, Department of Civil Engineering, Park College of Engineering and Technology, and Anna University, Coimbatore (Tamil Nadu), India.

**S. Bharathivasan**, B.E. Student, Department of Civil Engineering, Park College of Engineering and Technology, and Anna University, Coimbatore (Tamil Nadu), India.

**A. S. Hariharan**, B.E. Student, Department of Civil Engineering, Park College of Engineering and Technology, and Anna University, Coimbatore (Tamil Nadu), India.

**M. Manoj Kumar**, Department of Civil Engineering, Park College of Engineering and Technology, and Anna University, Coimbatore (Tamil Nadu), India.

## III. METHODOLOGY



## IV. SOFTWARE USED

Project management is the primavera software program, developed by Microsoft and it can be progress by use of data collection from Gantt chart. Gantt chart is the type of chart that show the project schedule. It may have start and finish date of terminal element. It should have the periodic progress of construction work with regulation and some laws.

Layout: 2 Week Lookahead		Filter All: 2 Week Lookahead				
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Schedule % Complete	Finish
NEWPROJ (New Project)		0	0		0%	
sathya (New Project)		65	65	26-Dec-17	0%	26-Mar-18
A1020	SITE CLEARANCE	1	1	26-Dec-17	100%	26-Dec-17
A1100	ROOFING	12	12	19-Feb-18	50%	06-Mar-18
A1120	PLASTERING	10	10	13-Mar-18*	0%	26-Mar-18
A1090	MASONRY	6	6	09-Feb-18	100%	16-Feb-18
A1030	MARKING	1	1	27-Dec-17	100%	27-Dec-17
A1110	GLAZING	5	5	06-Mar-18*	0%	12-Mar-18
A1060	FOUNDATION	7	7	11-Jan-18	100%	19-Jan-18
A1050	FORMWORK & REBAR	9	9	29-Dec-17	100%	10-Jan-18
A1040	EXCAUVATION	1	1	28-Dec-17	100%	28-Dec-17
A1080	COLUMN RISING	10	10	26-Jan-18	100%	08-Feb-18
A1070	BASEMENT	4	4	19-Jan-18*	100%	24-Jan-18

**Fig. 1: (Progress of Construction)**



# Risk Management in Construction Project

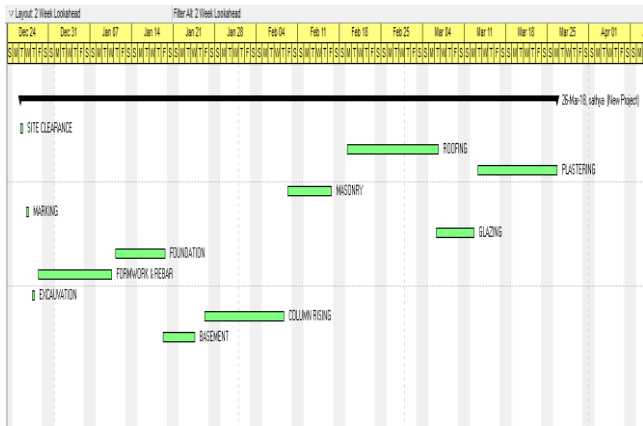


Fig. 2 : Gantt Chart (Projectmanagement)

## V. RISK FACTORS

The risk factors is vary from place to place and type of construction it will be. It may be categorized under cost, time, material, equipment, environmental and manpower.

### A. Based on cost:

#### 1) Initial Investment

It is the main factor which manipulate in many construction sites and also depend upon location of construction.

#### 2) Operational cost

It focus on causes for planned cost changes and how to mitigate.

### B. Based on Time

#### 1) Environmental Factor

This factors concern mainly for time. It may slowdown the process of work in construction.

#### 2) Material distant

It is distance from which material can be transported to construction site.

### C. Other Factors Involved:

- Material quality
- Regularities
- Working time
- Equipment condition
- Equipment age
- Wages problem

## VI. RISK IDENTIFICATION

The identification of risk is the process which aim at exploring all possibilities to locate the risk sources and risk events and reducing the overlooking any potential risk. The process which involves the analyzing project to determine the source of risk and other possible events. The risk identification is mainly accumulate in basis of few risk factors.

### A. Risk Assessment

There are numerous technique for qualitative risk analysis such as documentation review. They require that as design progresses, risk are identified and eliminated and residual risk are reduced and managed. The term are,

- 1) Avoid risk if possible.

- 2) Evaluate risk that cannot be avoided.

## B. Risk Monitoring

Construction risk monitoring is an accurate and positive deviation of checking the quality, quantity of material used, accuracy and progress of construction project. Risk monitoring will give you a clear view of your projects progress, allow you to identify problem before and as they arise. The risk monitoring is mainly concern with quality control, health, safety, costing, materials, construction environment.

## C. Risk Control

Controlling risk is the process of implementing and updating risk response plan. Risk control aim at implementing the risk response plan by tracking identified risk, monitoring residual risk, identifying new risk and documenting from projection.

- 1) Make time decision.
- 2) Adjust plan, keep all information about possible risk.

## VII. CONCLUSION & FUTURE SCOPE

With globalization of market, project are becoming larger in size and complex in nature. The stability of modern project is thus, constantly subjected to certain sensitive and volatile environment, external as well as internal. Risk management must installed in the project, change to gain the goal of avoiding risk and how to manage the risk on further construction. We consider two suspect as government and private organization from which collection of data could be carried out. The construction work in private sector has been over with some risk factors, while in government project, due to lack of operational cost, the project was deviated from actual date of completion. So that, we have listed out causes for deviation and after being analysis, we suggested solution to avoid risk.

### FUTURE SCOPE

- To understand the background of organization and its risk.
- Evaluate the risk management activities being undertaken so far.
- Develop the structure for risk management initiatives and control to follow.
- To avoid the risk if possible.

## REFERENCES

1. Construction Delays Causing Risk On Time and Cost by Chidambaram Ramanathan, SP Narayanan and Arazi B Idrus.
2. Risk Management In Construction Management by Manoj Kumar
3. Cost and Schedule - Control Integration Issues & Needs by William J.Rasdorf & Osama Y.Abudayyeh.
4. Risk Management In Building Projects by Adan Enshassi, Jaser Abu Mosa.
5. Risk Management In Construction Project by Mubin M.Shaikh.
6. Contractor Risk Management Practices by Lucien Wright.
7. Construction Project Management by K.K.Chitkara.



## AUTHORS PROFILE

**S. Sathyajith,** We are pursuing B.E. Civil Engineering at Park college of technology in Anna university from India with regulation of 2013. We have done two project under the proper guidance of Mr. M. Manoj Kumar M.E. This is our second project which regulates under technical one, our first project has related to design sector as topic of Planning, Analysis & Designing of Aquatic sports stadium. The time we used for project is more than three months, initially after selected the topic of Risk Management In Construction Management, search a site which is preferable for our project. After some days, we picked out two places which is irrelevant to one another. Site visiting carried as per two suspect one from government project and other from private sector. In that we collected the data regards to site and their contractor by some questionnaire. After that we make some correction in that and move it into analysis portion. We use project management from primavera software by discover of Microsoft. With the use of primavera, we make an Gantt chart which shows start and finish date of construction work and their regular progress of work. Apart from that we referred several journal, to manage and avoid the risk. Finally, we gave some solution to avoid the risk in future construction work.

**M. Naveen,** We are pursuing B.E. Civil Engineering at Park college of technology in Anna university from India with regulation of 2013. We have done two project under the proper guidance of Mr. M. Manoj Kumar M.E. This is our second project which regulates under technical one, our first project has related to design sector as topic of Planning, Analysis & Designing of Aquatic sports stadium. The time we used for project is more than three months, initially after selected the topic of Risk Management In Construction Management, search a site which is preferable for our project. After some days, we picked out two places which is irrelevant to one another. Site visiting carried as per two suspect one from government project and other from private sector. In that we collected the data regards to site and their contractor by some questionnaire. After that we make some correction in that and move it into analysis portion. We use project management from primavera software by discover of Microsoft. With the use of primavera, we make an Gantt chart which shows start and finish date of construction work and their regular progress of work. Apart from that we referred several journal, to manage and avoid the risk. Finally, we gave some solution to avoid the risk in future construction work.

**A. S. Hariharan,** We are pursuing B.E. Civil Engineering at Park college of technology in Anna university from India with regulation of 2013. We have done two project under the proper guidance of Mr. M. Manoj Kumar M.E. This is our second project which regulates under technical one, our first project has related to design sector as topic of Planning, Analysis & Designing of Aquatic sports stadium. The time we used for project is more than three months, initially after selected the topic of Risk Management In Construction Management, search a site which is preferable for our project. After some days, we picked out two places which is irrelevant to one another. Site visiting carried as per two suspect one from government project and other from private sector. In that we collected the data regards to site and their contractor by some questionnaire. After that we make some correction in that and move it into analysis portion. We use project management from primavera software by discover of Microsoft. With the use of primavera, we make an Gantt chart which shows start and finish date of construction work and their regular progress of work. Apart from that we referred several journal, to manage and avoid the risk. Finally, we gave some solution to avoid the risk in future construction work.

**S. Bharathivasan,** We are pursuing B.E. Civil Engineering at Park college of technology in Anna university from India with regulation of 2013. We have done two project under the proper guidance of Mr. M. Manoj Kumar M.E. This is our second project which regulates under technical one, our first project has related to design sector as topic of Planning, Analysis & Designing of Aquatic sports stadium. The time we used for project is more than three months, initially after selected the topic of Risk Management In Construction Management, search a site which is preferable for our project. After some days, we picked out two places which is irrelevant to one another. Site visiting carried as per two suspect one from government project and other from private sector. In that we collected the data regards to site and their contractor by some questionnaire. After that we make some correction in that and move it into analysis portion. We use project management from primavera software by discover of Microsoft. With the use of primavera, we make an Gantt chart which shows start and finish date of construction work and their regular progress of work. Apart

from that we referred several journal, to manage and avoid the risk. Finally, we gave some solution to avoid the risk in future construction work.