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EXPLORATION IN RISK MANAGEMENT IN PRIMAVERA RISK ANALYSIS FOR CONSTRUCTION PROJECT

Dr. K. Yogeswari[1] and Moinuddin H[2]

[1]Associate Professor in the Department of Civil Engineering in B.S.A.Crescent Institute of Science and Technology, Vandalur, Chennai

[2]B.S.A. Crescent Institute of Science and Technology, Vandalur, Chennai

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ABSTRACT

Construction projects are facing several risks that and have negative effects on the project such as time, cost & quality. Risk management is an important field of the construction industry. Many companies often establish a risk management procedure in their projects for improving performance and increase profits. No project is free from risks. The accomplishment of project success in the construction industry mainly depends upon the level of risk. The main objective of the project is to identify the risk and provide the best solutions using primavera risk analysis software. This study investigates risk-related responsibilities for the client, architect & contractor. Some of the risks determined in the project are defective design, financial issues, delay in permitting, availability of drawings, changes in codes & drawing changes in the scope of work, payment delay, accidents during construction. The next goal is to identify risk management techniques in the construction industry. The whole process of identification and mitigation is termed risk management. In Construction projects are concerned with the utilization of skills, tools, techniques, and knowledge about the activities of projects. Management of risk is examined to be the most important part of the execution in construction management. This study has taken a real-time schedule from the construction industry and have implemented the identified risk factors according to risk ranking from the questionnaire survey in construction industry. Based on the risk ranking, a risk model is created in the Primavera risk analysis software for qualitative and quantitative risk. The risk model will generate risk scoring and a risk matrix. Based on this, the schedule to mitigate risk will be generated. We can control the risk in software and an updated risk plan will be given to managers in the construction industry to manage risk more efficiently. It may be concluded that the most significant risks must be managed with greater effort to reduce or eliminate their effects on the project.

KEYWORDS: Risk Analysis, Risk Management, Primavera Risk Analysis, Risk Scoring, Risk matrix

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CHAPTER 1 INTRODUCTION

1.1 GENERAL

The risk has become a part of our day to today life. One such area is the construction industry. Projects within the construction sector are categorized as fragmented, temporary & complex which brings upon risk exposure. Risk can be described as the likelihood of an event multiplied by its extent. A risk management plan will aid a construction industry to consider the various risks before they happen and reduce their influence on the project. The benefits of risk management are to provide good labour conditions and to protects from events that will cause damage to both the company and the environment.

1.2 STRATEGIES AND PROCESS

Risk Management involves the procedure of conducting risk planning, risk identification, risk analysis, and observe risk on a project. Risk management aims to optimize time, cost, and quality

The Project Risk Management processes are:

Plan Risk Management— The risk management plan is important in the construction industry. It helps to optimize risk in construction projects. There are several tool and techniques to plan risk more efficiently that describes how risk ` activities will be performed.

Identify Risks— Risk is identified based on practices in the construction industry so that project managers are listed out based on previous project experience. Based on the study we have identified some risks are defective design, financial issues, delay in permitting, availability of drawings, changes in codes & drawing changes in the scope of work, payment delay, accidents during construction, and cost overrun in project

Plan Risk Responses— A risk management plan is prepared based on the outcome of a questionaries-based survey in the construction project.

Perform Qualitative & Quantitative Risk Analysis— After the risk management plan is laid out, we have to identify risk & rank according to its priority based on the questionnaire survey in the construction projects. The major risk is identified by performing quantitative and qualitative methods like probability branching, primavera risk analysis tools, etc

Implement Risk Responses—It is the process of executing risk responses using various tools and techniques.

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Monitor Risks—The above-identified risk are monitored throughout the project for project managers to run project effectively

1.3 RISK APPROACH

Below are the various risk approaches

Risk Avoidance- Risk avoidance is to get rid of the risk by using previous risk analysis from several completed projects.

Risk Reduction- While planning and designing the project we can brainstorm with a client, architect, project managers, structural designer and reduce the risk before the implementation of the project

Risk Transfer- Risk can be transferred to the third party and transfer the ownership to bear the risk by agreement, warranties& bonds.

Risk Acceptance- Risk acceptance involves embracing the risk. It can be categorized into active and passive Active: Risk can be predicted and prompt action can be taken by management using time and resources so the risk could be mitigated in the initial stage. Passive: This involves a realization of risk after its occurrence. So, we have to accept the risk, bear the loss and solve accordingly.

CHAPTER 2 LITERATURE REVIEW

2.1 LITERATURE STUDY – NATIONAL SCENARIO

Patel Ankit Mahendra, (2013) Risks have a vital impact on construction comes in a phrase of it. Construction comes that area unit tangled in nature, unpredictability & risks from a different origin. After the risk is found, assessment is performed qualitatively and quantitatively, response with an appropriate technique for handling risks, so management the risks by examination. It is based on risk management practices and provides the best solutions

A. Suchith Reddy (2015) has inspected risk and its outcome within the construction field and also the process needed for risk management. The outcome of risk is evaluated in the project and the various tools and strategies applied to manage risk in the construction industry.

Chaitali S. Pawar et al. (2015) The risks in the construction industry have been predictable as a vital management procedure to accomplish the project goal in terms of price, time, scope, and quality. Qualitative risk analysis finds out the importance of trot elaborate risks. It provides a quick and distinct illustration of risk.. the chance assessment matrix is framed in line with the collision of risks on consumer & contractor as a result of each section of the contract could also be re- modulated study recommended a couple of ideas to moderate construction project risks.

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Srinivas. K (2015) examined a study on risk assessment ranking reports on infrastructure enhancements within the Indian industry. Risk management may be a proactive technique to get the complete edges of the necessary programs that are initiated in each enterprise. The appliance of higher risk management practices aims to attain a full profit. The analysis was performed out for the chosen project by considering half-dozen doable risks in numerous phases of the project, that square measure capable of inflicting AN unnecessary lag within the completion of the project. various factors of the intense risks listed and supported the feedback obtained from the participants and also the RSI was firm for every of the 35 risk factors and a building project is subjected to risk and mitigating steps have to be compelled to be taken to scale back the chance impact to a manageable level if the threats tend to be uncontrollable.

Danish Ali et al. (2016) Once risk is located, a quantitative or qualitative assessment of risk is carried out and the best process to handle risk is chosen. A survey is conducted among the person to develop and mitigate risk

2.3 LITERATURE STUDY - INTERNATIONAL SCENARIO

Ekaterina Osipova (2008) The analysis focuses to consider risk management within the different procurement options. The study has addressed various construction projects performed in Sverige and it includes a form survey and a series of interrogation with different stakeholders in the construction field. The outcomes of it show a scarcity of a repetitive approach to risk management, which may be a deficiency in current procurement practices.

Nerija Banaitiene et al. (2012) The construction industries are affecting unemployment and monetary loss. This has led to a change in the behavior of the clients and construction companies. This leads to upgrade quality, performance, and reduce price, and the need for project methodologies and management that can constructively manage project risk. This paper illustrates the research in Lithuania's construction projects that aim to analyze the risk analysis and risk management process

Shahid IQBAL et al. (2014). This research is established on the discovery of a questionnaire-based survey on risk management in construction in West Pakistan. 2 kinds of risk management methods are analyzed preventive approach and remedial approach of risk in the project. The study uncovers those

monetary problems, a mishap on-site, and faulty style area units are major risks. The study facilitates the preparation of a schedule and smart coordination to facilitate managers to target vital areas in the project and reduce risk

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CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

Every project has its own set of hazards that could have an impact on the project. These risks are addressed by project risk management methods. A personal project risk is an uncertain event or situation that has a positive or negative impact on project objectives. Scope definition, a demand for definition, estimations, assumptions, and technical approach are all examples of technical risk. Project management, portfolio management, operations management, organization, resourcing, and communication are all examples of management risk. Written agreement terms and conditions, suppliers, vendors, subcontracts, and consumer stability are all examples of industrial risk. Regulations, exchange rates, laws of competition, legislation, and sites are all examples of external risks. The goal of risk management is to identify and manage risks in a project. These hazards have the potential to cause the project to depart from its original plan and fail to meet the project's goals. Because risks might arise at any time during the project, Project Risk Management responsibilities should be completed in stages. As a result, because each project is unique, it's vital to adjust the Project Risk Management strategy in accordance with the project's size, complexity, importance, and approach.

3.2 AIM

The overall aim is to extend the understanding of risk management using primavera risk analysis software and to enhance the standard of future construction industry

3.3 OBJECTIVE

The objective of the project is to spot the risks in construction comes.

- To analysis risk and to rank risk using primavera risk analysis software
- To Provide Risk Management Plan for construction industry to manage risks more efficiently.

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3.4 METHODOLOGY

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CHAPTER 4

DATA COLLECTION AND RISK RANKING

4.1 INTRODUCTION

The client or project manager should promote an environment of trust and confidentiality in the

interview setting to encourage honest and unbiased assessments. Data analysis methods that can be used during this qualitative risk analysis include Risk data quality assessment, Risk probability & impact assessment & Assessment of other risk parameters. Various types of risk in construction are identified and categorized in a specified format for analysis. The risk is ranked on a scale of 1-5 in which 5 is a very high risk. Data collection is to be done from various construction industries using the questionnaire-based survey. Based on this risk ranking, a risk management plan has to be done. Based on the results of the quantitative and quantitative risk analysis recommendations, it will form inputs to the Plan Risk Responses. Data analysis methods that can be used to select a preferred risk response strategy include Alternative's analysis and Cost-benefit analysis. Risks should be reviewed, which policies and procedures should be followed, the roles and responsibilities in the monitoring process, and reporting formats. Using all the above results we have to monitor and manage the risk effectively.

4.2 STRATEGY OF DATA COLLECTION

In this project, from the construction industry data is collected. Using questionaries survey. The data is collected from project managers, architects, and clients in the construction industry. The questionnaire survey involved 30 risk factors in various project management aspects like scope, schedule, budget, design, & quality.

Questionnaire survey is presented both personally and using google form to client, architect, and contractor in the construction industry

4.3 RESPONSES OF QUESTIONNAIRE SURVEY

The questionnaire survey which was presented to the various client, architect, and contractor are accumulated in the google form. From this, a catalogue of responses is identified. Questionnaire survey has 33 responses from different locations of which the majority are from Chennai and Bangalore.

After receiving the response from the different companies, a response rate is determined whether there is an impact of risk on the project which affects the project schedule and the cost of the project.

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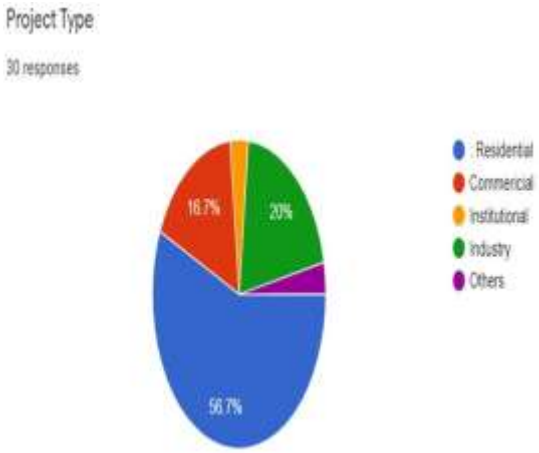

FIGURE 4.4.1: PROJECT TYPE PERCENTAGE

Figure 4.4.1 represent the project type percentage of questionnaire survey. In this 56.7% are residential projects, 16.7% are commercial projects, 20 % are industry projects and the remaining are from institutional & other projects.

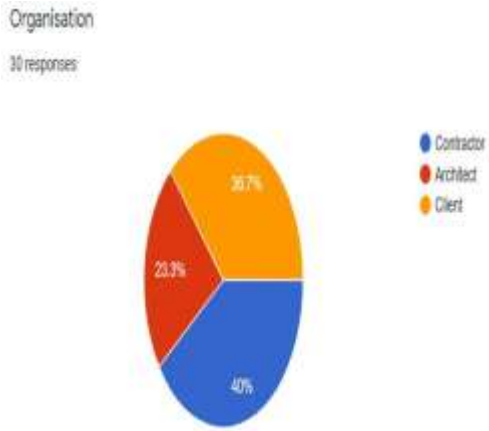

FIGURE 4.4.2: STAKEHOLDER PERCENTAGE

Figure 4.4.2 represent the stakeholder percentage results conducted from the questionnaire survey of which 40% are contractor,36.7% are the client and 23.3% are an architect

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4.5 RISK RANKING INVESTIGATION

I present the questionnaire survey to various respondents to indicate their perception of the significance of each risk using the Likert Scale (1-5) .1" for the lowest risk and "5" for the highest risk. The collated responses are used for identifying risk ranking. The overall responses are categorized for each risk factor as very high risk, high risk, medium risk, low risk, and very low risk.

4.5 RANKING RISKS BASED ON RESPONSE OF QUESTIONNAIRE SURVEY

Identified Risks	**Risk Ranking**
Risk of Bad Quality Material	Very High
Inaccurate Estimation of Quantities Work	High
Cost Over Run in Project	High
Poor Competence & Productivity of Labour	High
Poor Coordination with Sub Contactor	High
Risk of Natural Disaster/Weather Condition	High
Inadequacy of Insurance	High
Poor Performance of Sub Contractor	High
Risk of Funding Problems for project	Medium
Payment Delay	Medium
Changes in Scope of Work	Medium
Delay in Availability of Drawings	Medium
Risk of Changes in Design or Drawings	Medium
Delays Due to lack of availability of Utilities	Medium
Third Party Delays	Medium
Risk of Delay in Material	Medium

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Risk of Labour	Medium
Risk of labour Disputes & Strikes	Medium
Risk of Materials Availability	Medium
Accident/Safety During Construction	Medium
Material & Manual Handling	Medium
Risk of Insufficient Technology	Medium
Delay Due to Dispute with Contractor	Medium
Risk of Equipment availability	Medium
Risk of Bad Quality Equipment	Medium
Inappropriate Risk Allocation in Contract	Low
Lack of Qualified Staff	Low
Shortage of Plant Equipment	Low
Improper Scope of work definition in contract	Low
Theft/Robbery of Material at Site	Very Low

CHAPTER 5

RISK ANALYSIS USING PRIMAVERA RISK ANALYSIS SOFTWARE

5.1 INTRODUCTION

Primavera Risk Analysis is a powerful risk management software. It allows stakeholders to identify and quantify project risk, as well as define project schedules and budgets, by comparing different mitigation options with a new degree of confidence and control over budgets. Primavera Risk Analysis (PRA) is a popular technique for measuring the risk of your project schedules. PRA is used to validate schedules and incorporate your risk models with fully formed risk events into your risk models. The tools in PRA allow you to create a completely risk-affected plan. Primavera Risk Analysis, from Oracle, is a comprehensive lifecycle risk analytics solution that includes cost and schedule risk management. Primavera Risk Analysis offers a thorough method for establishing project success confidence levels, as well as quick and easy methods for creating contingency and risk response strategies. PRA provides a risk management plan for the construction industry to manage risks more efficiently.

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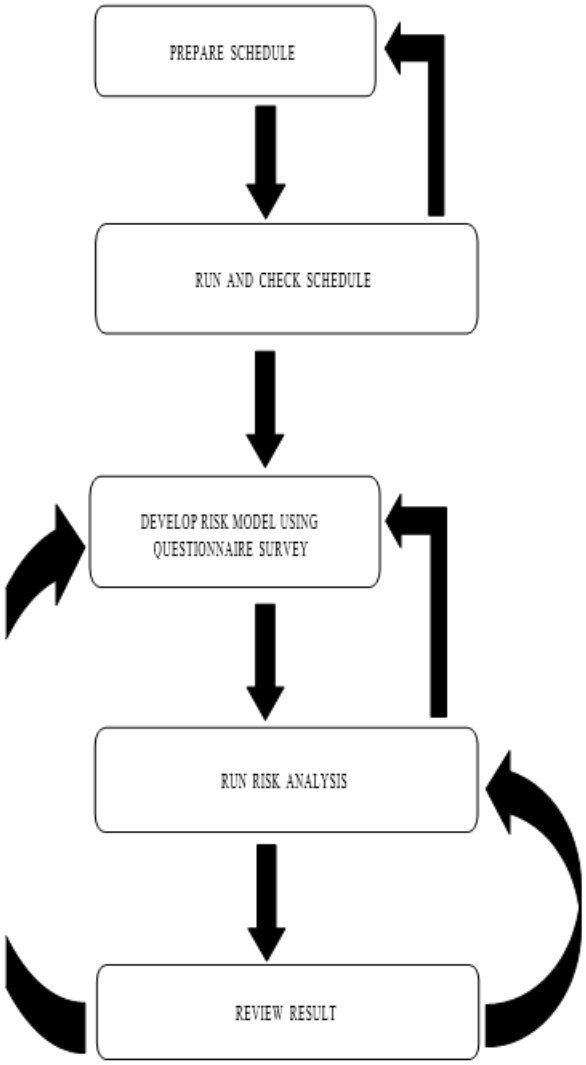
5.2 STRATEGY OF PRIMAVERA RISK ANALYSIS SOFTWARE

I Have taken a real-time schedule from the construction industry and have implemented the identified risk factors according to risk ranking from the questionnaire survey in construction industry. From the risk ranking, I have to develop a risk model or risk register in the software for analyzing the risk qualitative and quantitative. The risk model will generate risk scoring and a risk matrix. Based on this, the schedule to mitigate risk will be generated. We can control the risk in software and an updated risk plan will be given to managers in the construction industry to manage risk more efficiently.

5.3 METHODOLOGY



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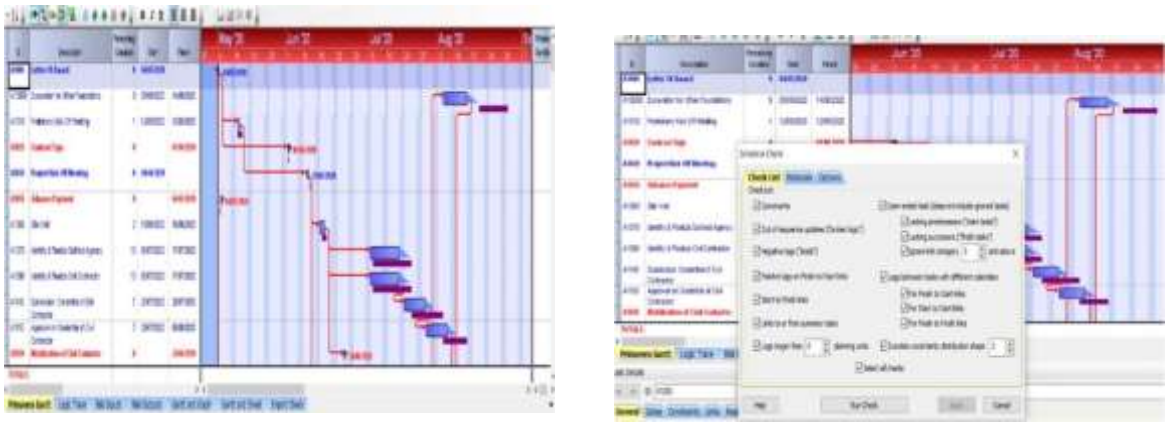

FIGURE 5.3.1 SCHEDULE PREPARATION

The figure 5.3.1 represent preparing the list of activities

5.3 (2) RUN AND CHECK SCHEDULE

The Schedule Check Report examines the project plan for compliance with scheduling best practices as recognized by the Project Management Institute.

The report lists the following potentially problematic issues and provides links to the relevant tasks in the schedule:

- ❑ Constraints
- ❑ Open-ended tasks
- ❑ Out-of-sequence updates (broken logic)
- ❑ Links with lags longer than a user-specified length
- ❑ Negative lags
- ❑ Positive lags on finish-to-start links
- ❑ Start-to-finish links
- ❑ Lags between tasks with different calendars
- ❑ Links to and from summary tasks
- ❑ Invalid duration uncertainty distribution shapes

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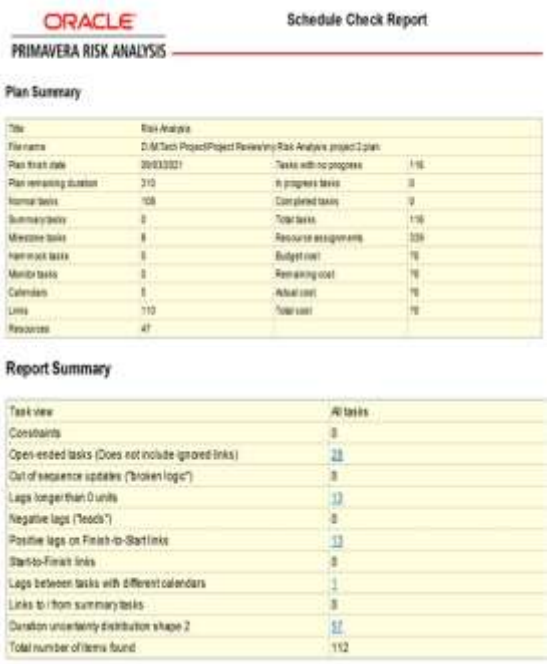
Now, you will open a project plan and check the schedule for potential problems. You can run the Schedule Check Report from the sidebar or from the Reports menu, but when you run it from the sidebar, the report runs immediately with no opportunity to review or change report options. For that reason, you will use the Reports menu to access Schedule Check Report options before running the report.

FIGURE 5.3.2.1 RUN AND CHECK SCHEDULE

Before running the risk analysis, we need to run and check the schedule in the check list dialogue box represented in the figure 5.3.2.1 which includes constraints, negative lags, start to finish links, link to summary tasks and out of sequence updates.


ORACLE

Schedule Check Report

PRIMAVERA RISK ANALYSIS

Plan Summary

Title	Risk Analysis		
File name	D:\M.Tech Project\Project Review\my Risk Analysis project 2.plan		
Plan finish date	28/03/2021	Tasks with no progress	116
Plan remaining duration	310	In progress tasks	0
Normal tasks	108	Completed tasks	0
Summary tasks	0	Total tasks	116
Milestone tasks	8	Resource assignments	339
Hammock tasks	0	Budget cost	0
Monitor tasks	0	Remaining cost	0
Calendars	5	Actual cost	0
Links	110	Total cost	0
Resources	47		

Report Summary

Task view	All tasks
Constraints	0
Open-ended tasks (Does not include ignored links)	28
Out of sequence updates ("broken logic")	0
Lags longer than 0 units	13
Negative lags ("leads")	0
Positive lags on Finish-to-Start links	13
Start-to-Finish links	0
Lags between tasks with different calendars	1
Links to / from summary tasks	0
Duration uncertainty distribution shape 2	57
Total number of items found	112

FIGURE 5.3.2.2 SCHEDULE CHECK REPORT

The figure 5.3.2.2 represents the report generated with 116 tasks and open-ended tasks are 28, finish to start link 13 etc. If we miss any linking activity, it will generate an error. If no error we can continue to the next step.

5.3 (3) DEVELOP RISK MODEL USING QUESTIONNAIRE SURVEY

Developing a risk model involves estimating the potential impacts of risk on the project and then applying those impacts to the schedule. Based on company experience, industry statistics, and input from experts, arrange of duration and is determined for each project task. Risk events that could disrupt the project are

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also anticipated as well as each risk event's likelihood and potential impact on project cost and duration. If the project is sensitive to hurricanes, freezing temperatures, or other weather extremes, that is also taken into account. The risk impact estimates are entered into the appropriate templates, and then Primavera Risk Analysis applies them to the schedule to build the risk model, also called an impacted risk plan

FIGURE 5.3.3 RISK REGISTER USING QUESTIONNAIRE SURVEY

The figure 5.3.3 represents the risk register using questionnaire survey in the construction industry according to risk in which 30 risk factors are implemented in the risk register.

5.3 (4) RISK MATRIX

The Risk Register has reporting capabilities to help you make better mitigation decisions.

Risk Matrix is a menu item in the Edit menu that allows you to change how risks and their consequences are rated. You can connect the risks you specified in the Qualitative tab to the appropriate project activities in the Quantitative tab, then fine-tune their probabilities and impacts. The left window in the Risk View

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shows a list of the risks you've entered into the register, along with their probability, as determined by your choices in the Pre-Mitigation Probability box on the Qualitative tab. The project tasks are displayed on the right window, which is also where the risks are mapped. The risk selected in the left window is mapped to the task when you check a checkbox in front of it.

FIGURE 5.3.4 RISK MATRIX REPORT

Figure 5.3.4 represents the risk matrix report which is generated by implementing risk factors that are in the risk register.

5.3 (5) RISK SCORING

The Risk Register has reporting capabilities to help you make better mitigation decisions. The risk score is used to assign an overall rating to a risk based on the project's likelihood and impact thresholds.

The following factors go into determining a Risk Score:

- The project's given Risk Scoring Matrix

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- The scores entered in the allotted Risk Scoring Matrix (Probability and Impact Diagram grid)
- The Risk Scoring Matrix's risk scoring approach has been chosen (Highest Impact, Average Impact, Average Individual Impact)
- The Probability of Risk

Each risk impact (schedule, cost, and quality, for example) was recorded.
A risk scoring matrix contains probability threshold values, a timetable, cost impact threshold values, and any other user-defined impact threshold values, all of which are employed in the risk score calculation.
Risk Scoring is a menu item in the Edit menu that allows you to adjust how risks and their consequences are rated. Show Risk Matrix, found in the View menu, displays a graphic representation of your risks, both pre- and post-mitigated, to help you see how effective planned mitigation efforts are for each risk at a glance.

Report Summary

Report Name	Risk Scoring
Date Printed	14 May 2021
Total Risks	30
Proposed Risks	30
Open Risks	0
High	29
Medium	1
Low	0
Negligible	0
Impacted (Closed) Risks	0
Managed (Closed) Risks	0
Rejected (Closed) Risks	0
Threats	30
Opportunities	0

Probability Scale

Very Low	Low	Medium	High	Very High
Up to 10%	10% to 30%	30% to 50%	50% to 70%	70% or higher

Impact Scales and Types

	Very Low	Low	Medium	High	Very High
Schedule*	Up to 5	5 to 10	10 to 20	20 to 40	40 or higher
Cost*	Up to 750,000	750,000 to 775,000	775,000 to 1150,000	1150,000 to 7600,000	7600,000 or higher
Performance*	Failure to meet a minor acceptance criteria	Failure to meet more than one minor acceptance criteria	Shortfall in meeting acceptance criteria	Significant shortfall in meeting acceptance criteria	Failure to meet acceptance criteria

* means impact is used in scoring

Probability and Impact Scoring (PID)
Risk Score is based on: **Highest Impact**

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FIGURE 5.3.5 RISK SCORING REPORT

Figure 5.3.4.2 represents the risk score based on the highest impact.

CHAPTER 6

RESULT & DISCUSSION

6.1 START DATE DISTRIBUTION GRAPH

I have developed a risk register using a questionnaire survey conducted in the construction industry. The risk matrix and risk scoring are generated based on the inputs; the result is displayed in the start date distribution graph. Based on the risk analysis, the project team can determine the risk and make changes in the schedule to reduce or eliminate the risk where necessary and take steps to mitigate adverse risk impacts that might occur.

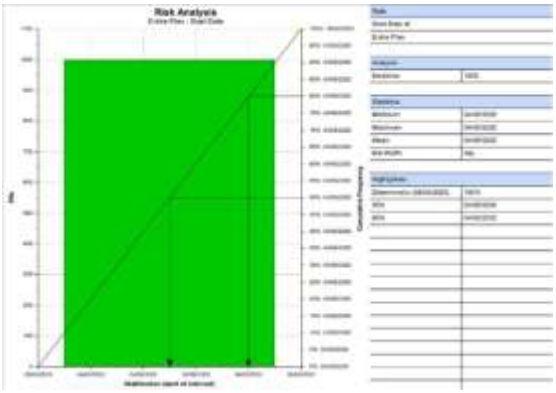

FIGURE 6.1 START DATE DISTRIBUTION GRAPH

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Figure 6.1 Represents that the Result showed start date has not impacted hence it has to start on planned date

6.2 FINISH DATE DISTRIBUTION GRAPH

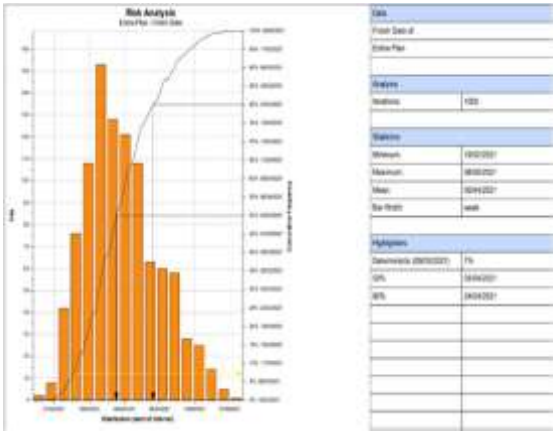

Figure 6.2 Represents the finish date distribution graph, the finish date of the project is highly impacted based on inputs of risk factors using a questionnaire survey.

The result is

Based on Statistics Based on Cumulative Frequency

Minimum Date is 19/02/2021 Deterministic 7% is 09/03/2021 Maximum Date is 08/06/2021 50% is 03/04/2021

Mean Date is 05/06/2021 80% is 24/04/2021

From the results, risk factors are executed in risk analysis software. In the above result the finish date of project /schedule is highly impacted. We can modify by taking appropriate steps to mitigate risk and modify the above statistics to avoid late project delivery.

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6.3 DURATION DISTRIBUTION GRAPH

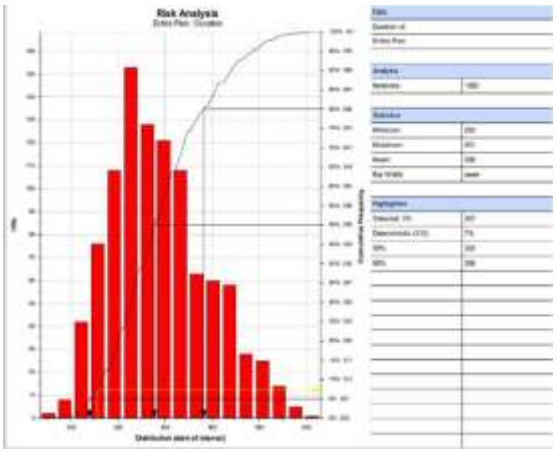

FIGURE 6.3 DURATION DISTRIBUTION GRAPH

Figure 6.3 Represents duration distribution graph the duration (in weeks) of the project is highly impacted based on inputs of risk factor using a questionnaire survey.

The Results are

Based on statistics	**Based on Cumulative frequency** Minimum Duration is 292 weeks 50% is 335 weeks	Deterministic 7% is 310 weeks Maximum Duration is 401 weeks
Mean Duration is 338 weeks	80% is 356 weeks	

From the results, risk factors are executed in risk analysis software. In the above result the Duration of project /schedule is highly impacted. We can modify by taking appropriate steps to mitigate risk and modify the above statistics to avoid late project delivery

CHAPTER 7

RISK MANAGEMENT PLAN

7.1 INTRODUCTION

The risk management strategy outlines project team members and other stakeholders' roles and responsibilities for risk management. This data is used to assign owners to risk responses that have been agreed upon.

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The risk management strategy also establishes the level of detail for the project's risk management technique. It also defines risk thresholds for the project based on key stakeholders' risk appetite, which establishes the acceptable target that risk response implementation must meet.

7.2 PROBABILITY SCHEDULE

Primavera can capture start and finish dates for every job in the project that has a high likelihood (e.g., 80%) during risk analysis. The Gantt Chart can then be used to allocate those dates to each task. Stakeholder expectations can be managed using P-schedules. While stakeholders are provided the P-Schedule for the first 80% of the project, project team members can operate with the original, more aggressive schedule, deterministic schedule.

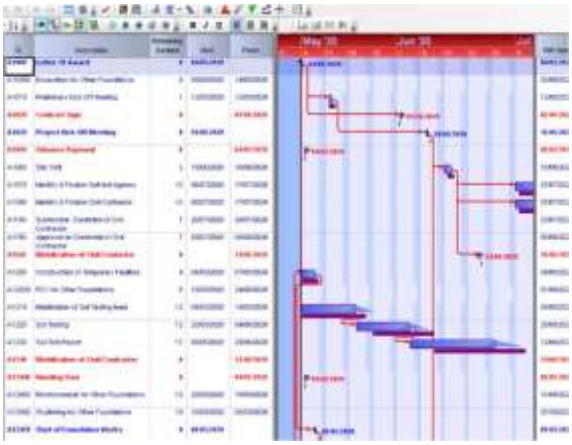
STEPS FOR A P-SCHEDULE

• To construct a P-Schedule in Primavera Risk Analysis, open a project plan and start a risk analysis. The P-Schedule will be created using risk analysis choices.

• During the risk analysis, the next step is to record the task's 80 percentile start and finish dates. To accomplish so, you'll employ hitherto unexplored risk analysis techniques.

• P80 start and finish dates for each job are displayed in new columns placed to the right of the Gantt Chart following the risk analysis. The Gantt Chart shows the project plan with P80 bars (purple).

• Project team members can use the P80 bars superimposed on the original deterministic timetable to compare the original project plan to the more realistic P80 plan. However, a fresh schedule and Gantt Chart can be prepared utilising the P80 dates for presentation to project stakeholders.



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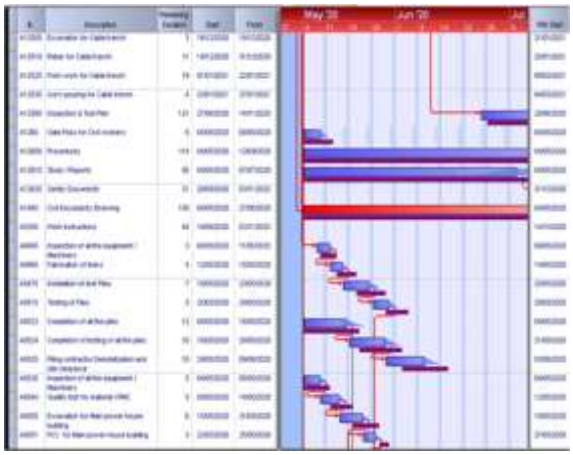

FIGURE 7.1 P80 SCHEDULE

Figure 7.1 represents the impacted risk plan. This plan will assist the managers in the construction industry to manage the risk efficiently

CHAPTER 8

CONCLUSION

The research helps us to understand the basic concepts of risk management. From the literature study, we understand many tools and methodologies are used for risk management. Risk management helps the construction industry to forecast from schedule and cost overrun in projects. Some of the risks we have discovered are the risk of bad quality material, inaccurate estimation of quantities work, cost overrun, poor competence & productivity of labour, poor coordination with subcontractor, poor performance of sub-contractor, and inadequacy of insurance. Through the analysis, we understand that weather and natural disaster plays the major role of risk in the construction industry which affect the schedule and cost in the project. Once the risk is determined, the risk factors are considered in the questionnaire survey which is conducted in construction industries. The outcome of this exercise is to assess the risk ranking and scrutinize risk-related reliability for clients, architects, and contractors. The risks are collated in primavera risk analysis software to assess, examine and predict the risk impact on the schedule of the project. A real-time schedule is fetched from the construction industry and analysed. The impacted risk factors determined in this research are implemented in the industry schedule and assessed. The assessment enables us to understand the actual project completion date and estimated completion date. Major risks identified have played a role and impacted the schedule thus delaying the project completion date the research helps us to determine the impacted risk and timeline before its occurrence. The risk management plan is prepared

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and shared to project managers. Project managers can determine the impacted risk and project delivery. This brings out efficient productivity. It also helps in avoiding the cost overrun of the project.

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AUTHORS PROFILE

Moinuddin H is currently pursuing his M.Tech. Degree in Construction Engineering and Project Management in the B.S.A. Crescent Institute of Science and Technology, Vandalur, Chennai. He has completed B.Tech. degree in Civil Engineering from Bharath University, Selaiyur

Dr K.Yogeswari is currently working as an Associate Professor in the Department of Civil Engineering in B.S.A. Crescent Institute of Science and Technology, Vandalur, Chennai. She did her Ph.D. in Sustainable planning in B.S.A. Crescent Institute of Science and Technology, Vandalur Chennai. She has completed her B.Tech in Civil Engineering and Masters in Town Planning from, School of planning, Anna University. Till date, she has presented in six international conferences and published papers in eight Scopus indexed journals.