ISSN No:-2456-2165

Quantitative and Qualitative Schedule Risk Analysis Using Primavera in Residential Sector

R. Rajiv Kumar, M.D hivya
Department of Civil Engineering,
RVS Technical Campus, Coimbatore

S. Suguna
School of Information Technology,
Texila American University

Abstract:- There are a number of challenges that construction managers face, some of which are new to the construction industry and others that have been around for a long time. Workforce consideration, safety, time constraints, and the shifting nature of work are some of the construction issues. For the fruitful fulfillment of an undertaking, arranging, and booking are two significant elements. The construction industry's demand necessitates precise planning, scheduling, and resource management. Management software is used as a tool for managing and organizing work in industries that are experiencing rapid growth because of the increase in workloads and shrinking the department. For project management, there are numerous computer programs on the market today, including MSP, Primavera p6, and others. With the assistance of these product legitimate preparation and controlling of venture should be possible. Primavera allows for straightforward comparisons between the planned and actual construction project progress. Information about a project's performance can be gathered, recorded, monitored, controlled, and reported using Primavera P6 project management software. Controlling and monitoring can be carried out, and the factors that lead to delays can be identified. Risk identification, evaluation, and preference for risk mitigation are all components of risk management. This could mean finding a coordinated and cost-effective way to use the materials and resources to cut down on potential dangers and keep an eye on and control bad things that might happen. Hazard can occur due to vulnerability in monetary market, mishaps, disappointments in the project, normal elements, lawful issues, risk related with credit and so forth. Risk management can be accomplished in a variety of ways, including transferring the risk to a subsequent party, avoiding the risk factor, minimizing the consequences of risk, and occasionally accepting the effect of risk. The client uses the project's unique mission to gain a competitive advantage in the market. Due to its uniqueness, the previous projects do not match the current one, which ultimately raises the risk of hazards. The attribute of each project continues to change which make it hard to be imitated. This requires exceptional abilities to oversee and achieve the process.

Keywords:- *Primavera, Project Management, Controlling, Optimization, Risk Management, Risk Identification, Residential Sector.*

I. INTRODUCTION

In civil engineering, risk management is becoming increasingly important. Project failure, which results in high unplanned costs, is one of the main causes. Risks can be so costly that they can even cause a business to fail. To build the likelihood of achievement it's vital for an association to comprehend the potential dangers that are implied in this multitude of assets. Risk the board is a key part of venture the board. Along with project scope, cost, and schedule management, the Project Management Institute (PMI) lists risk management as one of nine knowledge areas for project management in their Project Management Body of Knowledge.

Risks must be managed in every new product innovation, and there are risks associated with every decision. When beginning another land improvement project there can't be a complete comprehension of the relative multitude of parts, the innovation, individuals' information, and skill. As a result, decisions about how to handle risks will need to be made.

To get a comprehension of the potential dangers they must be efficiently estimated, the impacts and conceivable reasons for them must be expected and afterward fitting techniques must be decided to manage them. Risks can be reduced, eliminated, avoided, or accepted once they are identified.

Construction industry is growing industry in India and the time accessible for accomplishing its objective is contracting. Project management is the process of using knowledge, skills, tools, and methods to create projects that meet project requirements, which means that the industry faces many issues that need to be addressed.

The following phases of project management:

- **Definition of Project:** establishing the project's goals, objectives, and essential success factors
- **Project Initiation:** Everything necessary to set up the project before work can begin time, cost, and resource estimates, as well as more in-depth plans of how the work will be done.
- **Project Execution:** Accomplishing the work to convey the item, administration or wanted result
- **Project Checking and Control:** Keeping a project on track and taking corrective action to make sure it stays
- **Project Closure:** Formal acceptance of the deliverables and the dissolution of all project-related components There are numerous software options on the market. However, MSP and Primavera are currently the most widely used pieces of software. Primavera is fantastic software that can

be utilized for both large and small projects. We can manage and monitor as many projects simultaneously using this software.

A. Primavera

Primavera is used to facilitate smooth project management. Primavera is used in civil engineering to create strategies, control project delays, and determine the best use of resources. It is used to complete projects within the allotted time and budget. It is the use of skills, tools, and methods in project activities to meet the owner's needs. The Primavera program is utilized for project scheduling, management, and estimation. P6 EPPM is a totally online point of interaction with the objective that adventure gathering can get to the adventure information at wherever and at whatever point. P6 EPPM can provide planning, planning, cost, and asset management software that enables businesses to make better decisions and improves their ability to complete projects and tasks on time and within budget.

B. Strategies and Process

Risk management include risk planning, risk identification, risk analysis, and project risk monitoring. Time, cost, and quality are the goals of risk management. The Project Risk Management processes are:

- **Plan Risk Management:** The construction industry places a premium on the risk management plan. It serves to upgrade risk in development projects. There are a few devices and procedures to effectively design risk more that depicts how risk ' exercises will be performed.
- **Identify Risks:** The construction industry's practices are used to identify risks, allowing project managers to be ranked according to previous project experience. In light of the review, we have recognized a few dangers are damaged plan, monetary issues, postpone in allowing, accessibility of drawings, changes in codes and attracting changes the extent of work, instalment delay, mishaps during development, and cost overwhelm in project
- **Risk Response Planning:** A gamble the board plan is arranged in light of the result of a questionaries-based overview in the development project.
- **Perform Qualitative and Quantitative Risk Analysis:** In construction projects, we must identify risks and rank them according to their priority based on the questionnaire survey. Quantitative and qualitative techniques like probability branching, primavera risk analysis tools, and others are used to identify the major risk.
- **Implement Risk Responses:** This is the process of using various tools and techniques to implement risk responses.
- **Monitor Risks:** Throughout the project, project managers keep an eye on the risks to ensure that the project runs smoothly.

C. Different approaches followed to Overcome Risk

The various approaches to risk are as follows:

- **Risk avoidance:** To eliminate a risk, you use risk analysis from previously completed projects.
- **Risk Reduction:** Prior to the project's implementation, we can reduce risk through brainstorming with a client, architect, project managers, and structural designer.
- **Risk Transfer:** Risk can be transferred to a third party and ownership can be transferred to bear the risk through agreements, warranties, and bonds.
- **Acceptance of Risk:** Accepting the risk is implied by acknowledging the hazard. It could very well be divided into active and passive parts.
- **Active:** Chance can be anticipated and incite move can be made by the board utilizing time and assets so the action could be moderated in the underlying stage. Passive: This entails recognizing risk after it has occurred. As a result, we must accept the danger, bear the loss, and respond accordingly.

II. LITERATURE REVIEW

V. Dhanalakshmi (2016): This study examines the project monitoring process for a cost-effective means of transporting a pipeline that was built in Ennore, Trichy, and Madurai. This study's construction work and actual progress are compared with the planned progress using Primavera P6 project management software.

Y.Umesh(2015): For projects to avoid sinking and scheming delays, proper planning and scheduling are very important. Inadequate planning and scheduling waste a lot of time, money, and resources every year in the construction industry. Construction projects have become infinitely more complicated as a result of globalization. Project planning software can help cut down on the amount of documentation required for these kinds of projects.

With the help of Primavera software, these studies aim to plan, schedule, and monitor a residential project. They also examine the generated results to determine which method is best for the chosen residential project.

B. S. K. Reddy In Dubai, UAE(2015), they exercised resource optimization on two ongoing projects. The aggregated and then levelled option, in contrast to the individual leveled and then combined option, clearly demonstrates a 5.65 percent increase in resource demand in the later option, which may be the economic option to take into consideration. They came to the conclusion that forwarding demand and resource levelling at the project job site led to a possible sharing of resources among projects.

According to E. Suresh Kumar (2015), Scheduling with Primavera Software is a development that involves resource allocation, estimation, activity sequencing, and timing. The development booking is to finish the project in time and equivalent the assets with the distributed time. Using Primavera Software to schedule gives you good control.

Rajendra et al. (2016) states that project risks cause variations in activity duration, and in turn the entire network is affected by uncertainty. He presents the effect of uncertainties in the project on the total duration of the project in an Indian context. For this, he used Monte Carlo simulation (MCS) technique. Effect of different distributions for different activities and the number of simulations on the total project duration are determined and compared with the CPM and PERT. Finally, sensitivity analysis is carried out to show the influence of each uncertain activity on the total project duration.

ISSN No:-2456-2165

Mhetre, K. (2017) states that Risk is present in all projects irrespective of their size or sector. If risks are not properly analysed, the project is likely to lead to failures and he show the benefit of using computer software i.e. Primavera Risk Analysis in Risk Management Process of construction projects to analyse the risks involved in a construction project. It includes the preparation of schedule, assigning the 3-time estimate durations and performing iterations using primavera risk analysis. From the above-mentioned literature reviews, we can get to know the process and approaches of using the project management practices and applying the same to the project. It also provides samples of the project which was accepted previous and how the process was obliging in improving the project.

Hitanshu Saini (2017). In this study they have find out the delays which are occurring in the project and monitoring and controlling of the project is done. They have taken four story Ayurveda Research Centre building for their case study, which is present in Pandoh, Mandi (H.P). They scheduled the project by using Primavera and monitored, analysed the different types of delays and which leads to the increase in the duration of completion.

They have used some methodology like; personal interview with workers at the site, colleting the data and analysing the data by using primavera. By analysing many causes for cost overrun are found and due to these reasons project delays and completed four months late.

III. METHODOLOGY

A. Gap Identification

Although risk plays a significant role in the construction industry, it is rarely taken seriously in many projects. Risks are not viewed as an essential component because there is a lack of awareness of the project's failure. As a result, money is lost, time is wasted, and the project cannot be completed on time. We can determine the risk's severity if its effect is calculated in software and risks are identified using a variety of methods. So we can oversee projects in various ways. We can utilize unique choices to lessen impacts of dangers on project. Working on the risk component is made simpler by software, and it also has an impact on the budget and schedule of the project. We can implement risk-reduction strategies by comprehending scores. Reduced scores can therefore be easily measured, making risk mitigation strategies simple.

This study addresses the following inquiries:

- What are the best worldwide practices at present applied in risk the board on development projects and how they contrast and the ongoing practices?
- How can construction project-related organizations and businesses' risk management practices be evaluated?
- What knowledge is required to manage risk effectively and efficiently in construction projects?
- How can the necessary knowledge about risk management be gathered, arranged, and made available in a methodical and useful manner?

Different Phases are,

- Phase I: Study the literature to learn how authorities and responsibilities in construction management are distributed from top to bottom.
- Phase II: Obtaining data regarding the causes of reworks from the ongoing and completed construction site project.
- Phase III: Identify and categorize the most common causes.
- Phase IV: investigate the strategies employed on the construction site to cut down on rework-related waste.
- Phase V: Utilize a statistical approach to evaluate the efficiency of practices.
- Phase VI - Finish up and give the interesting measures.

B. Risk Management Methodologies

Project Management Institute (PMI) defines risk as an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives such as scope, schedule, cost, and quality (PMBOK Guide, 2013). where the uncertainty is lack of knowledge that reduces confidence in conclusions. however, International Organization for Standardization (ISO31000-2009) defines risk as an effect of uncertainty on objectives. Objectives Proceedings of the International Conference on Industrial Engineering and Operations Management Bandung, Indonesia, March 6-8, 2018, © IEOM.

Fig. 1: PMBOK Guide 5th edition

ISSN No:-2456-2165

Society International can have different aspects such as financial, health, safety, and environmental goals and can apply at different levels, for instance, strategic, organization-wide, project, product, and process. Project Management Institute (PMI) defines the risk management processes as: (1) Plan risk management, (2) Identify risk, (3) Qualitative risk analysis, (4) Quantitative risk analysis, (5) Plan risk Response, and (6) Monitor and Control risk. From the other hand, international Organization for Standardization (ISO31000-2009) defines the risk management processes as: (1) Communication and consultation, (2) Establishing the context, (3) Risk assessment (Risk identification, Risk analysis, and Risk evaluation), (4) Risk treatment, (5) Monitoring and review as illustrated in Figure (1) PMBOK Guide 5th edition.

➢ *Risk Management Processes*

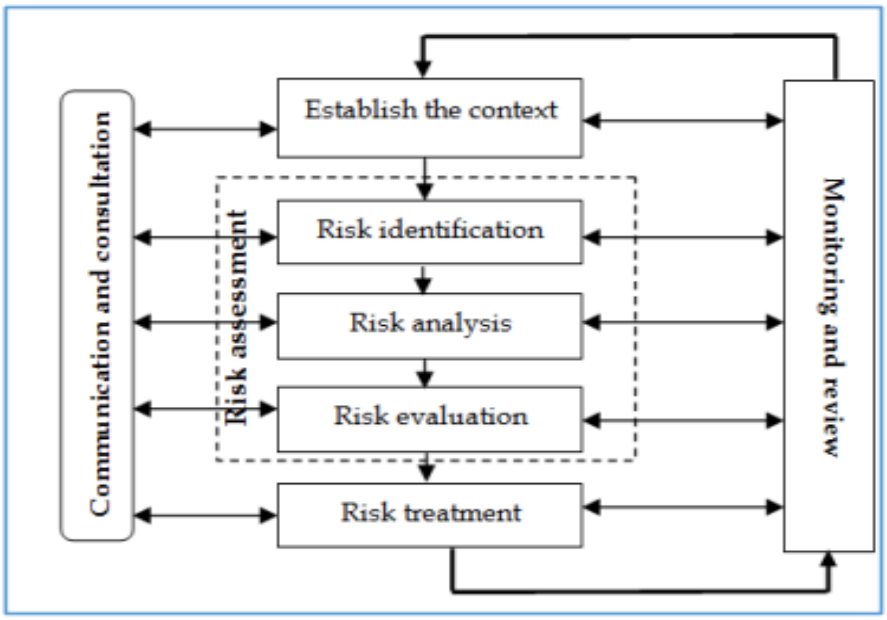

Fig. 2: ISO 31000-2009

➢ *Identify Risks*

Identify Risks is the process of determining which risks may affect the project and documenting their characteristics. Identify risks is an iterative process, because new risks may evolve or become known as the project progresses through its life cycle.

Probability and Impact Matrix

Probability Rating						
	5 Very High	5	10	15	20	25
	4 High	4	8	12	16	20
	3 Moderate	3	6	9	12	15
	2 Low	2	4	6	8	10
	1 very Low	1	2	3	4	5
		1 very Low	2 Low	3 Moderate	4 High	5 Very High
Cost Impact		Insignificant cost increase	<5% cost increase	5-10% cost increase	10-20% cost increase	> 20% cost increase
Schedule Impact		Insignificant slippage	<1 month slippage	1-3 months slippage	3-6 months slippage	> 6 months slippage
		Impact Rating				

Each risk is rated on its probability of occurring and impact on an objective if it does occur, The organization's thresholds for low, moderate or high risks are shown in the matrix and determine whether the risk is scored as high, moderate or low for that objective.

RISK RATING
1 to 6 = LOW
7 to 15 = MEDIUM
16 to 25 = HIGH

Fig. 3: Probability and impact matrix

ISSN No:-2456-2165

➢ *Qualitative risk analysis*

Qualitative Risk Analysis is the process of prioritizing risks for further analysis using techniques such as Probability and Impact Matrix (Figure 2) and risk category (Figure 3), the key benefit of this process is that it enables project managers to reduce the level of uncertainty and to focus on high-priority risks.

➢ *Project Risks*

- Management
- Environmental
- Financial
- Political/War
- Logistics
- Legal/Contractule
- Technical (Design, Resource Related, Site construction Risks)

➢ *Quantitative risk analysis (Cost & Schedule risk analysis)*

Quantitative risk analysis is the process of numerically analysing the effect of identified risks on overall project objectives using modelling and simulation. The key benefit of this process is that it produces quantitative risk information to support decision making in order to reduce project uncertainty.

The following methodology will be adopted:

- Studying primavera software in detail.
- Selecting case study of commercial construction projects.
- Analysing project data by primavera and finding facts.
- Comparing process with conventional one to find out results in terms of cost and time

C. Action Plan

- Step 1: Sort the cost, schedule, and probability from very high to very low.
- Step 2: Evaluation of the response and production of a probability score
- Step 3: Categorizing risks:
- Step 4: The wise factor counts as a risk.

In this analysis, the cost and probability are taken from the completed survey report. Probability score is determined by calculating probability and impact. Each risk category's average probability score is used. The average risk categories are sorted into three groups: high, medium, and low.

IV. DATA COLLECTION AND RISK RANKING

The client or project manager ought to advance a environment of trust and confidentiality in the interview setting to energize fair and unprejudiced evaluations. Assessment of other risk parameters, assessment of risk data quality, and risk data quality assessment are all data analysis methods that can be used in this qualitative risk analysis. An established format is used to identify and categorize the various kinds of construction risk for analysis. On a scale from 1 to 5, a risk of 5 is considered extremely high. Using a questionnaire-based survey, data will be collected from various construction industries. A risk management strategy must be implemented using this risk ranking. It will provide inputs for the Plan Risk Responses based on the recommendations made by the quantitative and quantitative risk analysis. Alternative's analysis and Cost-benefit analysis are two types of data analysis techniques that can be used to choose a preferred risk response strategy. Risks, policies and procedures, roles and responsibilities in the monitoring process, and reporting formats should all be reviewed. Utilizing every one of the above results we need to screen and deal effectively.

A. Methodology of Data Assortment

In this venture, from the development business information is gathered. utilizing surveys with questions. Clients and project managers in the construction industry are the sources of the data. Risk factors related to various aspects of project management, including, Time, People, Project management, Contract, Market, budget, and Environment were included in the questionnaire survey. The client, architect, and contractor in the construction industry receive the questionnaire survey via Google Form or in person.

B. Ranking Risks as per Survey Questionnaire

From the study, number of respondents and ask them to rate the significance of each risk on a Likert scale of 1 to 5, with 1 denoting the lowest risk and 5 denoting the highest risk. The compiled responses are used to rank the risks. For each risk factor, the overall responses are divided into very low risk, very low risk, medium risk, very low risk, and very high risk.

C. Using Primavera Risk Analysis Software for Risk Analysis

Primavera Risk Analysis Software is an effective risk management software. By comparing various mitigation options, stakeholders are given a new level of confidence and control over budgets, which enables them to identify and quantify project risk as well as define project schedules and budgets. Primavera Chance Investigation (PRA) is a well-known strategy for estimating the gamble of your task plans. PRA is utilized for the validation of schedules and the incorporation of fully formed risk events into risk models. You can create a completely risk-adjusted plan using the PRA tools. Oracle's Primavera Risk Analysis is a lifecycle risk analytics solution with cost and schedule risk management capabilities. Primavera Risk Analysis provides a comprehensive approach to determining project success confidence levels and quick and simple strategies for risk response and contingency planning. PRA offers a risk management strategy to the construction industry to help it better manage risks.

➢ *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

Fig. 4: Run and Check Schedule

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. The figure 4 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.

➢ *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 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 displayedon 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.

Fig. 5: Risk Matrix Report

ISSN No:-2456-2165

➢ *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
- 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.

ID	Name	Type	Score	Score (Text)	Probability	Schedule	Cost	Safety Threshold
R005	Failed electrical inspection	Threat	1	VL - VL	VL (Up to 0.1%)	L (5d to 10d)	VL (Up to $...	L (Minor Injury)
Subcontractors & Suppliers								
R003	New roof coating cuts roof install time	Opportu...	6	H - L	H (0.5% to 0....	M (10d to 20d)	VL (Up to $...	N (Negligible)
R007	Contractor financial instability	Threat	10	M - M	M (0.3% to 0....	M (10d to 20d)	H ($150,000...	N (Negligible)
R011	Window manufacturing delay	Threat	10	L - H	L (0.1% to 0.3...	H (20d to 40d)	L ($45,000....	VH (Multiple (more
R001	Concrete supply constrained	Threat	12	H - M	H (0.5% to 0....	H (20d to 40d)	L ($45,000....	N (Negligible)
Weather								
R004	Poor ground conditions	Threat	3	L - L	L (0.1% to 0.3...	L (5d to 10d)	L ($45,000....	VL (Slight Injury / F
R012	Weather delay due to hurricane	Threat	11	M - H	M (0.3% to 0....	H (20d to 40d)	M ($90,000....	VL (Slight Injury / F
R006	**Weather delay due to unusually wet weather**	**Threat**	**26**	**H - H**	**H (0.5% to 0....**	**M (10d to 20d)**	**L ($45,000....**	**VH (Multiple (mor**

Download

Response Plans | Activities | Risk Details | Probability and Impact Diagram

Display Score Rating As: Numeric

Probability	Severity 1	Severity 2	Severity 3	Severity 4	Severity 5
Very High	6	12	18	36	72
High	4	7	14	28	56
Medium	3	5	10	20	40
Low	2	3	6	12	14
Very Low	1	1	2	4	8

Risk Thresholds | Risk Matrix | Project Risk Management | Primavera P6

Fig. 6: Risk Scoring

ISSN No:-2456-2165

V. RESULTS AND CONCLUSION

Respondent Sheet of High-Rise Building (Average taken from survey) Risks are ranked in the questionnaire survey according to their likelihood of occurrence, impact, cost, and schedule.

Table 1: Risk Factors

Risk Factors	Type (Threats or Opportunity)	Probability	Cost	Schedule
Risk - Time				
Logistical risk	T	H	H	L
Centring work not completed in time	T	M	L	M
Financial Issues	T	VH	VH	VH
Windows are not Ready	T	H	M	M
Doors are not Ready	T	H	M	M
Risk - Quality				
Poor Supervision	T	L	L	L
Mixure of Material in Proper way	T	VH	M	M
Risk - Project Management				
Inappropriate site selection	T	H	H	H
Planning and designing	T	M	L	M
Requirements imposed by the government	T	M	M	M
Booking effect	O	M	M	H
Risk - Contract				
Change in the need for contractors	T	L	L	M
Not utilizing specific materials	T	L	L	L
Risk - People				
Workplace safety and health	O	H	VL	H
Workers are on strike	T	VH	VH	VH
Thieves are on the premises	T	M	M	M
lack of skilled workers	T	L	M	L
Line out of blocks is improper	T	M	M	M
Electrical work is being done by unskilled workers	T	M	M	M
Scaffolding is not properly tightened	T	M	L	M
Clients' demands are different	T	VH	M	VH
Risk - Market				
Changes in material rates	O	VH	H	VH
Restrictions on concrete's availability	T	M	M	M
Risk - Environment				
Percolation of water during excavation	T	L	VL	L
Heavy rain during construction	T	M	M	M
Risk - Cost				
Soil Conditions	T	M	H	M
Availability of resources at workplace	T	H	H	H
Blocks Damage	T	L	L	L
Electrical Wires Damage	T	M	M	M
Risk - Technical				
Marking	T	VH	H	H
Excavation	T	VH	H	H

Table 2: Result of Risk Category

Category of Risk	Result
Risk - Time	H
Risk - Quality	L
Risk - Project Management	M
Risk - Contract	L
Risk - People	H
Risk - Market	H
Risk - Environment	L
Risk - Technical	H
Risk - Cost	H

ISSN No:-2456-2165

As per the above-mentioned table high to low risk are identified

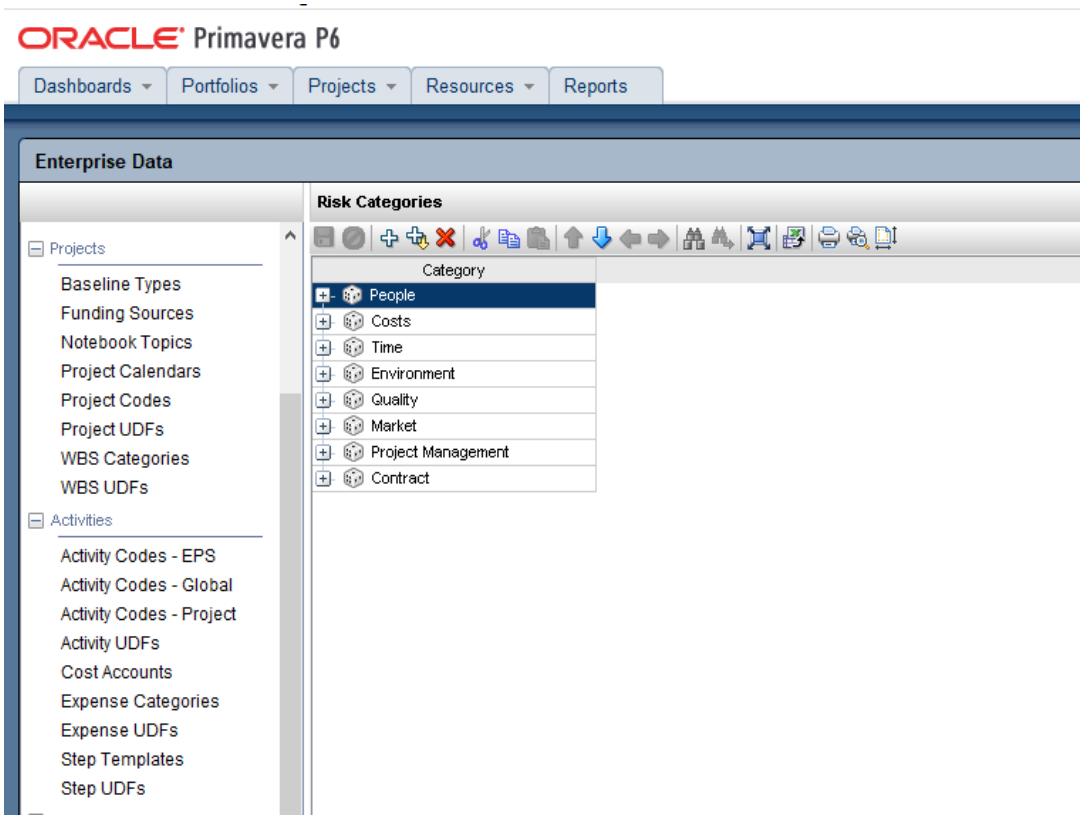

Fig. 7: Primavera - Category

Table 3: Different stages with different Risk Category

Kongu Ganapathy -60Flats -Tower1						
Basement Structure work	Risk Category	Quantity	Uom	Duration	Start Date	Finish Date
Foundation and Basement work					24-Sep-20	29-Nov-20
Site Cleaning and Jungle Clearance work		2085.5	Sq.m	3	24-Sep-20	27-Sep-20
Footing Earth work Marking	Technical	0		2	26-Sep-20	28-Sep-20
Footing Earth work Excavation	Technical	1339.5	Cu.m	15	27-Sep-20	12-Oct-20
Footing base levelling and Side wall Dressing	Technical	0		7	3-Oct-20	10-Oct-20
Footing Base M.Sand Filling Work	Technical	77.32	Cu.m	5	7-Oct-20	12-Oct-20
Footing PCC	Technical	51.755	Cu.m	5	12-Oct-20	17-Oct-20
Footing and Column location marking	Technical	0		3	13-Oct-20	16-Oct-20
Footing Steel Reinforcement work	Technical	9.972	Mt	8	13-Oct-20	21-Oct-20
Footing Side Shuttering work	Technical	433.75	Sq.m	8	13-Oct-20	21-Oct-20
Footing Concrete work	Quality	298.96	Cu.m	8	14-Oct-20	22-Oct-20
Column Shoe marking work above Footing	Technical	90		4	19-Oct-20	23-Oct-20
Column Box Concrete up to Plinth Beam Level	Quality	36.345	Cu.m	10	22-Oct-20	1-Nov-20
Plinth Beam Earth work marking	Technical			3	31-Oct-20	3-Nov-20
Plinth beam Concreting work	Quality	47.81	Cu.m	2	8-Nov-20	10-Nov-20
Basement M.Sand Filling work for 150mm tk	Quality	99.92	Cu.m	4	21-Nov-20	25-Nov-20
G-floor Column Shoe Marking work	Technical	90	Nos	4	9-Nov-20	13-Nov-20
G-floor Column Concrete work	Quality	57.2	Cu.m	8	12-Nov-20	20-Nov-20
G-floor Roof beam & Slab Concreting work	Quality	130.17	Cu.m	2	17-Dec-20	19-Dec-20
G-floor Staircase Concreting work	Quality	2.19	Cu.m	2	17-Dec-20	19-Dec-20

G-floor lobby Lintel and sunshade concrete work	Quality	0.5	Cu.m	2	7-Feb-21	9-Feb-21
G-floor Window Fixing work	Time	1	Sq.m	1	20-Feb-21	21-Feb-21
1st Floor Column Shoe Marking work	Technical	90		4	20-Dec-20	24-Dec-20
1st Floor Column Concrete work	Quality	35.47	Cu.m	8	23-Dec-20	31-Dec-20
1st Floor Shear &Lift Wall Shoe Marking work	Technical	1		1	21-Dec-20	22-Dec-20
1st Floor Shear &Lift Wall Concrete work	Quality	1		1	28-Dec-20	29-Dec-20
1st Floor Roof Slab and beam Concreting work	Quality	130.17	Cu.m	2	12-Jan-21	14-Jan-21
1st Floor Staircase Concreting work	Quality	2.19	Cu.m	2	12-Jan-21	14-Jan-21
1st Floor Lintel and sunshade concrete work	Quality	2	Cu.m	6	26-Feb-21	4-Mar-21
1st Floor Window Fixing work	Time	50.53	Sq.m	10	23-Apr-21	3-May-21
1st Floor French Window and Door Fixing work	Time	47.44	Sq.m	10	25-Apr-21	5-May-21
1st Floor Window and Balcony Grill Fixing work	Time	2700	kgs	6	25-Apr-21	1-May-21
2nd Floor Column Shoe Marking work	Technical	90		4	15-Jan-21	19-Jan-21
2nd Floor Column Concrete work	Quality	35.47	Cu.m	8	18-Jan-21	26-Jan-21
2nd Floor Shear &Lift Wall Shoe Marking work	Technical	1		1	16-Jan-21	17-Jan-21
2nd Floor Shear& Lift Wall Concrete work	Quality	1		1	23-Jan-21	24-Jan-21
2nd Floor Roof beam Slab Concreting work	Quality	130.17	Cu.m	2	7-Feb-21	9-Feb-21
2nd Floor Staircase Concreting work	Quality	2.19	Cu.m	2	7-Feb-21	9-Feb-21
2nd Floor Lintel and sunshade concrete work	Quality	2	Cu.m	6	24-Mar-21	30-Mar-21
2nd Floor Window Fixing work	Time	50.53	Sq.m	10	19-May-21	29-May-21
2nd Floor French Window and Door Fixing work	Time	47.44	Sq.m	10	21-May-21	31-May-21
2nd Floor Window and Balcony Grill Fixing work	Time	2700	kgs	6	21-May-21	27-May-21
5th Floor Column Shoe Marking work	Technical	90		4	3-Apr-21	7-Apr-21
5th Floor Column Concrete work	Quality	35.47	Cu.m	8	6-Apr-21	14-Apr-21
5th Floor Shear Lift Wall Shoe Marking work	Technical	1		1	4-Apr-21	5-Apr-21
5th Floor Shear Lift Wall Concrete work	Quality	1		1	11-Apr-21	12-Apr-21
5th Floor Roof Slab Concreting work	Quality	130.17	Cu.m	2	26-Apr-21	28-Apr-21
5th Floor Staircase Concreting work	Quality	2.19	Cu.m	2	26-Apr-21	28-Apr-21
5thFloor Lintel and sunshade concrete work	Quality	2	Cu.m	6	10-Jun-21	16-Jun-21
5thFloor Window Fixing work	Time	50.53	Sq.m	10	5-Aug-21	15-Aug-21
5thFloor French Window and Door Fixing work	Time	47.44	Sq.m	10	7-Aug-21	17-Aug-21
5thFloor Window and Balcony Grill Fixing work	Time	2700	kgs	6	7-Aug-21	13-Aug-21
Head Room Column Concrete work	Quality	4.865	cum	4	30-Apr-21	4-May-21
Head Room Slab Concrete work	Quality	14.535	cum	2	13-May-21	15-May-21
Machine Room Column Concrete work	Quality	1	cum	4	17-May-21	21-May-21
Machine Room Slab Concrete work	Quality	1	cum	2	27-May-21	29-May-21
OHT Column Concrete work	Quality	1.5	cum	4	6-May-21	10-May-21
OHT Base Slab Concrete work	Quality	10.62	cum	3	17-May-21	20-May-21
OHT Side wall Concrete	Quality	28.9	cum	3	26-May-21	29-May-21
OHT Cover Slab Concreting work	Quality	8.85	cum	3	11-Jun-21	14-Jun-21
Terrace floor Surkhi Concrete work	Quality	74	cum	10	5-Jun-21	15-Jun-21

ISSN No:-2456-2165

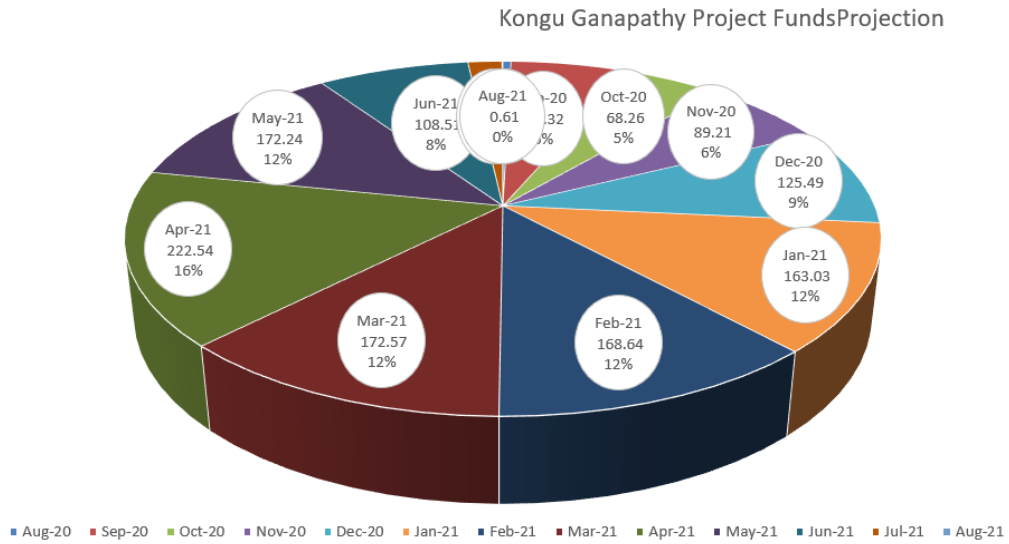

Fig. 8: Funds Projection

VI. CONCLUSION

This research is unique in that it uses a project case study to get a better understanding of risks using real data instead of a model that was made up. A step-by-step case study is developed in accordance with the guidelines. From the aftereffects of the contextual analysis of building development at Coimbatore, it showed that the anticipated outcomes are around exact according to their experience. Time, people,Technical, market, and cost are highlighted in red as high-risk categories in the case study. Project management carries a medium risk, while quality, the contract, and the environment carry low risks. Four of the eight major categories have a high risk, one has a medium risk, and three have a low risk. Future extent of the venture is wide as same model can be applied in comparative developments to keep away from gambles. The model can be handily adjusted and applied in any development risk implying qualities to examine the most basic ascribes making gambles the development of building.

REFERENCES

[1.] O. O. Odimabo, C. F. Oduoza, Risk Assessment Framework for Building Construction Projects' in Developing Countries, International Journal of Construction Engineering and Management 2013, 2(5): 143-154 DOI: 10.5923/j.ijcem.20130205.02

[2.] Dr. Haitham H. Al-Shibly, Dr.Basem M. Louzi, Mohammad A. Hiassat, The impact of risk management on construction projects success from the employees perspective, INTERDISCIPLINARY JOURNAL OF CONTEMPORARY RESEARCH IN BUSINESS, AUGUST 2013 VOL 5, NO 4

[3.] Krantikumar Mhetre, B.A.Konnur, Amarsinh B. Landage, Risk Management in Construction Industry, International Journal of Engineering Research, Volume No.5, Issue Special 1 pp : 153-155, ISSN:2319-6890(online),2347-5013, 8 & 9 Jan 2016

[4.] A. Suchith Reddy, , Risk Management in Construction Industry - A Case Study, International Journal of Innovative Research in Science, Engineering and Technology, Vol. 4, Issue 10, October 2015, ISSN(Online) :2319-8753 ISSN (Print) : 2347- 6710

[5.] Ali D And Harison A, (2016), "Risk Management Strategies In Construction Companies In India",IJIRST,2(10),6-8.

[6.] Kamane S.K. And Mahadik S.A., (2013), "Risk Management In Construction Industry", IOSR, 4(6),59-65.

[7.] Mubarak, S. (2005) "Construction Project Scheduling and Control", Pearson Prentice Hall, USA.

[8.] Primavera Systems(2013),"Oracle PrimaveraP6 Project Management, Reference manual." Oracle corporation.