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CONSTRUCTION PLANNING AND MANAGEMENT OF A (G+2) RESIDENTIAL BUILDING

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ABSTRACT: **Construction management plays a vital role in any large-scale building activity all over the world. There is need of many alternative building materials since the conventional materials are supplied and also cause degradation of the environment. In this work, we have done construction management in residential framed structure using project planning and management software primavera. Proper planning and scheduling is very important in construction projects to reduce and control delays in the project. Substantial amounts of time, money, resources are wasted every year in construction industry due to improper planning and scheduling. The planning process for a building construction with some alternative schemes such as execution schedule, activities relationship, resource allocation etc. has been attempted to examine the consequence of overall implementation scope and time to the project. Detailed Estimation has been done to determine the material, man power, money required for the completion of this residential building. In this project, Primavera software helps in planning, scheduling, resource allocation and time management to ensure timely completion of project within estimated budget when compared to conventional methods of management of projects.**

Keywords: Scheduling, Microsoft project, resource allocation, time management.

INTRODUCTION

Construction projects are time bound and all project activities are directed towards the achievement of project objectives with respect to time, scope and quality. In a complex project where large number of activities are performed at different places by different agencies and sub organizations, with each having its own scheduled targets, a small delay in the critical activity can affect successor activities in schedule.

Project planning and scheduling aims at timely execution of work according to the project planned schedule and can apply corrective measures in case of any time deviations. In a broader sense, time control implies the control of the entire planning system, as time is directly or in-directly related with all project activities and project functions.

Quality assurance provides protection against quality problems through early warnings of trouble ahead. Such early warnings play an important role in the prevention of both internal and external problems.

The term “Construction Project” refers to a high-value, time bound, and special construction mission with predetermined performance objectives. The project mission is accomplished within complex project environments, by putting together human and non-human resources in to a temporary organization headed by the ‘Project Management’.

Project Management is the Planning, Organizing, Directing and controlling of company resources for a relatively short-term objective that has been established to complete specific goals and objectives.

Due to the resource-driven nature of construction management, the construction manager must develop a plan of action for directing and controlling resources of workers, machines and materials in coordinated and timely fashion in order to deliver a project within the limited funding and time available. Hence, aside from a technology and process focus, a resource-use focus must be adequately considered in describing a construction method or operation in a project plan.

In general, construction projects are high value, and they employ huge resources of men, materials and machines. Major works involve heavy investments, say from a hundred crores of rupees to a few rupees, require high level of technology and need effective management of resources.

Project is an activity to meet the creation of unique product or service and thus activities are undertaken to accomplish routine activities cannot be considered as project. The completion time for a unique endeavour can vary from a few hours to many years, and the cost can change from low to very high. Each project has a specified mission or a purpose to be achieved. It ceases after the mission is accomplished. A construction project mission is to create desired facilities like a housing complex or a fertilizer plant with predetermined performance objectives defined in terms of quality specification, completion time, budgeted costs and other specified constraints. Project management is the discipline of initiating, planning, executing, controlling, and closing the work of a team to achieve specific goals and meet specific success criteria.

A project is a temporary endeavour designed to produce a unique product, service or result with a defined beginning and end undertaken to meet unique goals and objectives, typically to bring about beneficial change or added value. Construction planning is a fundamental and challenging activity in management and execution of construction projects. It includes the selection of technology, the definition of work task, the estimation of required duration and resources of individual task, and identify the interactions between different work tasks. A good construction plan is the base for developing the schedule and the budget for work. Primavera is the most effective tool for construction management. Primavera is the industry leading project and program management solution for projects any size. Primavera enables to manage time, tasks, costs, resources, contracts, change and risks to consistently execute profitable projects.

Construction industry is one of the largest growing industries in the worlds and India get 2nd place in the race. Effective planning techniques is very important in determining the success of any project. Project cost in the construction industry continually increases up to 30% due to un-organized planning and scheduling techniques. Various construction project deals with major scheduling issues including time management, cost overrun, resources use on daily basis due to lack of proper management.

Basically, by the use of Microsoft Project software. It is one of the latest and the best available tool used by various group of construction industries. It helps to plan, monitor and analyse multiple projects at same time to ensure the timely completion sand per plan and also within budget planned. Primavera is widely used in complex project where large number of activities are performed at different places and different agencies and sub organizations at same time at different levels

The main objectives of this study are basically to plan, schedule, and track a commercial project with help of primavera p6 software, and to study the results generated, the best thing possible to suggest which method is suitable for the selected commercial project. Project Monitoring acts like an advance warning tool; it is the

complete process of recording the data, collecting and reporting the information regarding project performance so that work get done and can be shown to the project manager and others whenever they wish to know. Monitoring phase includes watching the progress of the project against time constrain, performance schedule and resources during actual execution of the project and also helps to identify the lagging areas in the project which require timely attention and actions when needed. Primavera p6 helps to monitor the project and to make a great control over it. Primavera guides the project between the planned progress of construction work to the actual work perform so that work get completed in the desired time.

SCOPE OF WORK

The scope of work is planning the project and define task and activities

- To Schedule activities and task
- To monitor and control the activities
- To check weekly progress activities

LITERATURE REVIEW

P.Thangam (2016) investigated about the construction project which was carried out with lack of planning, scheduling and resource allocation. After using Microsoft Project software in work, it gives improvement in quality of construction with stipulated cost and time. The objectives of their study include,

- Preparing of detailed activity plan and schedule based on construction sequence.
- Working out the practical duration for six lane road construction activities.
- To make schedule and find the critical path using P6 planner software.

T. Subramani (2015) explained about the primavera P6 software and its advantages. He says that primavera P6 is amazing software which is not only used by project planners but also by anyone who involved in project, that is managers, engineers, schedulers can use primavera P6 software, focusing on the comparison of construction estimate methods application in project. It permit user to generate project templates, which can be kept and used for future project, and can also be used to group and view multiple project at the same time.

Andrew Tom (2013) discussed about his study on factory building (G+3) situated in Cochin, Kerala. In this study, the author emphasised on the importance and purpose of monitoring the construction work, perfect scheduling for the factory construction process, layout for updating the calendar, earned cost study and tracking for the standard design factory construction work. The total contract value of project is 7 crores with the build-up area of 5472 sq. m. and expected time of completion is 21 months. His study includes monitoring and controlling of project by means of primavera software. Techniques followed by him are:

- Earned value supervision
- Cost performance baseline

- Work performance supervision.

Y.Umesh (2015) described that the proper planning and scheduling is very essential in projects to find sinking and scheming delays of the project. Extensive amount of time, money resources or wasted each year in construction industry due to improper planning and scheduling. With globalization, the construction project has become infinite and complex. Planning of such projects requires huge amount of documentation work, which can be reduced with the help of project planning software.

METHODS USED IN STUDY

Pre data collection:

The first stage consists of literature review, setting of objectives, goals and problem statement and based on that selection of research area has been done. For the research purpose, cognizant building is taken under consideration for study.

Data collection:

For proper collection of data continuous site visits were carried out to identify the construction sequence of the project of the desired building. The data required for preparing analysis in the software is collected by the help of different staffs and contractor

Post data collection:

In this stage analysis will be carried out in Microsoft Project software to mark the construction sequence and for tracking, monitoring of the project schedule and all the reports as per planned and results generated from the software will be studied to decide the necessary changes to be brought in the order to speed up the construction work

Contract Document:

The following project Data are furnished from the contract agreement, project report and tender documents. Civil and interior construction work was performed for office building for 150 employees for IXes Technologies, NCR.

Collection of data

A detailed analysis of the materials, man power, machinery, other resources used, and the sequence of activities (dependent or independent) executed from the beginning of the construction to its completion.

The methodology adopted to attain the project objective is as below:

- Inception of ideas.
- Literature study, for this the following sources are explored:

1. Review of past study.
2. Study of published books, technical and research papers, reports, etc.

- Site visit.
- Collection of raw data from visiting various sites.
- Studied the data. On the basis of it, prepared the plan and scheduled manually.
- Learnt the project management software- Primavera.
- Prepared the plan and scheduled by using various modules of software.

Finally, understood the ease, sufficiency & flexibility that the project management software offers us.

The scheduling techniques include:

- Bar Chart
- CPM
- Networking scheduling techniques

CONSTRUCTION PROJECT MANAGEMENT

A project is a temporary endeavour undertaken to create a unique product, service, or result. The temporary nature of projects indicates a definite beginning and end. The end is reached when the project's objectives have been achieved or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists. Temporary does not necessarily mean short in duration. Temporary does not generally apply to the product, service, or result created by the project; most projects are undertaken to create a lasting outcome. Major construction works are time bound and employ huge resources of men, material and machines. They involve heavy investments running to crores of rupees. They require a high level of technology and need an effective management of resources.

Project management processes comprising the 5 Process Groups.
These 5 Process Groups are:

- Initiating
- Planning
- Executing
- Monitoring and controlling, and
- Closing

Components of a project

A project is an endeavour that is undertaken to produce the results that are expected from the requesting party.
A project consist of three components namely

- Scope
- Budget
- Schedule

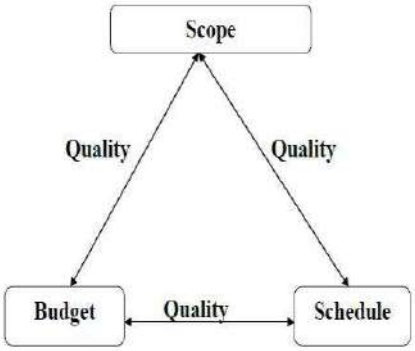


Figure Shows Components of a Project

Scope: Work to be accomplished in both qualitative and quantitative.

Budget: Refers to the costs measured in currency.

Schedule: Logical sequencing and timing of the work to be performed.

PROJECT: CONSTRUCTION PLANNING AND MANAGEMENT OF A RESIDENTIAL BUILDING

This Narrative Statement is pertaining to generate the Schedule report for a RESIDENTIAL BUILDING construction project using Microsoft Project.

Purpose

The purpose of this narrative statement is to provide to outline methodology /work procedure and approach to the execution of works and logic taken into consideration for the preparation and development project plan to be followed at site which is in the line with contractual requirement.

Reference Document

Letter of Award

Contract Document

Procedure

The Programme has been prepared considering the points described as under

Key Dates

Sr.No	Description of stage	Time to achieve in days
1	Project Commencement	23rd Mar 2023
2	Project Duration	1296 days
3	Project Completion	13th May 2027
4	Receipt of Affection Plan	23rd Mar 2023

5	Receipt of Bench Mark	26th Mar 2023
6	Receipt of Building Permit	29th Mar 2023

PROJECT CALENDAR:

- The 5 days a week calendar has been considered while preparing the
- Detailed Work Programmer
- The 5 days a week calendar has been considered for Authority Approvals
- Working hours considered as Eight hours per day
- The project week begins on Monday
- The unit of duration has been taken as day.

ASSUMPTIONS CONSIDERED FOR WORK PROGRAMME

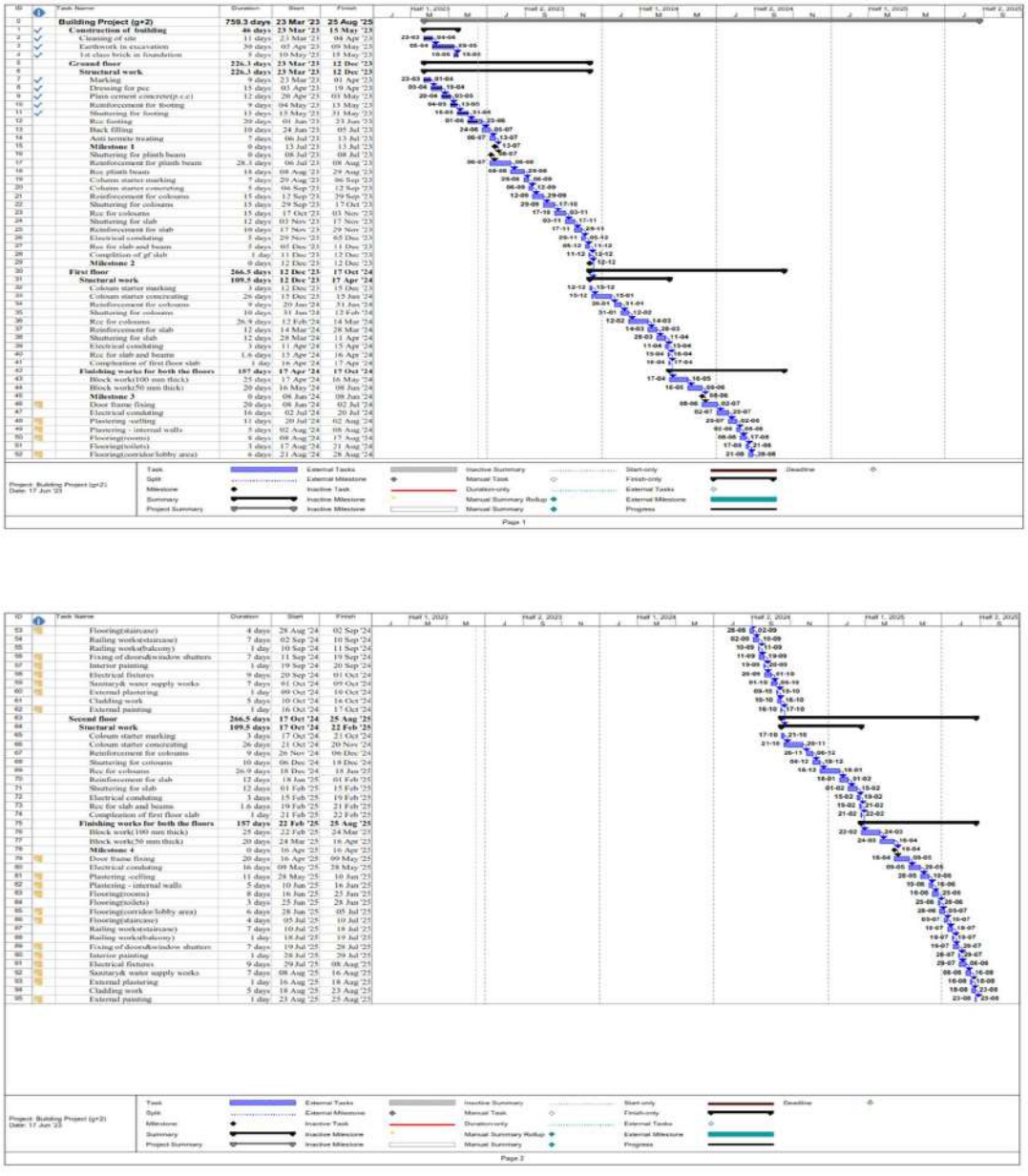
Sr.No	ASSUMPTION CONSIDERED IN WORK PROGRAMME
1	Access to the site is available from the employer for initial survey
2	Affection Plan, DM Bench Mark & Building Permit will be received on time
3	Work will be taken up in sequence concurrently at multiple fronts
4	Design of wall will be done in sequence
5	Total BOQ cost of wall items are proportionally considered for each walls. Further the cost of each wall is broken down to activities as under: ➢ Design - 10% ➢ Excavation - 40% ➢ Filling - 20% ➢ Material - 25% ➢ Wall Installation - 5%

Methods of Project Planning

Gantt chart:

The strategy was developed by Henry Gantt and Fredric Tailor and can be recognized as a logical business organization technique. The policy uses flat bars that indicate how long it takes to set up a provisioning service, and task names are grouped vertically into isolated sections each pole is placed in front of each company and the graph shows the start date, the duration of the exhibition time and the end date of the races.

Advantages of positioning Gantt charts: - For the most part, Gantt charts are widely accepted and ubiquitous due to their simplicity and ease of layout and understanding. Convoluted assumptions or estimates are included. Anyone can get it. Gantt charts are primarily aimed at people who don't have a particular foundation. For example, some clients and senior managers may understand better how to manage a development project by looking at a bar chart rather than looking at a rational organizational diagram. The CPM (Basic Way Technique) approach and the development of revolutionary PCs, Gantt charts, have not died or become less important. When everything was the same, they evolved into alternative support work that made them more meaningful and better known.



Gantt chart

Network scheduling method:

One of the most important organizational planning strategies used in development is CPM (Basic Way Technician). This technique involves the use of a mathematical representation of the flowing outline which represents the priority between exercises. Central strategy (CPM) is a time-based process where the primary data sources are businesses, their duration, and relationships of trust. Movement terms are elements of resources that are required (and not accessible) to perform an action. The CPM plan accepts that resources are unlimited. The use of organizational methods and CPM by development organizations has reached a steady level since the energy blast of the mid-1960s. Software developers eliminate the need to create an organization. However, the organizational documentation provides a simple design of the revenue collected for the internship.

Points of interest of Network Scheduling Method: When contrasting bar graphs and organizations, three preferences over bar diagrams.

Network show logic, the relationships among the activities. Bar charts do not

Networks can better represent large and complicated projects.

Networks can estimate, or predict, the completion date of the project, or other dates, on the basis of mathematical calculations of the CPM

Limitation of Network Scheduling Method: -

Unlike bar charts, the network schedule is not scaled over time. Specialists should be prepared to understand CPM. The introduction of CPM is not as satisfying for people in the field

As a bar chart. Also, item data cannot be stacked in the CPM.

Some scheduling vendors have tried to take advantage of a time component of the bar chart and force it into the organization, what some people have called timed rational drafts. On the other hand, there is evidence that temporary workers in highly redundant locations do not use networks because they believe that a high supply would reduce the chances of successful network planning and monitoring.

For example, organizational technology shows subtleties in companies of a redundant nature, for example, in the development of high structures. CPM-based practices have been widely condemned in writing for not showing sustained activity. The main problem is the size of the organization. In a monotonous company with n units, the organization set up for one unit must be renewed n times and linked to the others. The result is a colossal organization that is difficult to control. This can cause correspondence problems between people due to the evolution of the management team.

SCHEDULING:

In venture the board, a timetable is a posting of task achievements, exercises and expectations, for the most part with planned beginning and finish dates. A timetable is usually utilized in the undertaking arranging and venture portfolio the board portions of the task the executives. Components of timetable intently identify with work breakdown structure (WBS), exercises, schedule, and length.

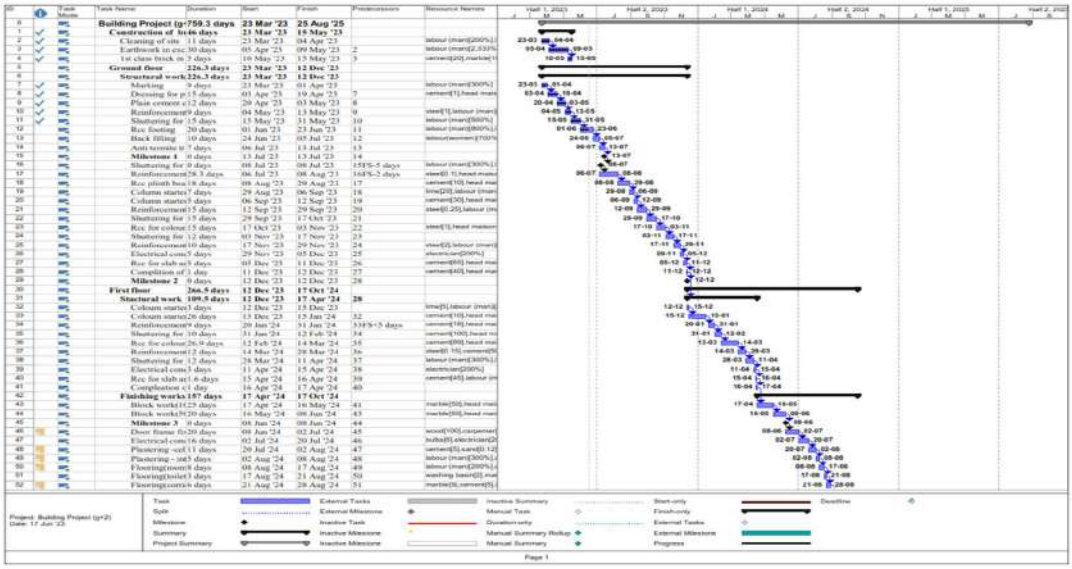
Your project schedule can be calculated one of two ways: when you choose the Scheduling command or, each time you make a change that affect schedule dates.

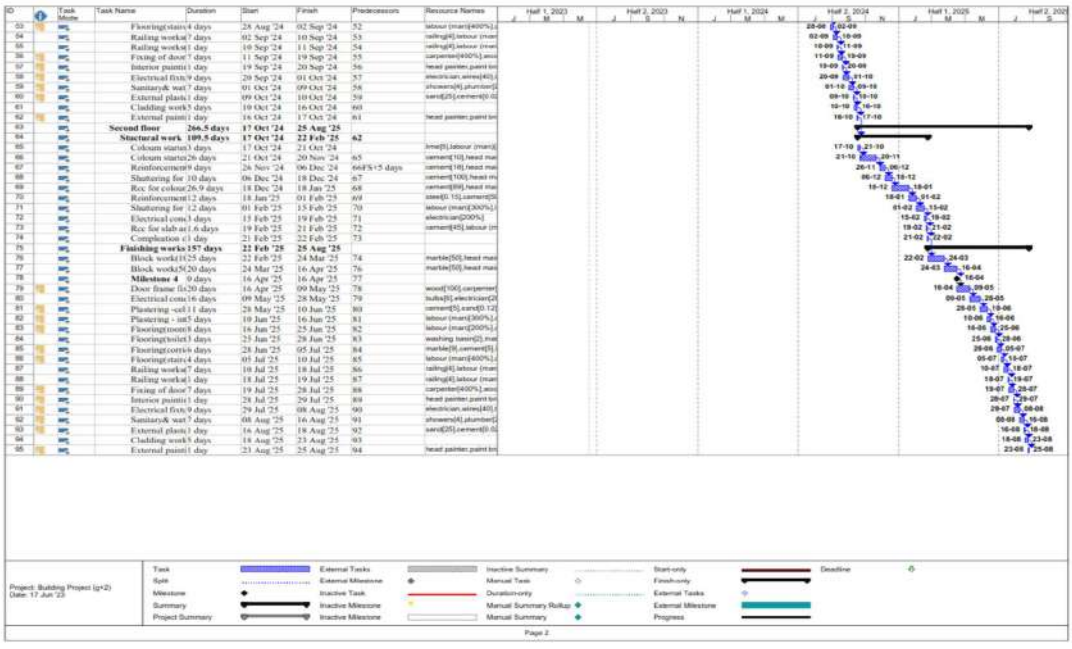
The Critical Path Method (CPM) scheduling technique is used to calculate project schedules. CPM uses activity durations and relationships between activities to calculate the project schedule.

We get total duration of the Project and Total Float required for the Project Activities then we can decide the Critical Float or Non-Critical Float.

Creating an ideal schedule

To create an ideal schedule for any project, first step is to collect data available for the project.





RELATIONSHIPS

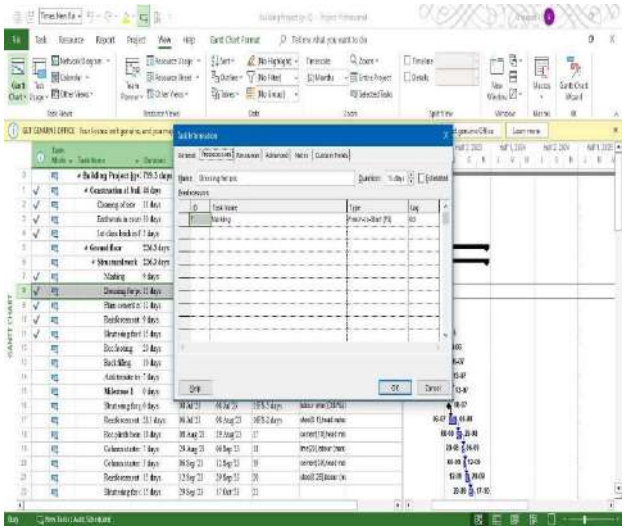
A relationship defines how an activity relates to the start or finish of another activity or assignment. Add relationships between activities to create a path through your schedule from the first activity to the last activity. These relationships, which form the logic of the project network, are used together with activity durations to determine schedule dates. An activity can have as many relationships as necessary to model the work that must be done. You can also identify relationships between activities that are in different projects; this type of relationship is referred to as an external relationship.

Relationship Types

- Finish to start
- Finish to finish
- Start to start
- Start to finish

Relationship Types	Symbols	Description
1. (FS) Finish to start		It indicates that the successor activity can begin only when the predecessor activity has completed.
2. (FF) Finish to finish		It indicates that the finish of the successor activity depends on the finish of the predecessor activity
3. (SS) Start to start		It indicates that the start of the successor activity depends on the start of the predecessor activity
4. (SF) Start to finish		It indicates that the successor activity cannot finish until the predecessor activity starts.

Assigning the relationship



RESOURCES:

Required assets are those gear and gadgets required for achieving a specific errand. No assignment or action is performed without HR, hardware, equipment's, materials and utilizing different assets.

Resource pool

Assigning the resource to the task

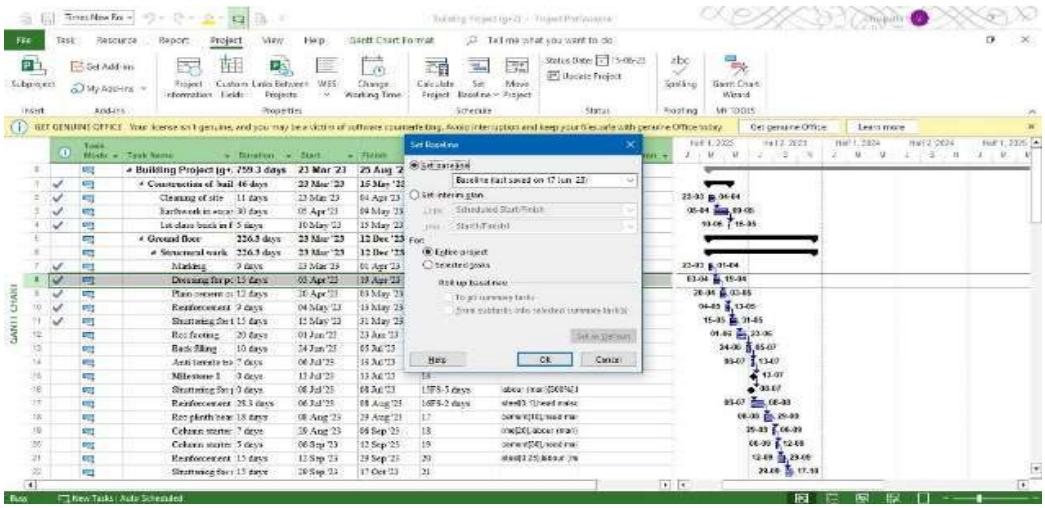
ID	Resource Name	Type	Material Label	Initials	Group	Max. Units	Std. Rate
1	steel	Material		s	tonnes		rs44,000.00
2	cement	Material		c	bags		rs350.00
3	sand	Material		s	lorry		rs5,000.00
4	kankar	Material		k	lorry		rs8,000.00
5	marble	Material		m	no		rs15.00
6	labour (man)	Work		l		10,000%	rs200.00/day
7	labour(women)	Work		l		4,000%	rs150.00/day
8	head maison	Work		h		500%	rs300.00/day
9	watch man	Work		w		100%	rs150.00/day
10	plumber	Work		p		200%	rs180.00/day
11	electrician	Work		e		200%	rs160.00/day
12	lime	Material		l	kg		rs100.00
13	carpenter	Work		c		1,000%	rs200.00/day
14	wood	Material		w	metercube		rs400.00
15	wires	Material		w	meter		rs15.00
16	switch boards	Material		s	no		rs20.00
17	bulbs	Material		b	no		rs10.00
18	tube lights	Material		t	no		rs40.00
19	head painter	Work		h		100%	rs180.00/day
20	painter	Work		p		200%	rs110.00/day
21	paint	Material		p	liter		rs80.00
22	paint brushes	Material		p	no		rs100.00
23	tiles	Material		t	piece		rs40.00
24	closet	Material		c			rs80.00
25	washing basin	Material		w			rs1,000.00
26	taps	Material		t			rs900.00
27	foset	Material		f			rs1,500.00
28	showers	Material		s			rs90.00
29	marble	Material		m	metersq		rs1,000.00
30	railing	Material		r	metrsq		rs70.00

METHODOLOGY

Baseline Schedule

A Baseline is a complete copy of a project plan that you can compare to the current schedule to evaluate progress. Before updating a schedule for the first time create a baseline. It provides a target against which one can track a project's cost, schedule and performance. Up to 10 baselines can be compared at once. Baseline projects do not exist as separate project to access.

Assign Baseline to the whole project



Compare the Baseline with Current project

Task Name	Start	Baseline Start	Finish	Baseline Finish
Building Project (g+2)	23 Mar '23	23 Mar '23	25 Aug '25	25 Aug '25
Construction of building	23 Mar '23	23 Mar '23	15 May '23	15 May '23
Cleaning of site	23 Mar '23	23 Mar '23	04 Apr '23	04 Apr '23
Earthwork in excavation	05 Apr '23	05 Apr '23	09 May '23	09 May '23
1st class brick in foundation	10 May '23	10 May '23	15 May '23	15 May '23
Ground floor	23 Mar '23	23 Mar '23	12 Dec '23	12 Dec '23
Structural work	23 Mar '23	23 Mar '23	12 Dec '23	12 Dec '23
Marking	23 Mar '23	23 Mar '23	01 Apr '23	01 Apr '23
Dressing for pcc	03 Apr '23	03 Apr '23	19 Apr '23	19 Apr '23
Plain cement concrete (p.c.c)	20 Apr '23	20 Apr '23	03 May '23	03 May '23
Reinforcement for footing	04 May '23	04 May '23	13 May '23	13 May '23
Shuttering for footing	15 May '23	15 May '23	31 May '23	31 May '23
Rcc footing	01 Jun '23	01 Jun '23	23 Jun '23	23 Jun '23
Back filling	24 Jun '23	24 Jun '23	05 Jul '23	05 Jul '23
Anti termite treating	06 Jul '23	06 Jul '23	13 Jul '23	13 Jul '23
Milestone 1	13 Jul '23	13 Jul '23	13 Jul '23	13 Jul '23
Shuttering for plinth beam	08 Jul '23	08 Jul '23	08 Jul '23	08 Jul '23
Reinforcement for plinth beam	06 Jul '23	06 Jul '23	08 Aug '23	08 Aug '23
Rcc plinth beam	08 Aug '23	08 Aug '23	29 Aug '23	29 Aug '23
Column starter marking	29 Aug '23	29 Aug '23	06 Sep '23	06 Sep '23
Column starter concreting	06 Sep '23	06 Sep '23	12 Sep '23	12 Sep '23
Reinforcement for columns	12 Sep '23	12 Sep '23	29 Sep '23	29 Sep '23
Shuttering for columns	29 Sep '23	29 Sep '23	17 Oct '23	17 Oct '23
Rcc for columns	17 Oct '23	17 Oct '23	03 Nov '23	03 Nov '23
Shuttering for slab	03 Nov '23	03 Nov '23	17 Nov '23	17 Nov '23
Reinforcement for slab	17 Nov '23	17 Nov '23	29 Nov '23	29 Nov '23
Electrical conducting	29 Nov '23	29 Nov '23	05 Dec '23	05 Dec '23
Rcc for slab and beam	05 Dec '23	05 Dec '23	11 Dec '23	11 Dec '23
Completion of gf slab	11 Dec '23	11 Dec '23	12 Dec '23	12 Dec '23

Milestone 2	12 Dec '23	12 Dec '23	12 Dec '23	12 Dec '23
First floor	12 Dec '23	12 Dec '23	17 Oct '24	17 Oct '24
Structural work	12 Dec '23	12 Dec '23	17 Apr '24	17 Apr '24
Column starter marking	12 Dec '23	12 Dec '23	15 Dec '23	15 Dec '23
Column starter concreating	15 Dec '23	15 Dec '23	15 Jan '24	15 Jan '24
Reinforcement for columns	20 Jan '24	20 Jan '24	31 Jan '24	31 Jan '24
Shuttering for columns	31 Jan '24	31 Jan '24	12 Feb '24	12 Feb '24
Rcc for columns	12 Feb '24	12 Feb '24	14 Mar '24	14 Mar '24
Reinforcement for slab	14 Mar '24	14 Mar '24	28 Mar '24	28 Mar '24
Shuttering for slab	28 Mar '24	28 Mar '24	11 Apr '24	11 Apr '24
Electrical conducting	11 Apr '24	11 Apr '24	15 Apr '24	15 Apr '24
Rcc for slab and beams	15 Apr '24	15 Apr '24	16 Apr '24	16 Apr '24
Completion of first floor slab	16 Apr '24	16 Apr '24	17 Apr '24	17 Apr '24
Finishing works for both the floors	17 Apr '24	17 Apr '24	17 Oct '24	17 Oct '24
Block work (100 mm thick)	17 Apr '24	17 Apr '24	16 May '24	16 May '24
Block work (50 mm thick)	16 May '24	16 May '24	08 Jun '24	08 Jun '24
Milestone 3	08 Jun '24	08 Jun '24	08 Jun '24	08 Jun '24
Door frame fixing	08 Jun '24	08 Jun '24	02 Jul '24	02 Jul '24
Electrical conducting	02 Jul '24	02 Jul '24	20 Jul '24	20 Jul '24
Plastering -celling	20 Jul '24	20 Jul '24	02 Aug '24	02 Aug '24
Plastering - internal walls	02 Aug '24	02 Aug '24	08 Aug '24	08 Aug '24
Flooring(rooms)	08 Aug '24	08 Aug '24	17 Aug '24	17 Aug '24
Flooring(toilets)	17 Aug '24	17 Aug '24	21 Aug '24	21 Aug '24
Flooring (corridor/lobby area)	21 Aug '24	21 Aug '24	28 Aug '24	28 Aug '24
Flooring(staircase)	28 Aug '24	28 Aug '24	02 Sep '24	02 Sep '24
Railing works(staircase)	02 Sep '24	02 Sep '24	10 Sep '24	10 Sep '24
Railing works(balcony)	10 Sep '24	10 Sep '24	11 Sep '24	11 Sep '24
Fixing of doors window shutters	11 Sep '24	11 Sep '24	19 Sep '24	19 Sep '24
Interior painting	19 Sep '24	19 Sep '24	20 Sep '24	20 Sep '24
Electrical fixtures	20 Sep '24	20 Sep '24	01 Oct '24	01 Oct '24
Sanitary& water supply works	01 Oct '24	01 Oct '24	09 Oct '24	09 Oct '24
External plastering	09 Oct '24	09 Oct '24	10 Oct '24	10 Oct '24
Cladding work	10 Oct '24	10 Oct '24	16 Oct '24	16 Oct '24
External painting	16 Oct '24	16 Oct '24	17 Oct '24	17 Oct '24
Second floor	17 Oct '24	17 Oct '24	25 Aug '25	25 Aug '25
Structural work	17 Oct '24	17 Oct '24	22 Feb '25	22 Feb '25
Column starter marking	17 Oct '24	17 Oct '24	21 Oct '24	21 Oct '24
Column starter concreating	21 Oct '24	21 Oct '24	20 Nov '24	20 Nov '24
Reinforcement for columns	26 Nov '24	26 Nov '24	06 Dec '24	06 Dec '24
Shuttering for columns	06 Dec '24	06 Dec '24	18 Dec '24	18 Dec '24
Rcc for columns	18 Dec '24	18 Dec '24	18 Jan '25	18 Jan '25
Reinforcement for slab	18 Jan '25	18 Jan '25	01 Feb '25	01 Feb '25
Shuttering for slab	01 Feb '25	01 Feb '25	15 Feb '25	15 Feb '25
Electrical conducting	15 Feb '25	15 Feb '25	19 Feb '25	19 Feb '25
Rcc for slab and beams	19 Feb '25	19 Feb '25	21 Feb '25	21 Feb '25
Completion of first floor slab	21 Feb '25	21 Feb '25	22 Feb '25	22 Feb '25
Finishing works for both the floors	22 Feb '25	22 Feb '25	25 Aug '25	25 Aug '25
Block work (100 mm thick)	22 Feb '25	22 Feb '25	24 Mar '25	24 Mar '25
Block work (50 mm thick)	24 Mar '25	24 Mar '25	16 Apr '25	16 Apr '25
Milestone 4	16 Apr '25	16 Apr '25	16 Apr '25	16 Apr '25

Door frame fixing	16 Apr '25	16 Apr '25	09 May '25	09 May '25
Electrical conducting	09 May '25	09 May '25	28 May '25	28 May '25
Plastering -celling	28 May '25	28 May '25	10 Jun '25	10 Jun '25
Plastering - internal walls	10 Jun '25	10 Jun '25	16 Jun '25	16 Jun '25
Flooring(rooms)	16 Jun '25	16 Jun '25	25 Jun '25	25 Jun '25
Flooring(toilets)	25 Jun '25	25 Jun '25	28 Jun '25	28 Jun '25
Flooring (corridor/lobby area)	28 Jun '25	28 Jun '25	05 Jul '25	05 Jul '25
Flooring(staircase)	05 Jul '25	05 Jul '25	10 Jul '25	10 Jul '25
Railing works(staircase)	10 Jul '25	10 Jul '25	18 Jul '25	18 Jul '25
Railing works(balcony)	18 Jul '25	18 Jul '25	19 Jul '25	19 Jul '25
Fixing of doors window shutters	19 Jul '25	19 Jul '25	28 Jul '25	28 Jul '25
Interior painting	28 Jul '25	28 Jul '25	29 Jul '25	29 Jul '25
Electrical fixtures	29 Jul '25	29 Jul '25	08 Aug '25	08 Aug '25
Sanitary& water supply works	08 Aug '25	08 Aug '25	16 Aug '25	16 Aug '25
External plastering	16 Aug '25	16 Aug '25	18 Aug '25	18 Aug '25
Cladding work	18 Aug '25	18 Aug '25	23 Aug '25	23 Aug '25
External painting	23 Aug '25	23 Aug '25	25 Aug '25	25 Aug '25

Update and Analysis

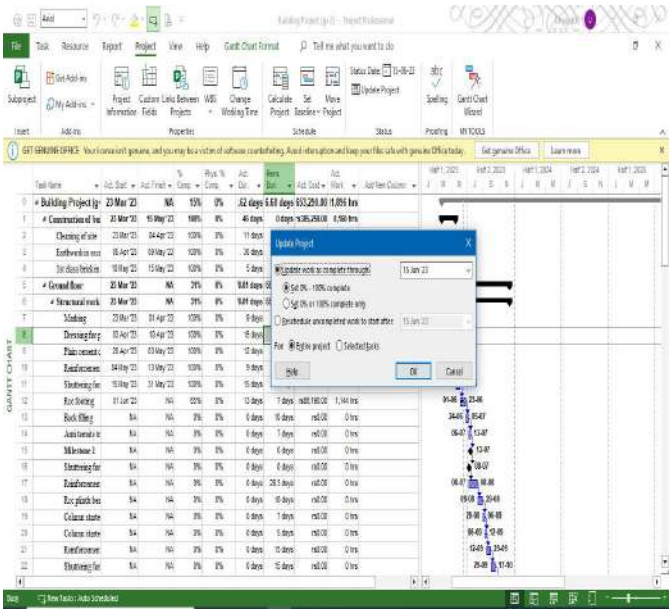
When actuals are applied from timesheets, calculate activity remaining durations: Specify whether to recalculate the remaining duration based on the activity duration type or to always recalculate

You can update progress for all activities and resources as a whole; update activities and resources individually; or use a combination of the two methods.

If your project is progressing exactly as planned, or if you only need to estimate progress, simply specify the data date or "as-of" date and allow the module to determine which activities have progressed and how much, calculate the remaining durations of activities that have started, and set the remaining durations of activities that have completed to zero.

Started: Mark to indicate that the selected activity has started. The field beside this checkbox displays the activity's planned start date. If the selected activity has started or is complete, this field displays the activity's actual start date.

Finished: Mark to indicate that the selected activity is complete. The field beside this checkbox displays the activity's remaining finish date. If the selected activity is complete, this field displays the activity's actual finish date.

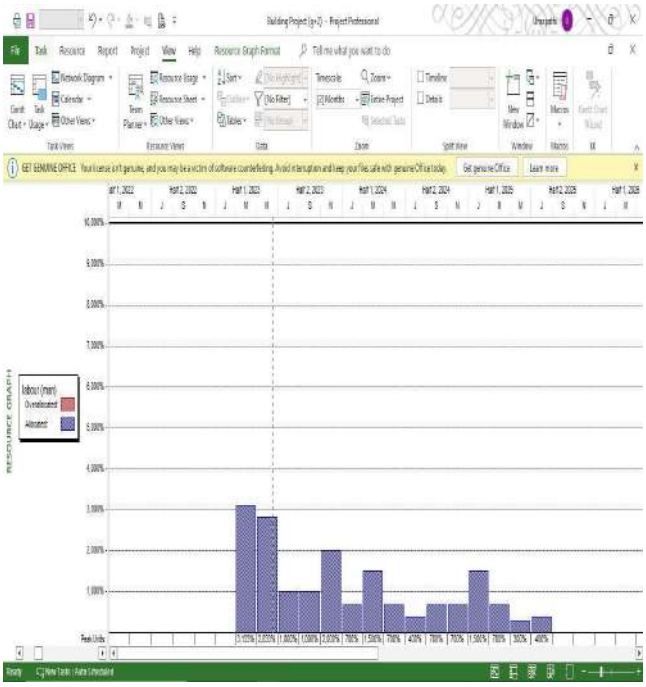


RESULTS & DISCUSSION

RESOURCE CURVES

Resource/cost distribution curves enable you to specify how you want resource units or costs spread over the duration of an activity. Resource units and costs are distributed evenly during an activity unless you specify nonlinear distribution using curves.

If timesheet data exists for the actuals, curves are ignored for the actuals and are spread using the timesheet data. Activities with timesheet data continue to spread the remaining units using the curve.

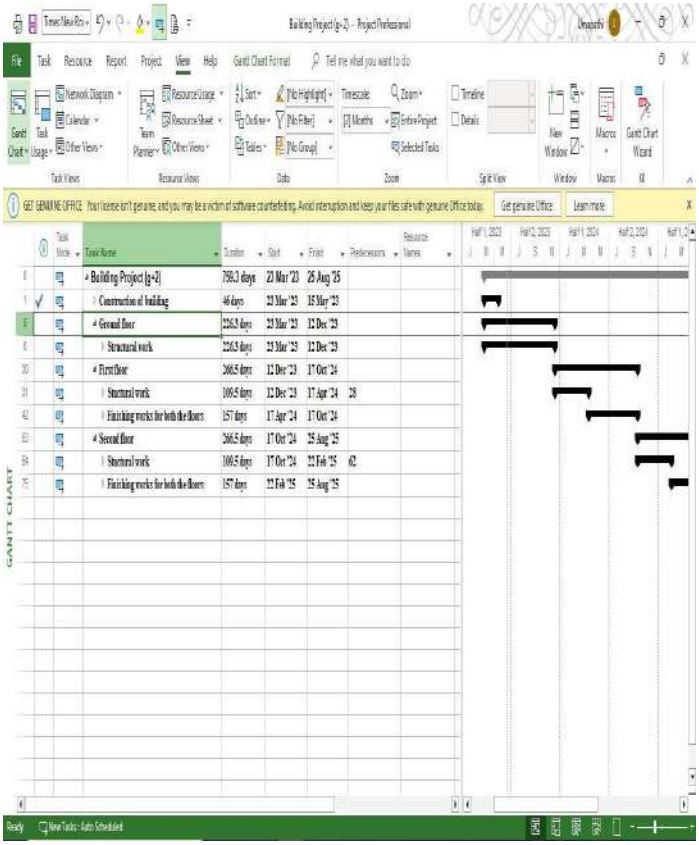


Work Breakdown Structure (WBS)

A Coding Structure to permit Reporting for Specific Areas or Trades. Work breakdown structure may be a process of dividing the project task into smaller manageable components for planning purpose. A posh project is formed manageable by first breaking it down into individual component during a hierarchical data structure, referred to as the work breakdown structure (WBS).

The WBS is that the structure which defined task, facilitating resource allocation, assignment of responsibilities and measurement and control the project. The WBS is widely employed by the project manager as a tool within the planning activity for the development project.

WBS(Summary task)



REPORTS

COST OVERVIEW

PROGRESS VERSUS COST

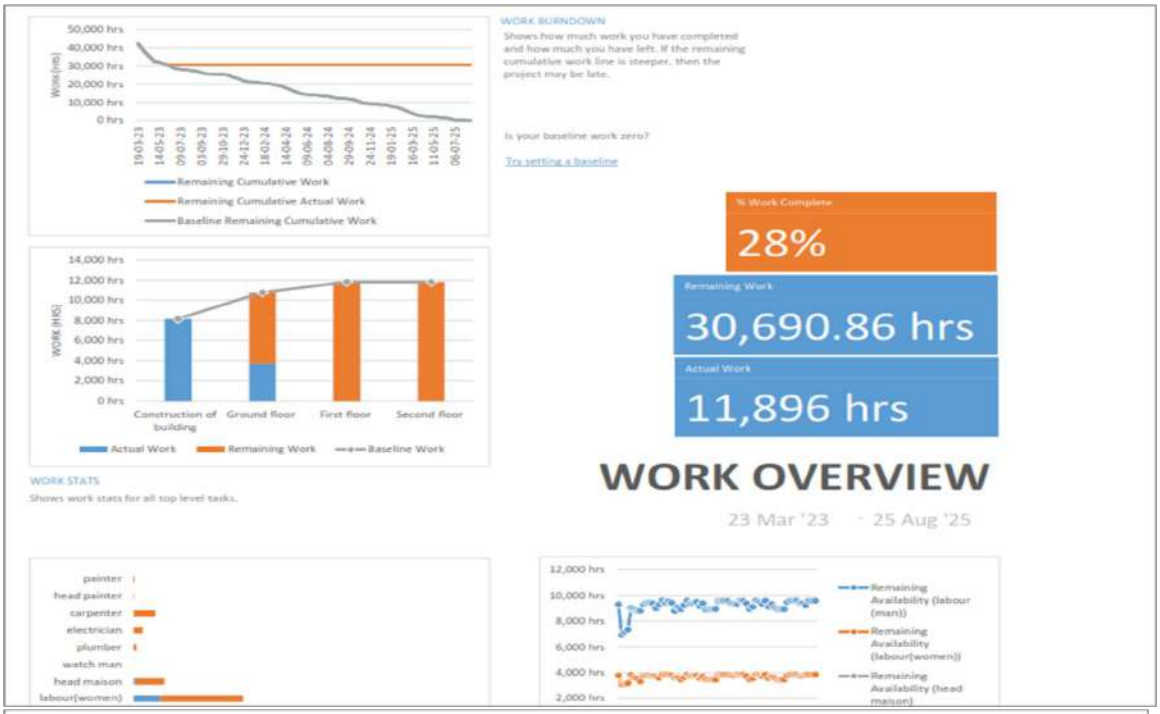
Progress made versus the cost spent over time. If % Complete line below the cumulative cost line, your project may be over budget.

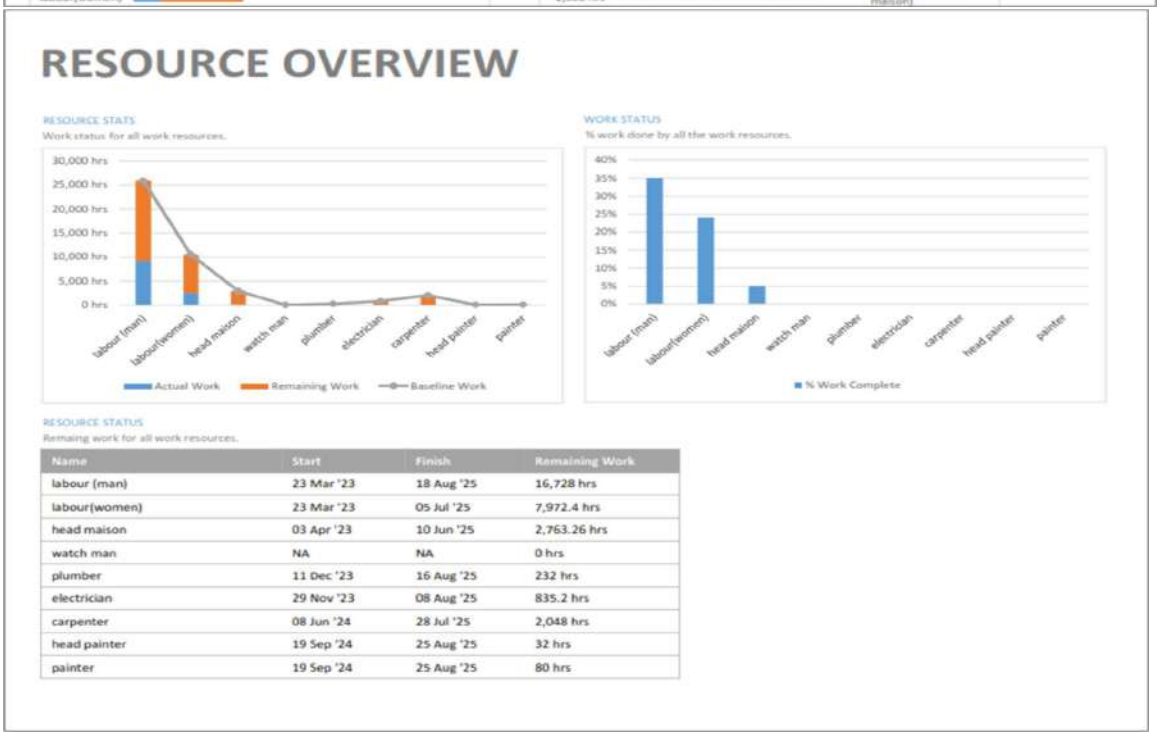
PROJECT OVERVIEW

% Complete Status for all top-level tasks. To see the status for subtasks, click on the chart and update the outline level in the Field List.

WORK OVERVIEW

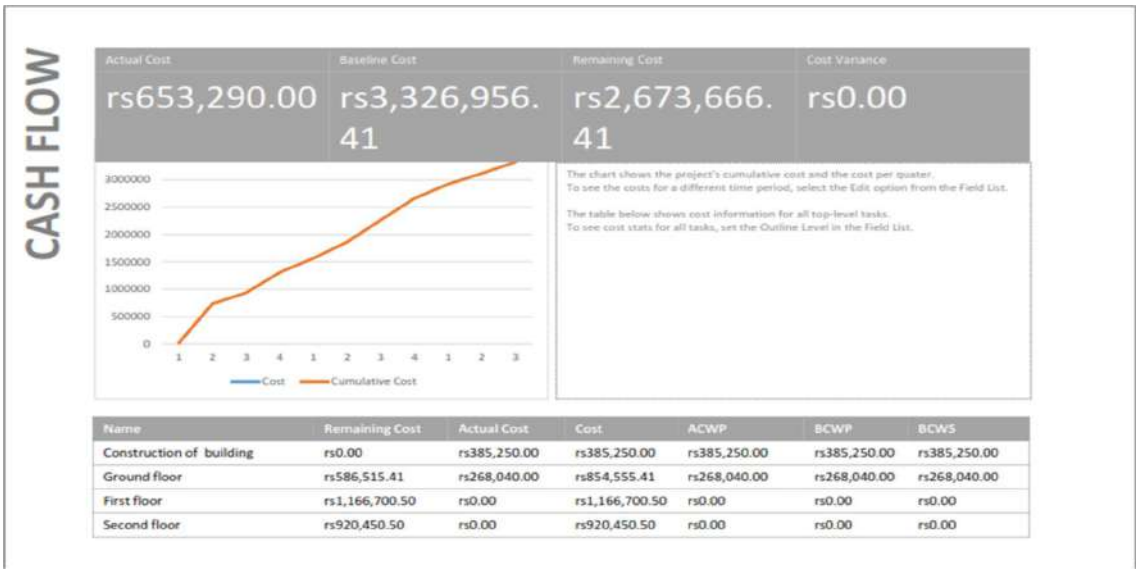
RESOURCE OVERVIEW





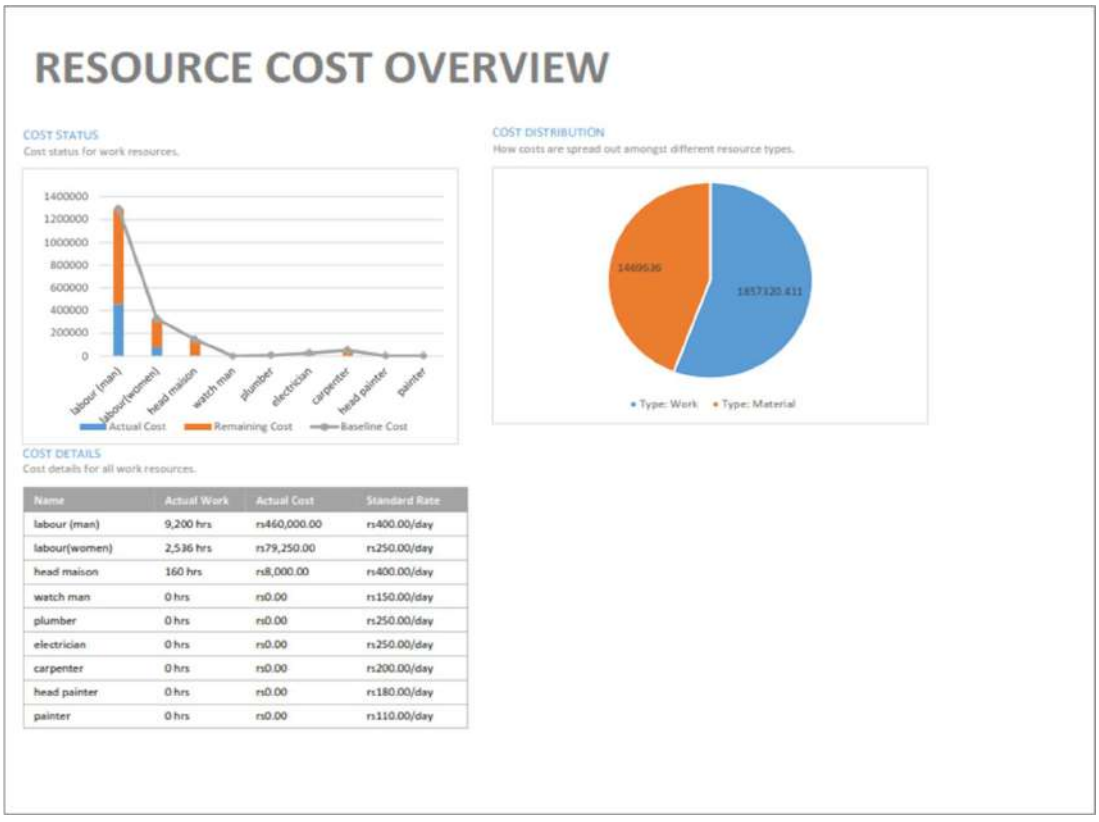
Name	Start	Finish	Remaining Work
labour (man)	23 Mar '23	18 Aug '25	16,728 hrs
labour(women)	23 Mar '23	05 Jul '25	7,972.4 hrs
head maison	03 Apr '23	10 Jun '25	2,763.26 hrs
watch man	NA	NA	0 hrs
plumber	11 Dec '23	16 Aug '25	232 hrs
electrician	29 Nov '23	08 Aug '25	835.2 hrs
carpenter	08 Jun '24	28 Jul '25	2,048 hrs
head painter	19 Sep '24	25 Aug '25	32 hrs
painter	19 Sep '24	25 Aug '25	80 hrs

CASH FLOW



Name	Remaining Cost	Actual Cost	Cost	ACWP	BCWP	BCWS
Construction of building	rs0.00	rs385,250.00	rs385,250.00	rs385,250.00	rs385,250.00	rs385,250.00
Ground floor	rs586,515.41	rs268,040.00	rs854,555.41	rs268,040.00	rs268,040.00	rs268,040.00
First floor	rs1,166,700.50	rs0.00	rs1,166,700.50	rs0.00	rs0.00	rs0.00
Second floor	rs920,450.50	rs0.00	rs920,450.50	rs0.00	rs0.00	rs0.00

RESOURCE COST OVERVIEW



Name	Actual Work	Actual Cost	Standard Rate
labour (man)	9,200 hrs	rs460,000.00	rs400.00/day
labour(women)	2,536 hrs	rs79,250.00	rs250.00/day
head maison	160 hrs	rs8,000.00	rs400.00/day
watch man	0 hrs	rs0.00	rs150.00/day
plumber	0 hrs	rs0.00	rs250.00/day
electrician	0 hrs	rs0.00	rs250.00/day
carpenter	0 hrs	rs0.00	rs200.00/day
head painter	0 hrs	rs0.00	rs180.00/day
painter	0 hrs	rs0.00	rs110.00/day

CONCLUSIONS

We can conclude that there is difference between the theoretical and practical work done. As the scope of understanding will be much more when practical work is done. As we get more knowledge in such a situation

where we have great experience doing the practical work. Construction projects are, by nature, difficult to regulate due to their dynamic and sophisticated environment, leading to frequent changes, delays, and price overruns. The power to assess the impact of site events on construction projects is significant within the preparation and settlement of claims.

Knowing the Estimated quantity of work, we have designed the time schedule depending upon the time duration method – Optimistic time (To) Most likely time (Tm) and Pessimistic time. In project Management time, cost and scope are most important aspects which called triple constraint. Effective time schedule optimizes the resources in the project. Construction contractors control their contracts' detailed schedule progress. The project manager focus is the big picture, the master schedule, to manage interfaces between contractor third party, and Agency construction activities. Your approach to master schedule control depends on the project's size and complexity. To complete a project successfully with in time and without increase in cost, sound scheduling system is needed.

Construction of building using Traditional way proves to be uneconomical and consumes more time with many compellability and enormous error which actual execution of the Project. Traditional way of planning doesn't sub divide the main task which future gets the hurdle of over allocation of resources, improper judgment of resources for particular activities etc. Microsoft Project is the modern tool of Project Management that aid to overcome the obstacles faced owing to traditional way of Planning and Management. It helps for the optimum and effective organization of activities which helps to give the vision to complete the project in planned duration and within the Economy.

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