

# Application of Microsoft Project for Planning and Scheduling of a Residential Project

Prajakta Prasad Gauns<sup>1</sup>, Prof. Amey A. Kelkar<sup>2</sup>

<sup>1</sup>P.G Student, Department of Civil Engineering, Jain College of Engineering, Belagavi, VTU Belagavi, Karnataka, India

<sup>2</sup>Assistant professor, Department of Civil Engineering, Jain College of Engineering, Belagavi, VTU Belagavi, Karnataka, India

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**Abstract** – Construction industry is a sector in which time and money play a very important role. As in this industry each project has its unique characteristics it becomes very important to plan and schedule the various activities of an individual project. The delays caused results in increase of expenses which hampers the budgeted cost. Hence planning and scheduling has to be done and followed for the successful execution of the project. In this work a residential building project is considered and planning and schedule for its execution is done by using MSP.

**Key Words:** Project, Financial Management, MSP, Planning, Scheduling etc.

## 1. INTRODUCTION

Construction sector has a great significance at both national level as well as inter-national stages. In our country it stands second for providing employments. A vast population of the country is dependent on the construction industry for the job and shelter. This industry is fundamental for the development of the economy of any nation. It is definitely one of the most challenging industry owing to its unique and exclusive nature of every project and involving many parties.

A project is overly constrained by some factors such as time, cost, quality and risks involved. In order to organize and prioritize these factors an efficient project management is necessarily needed. The aim of every construction industry is to complete the given task within the specified time and budget and to achieve different project goals.

### 1.1 Financial Management

Managing the finances is efficient utilization of organization's finance. This incorporates the utilization of money and different resources, for example, equipment etc. Financial management is addressing the need of the capital required and satisfying it. A financial plan is to be prepared as a part of financial planning. Financial management includes framing of policies with respect to

- Procurement
- Investments
- Management of funds of an enterprise.

It grants an overall summary of the financial activities in future of the particular company. Management of finance is necessary for controlling the project costs and monitoring project and company's profitability.

### 1.2 Functions of Financial management

- Capital estimation
- Ascertain capital structure
- Evaluate and select sources of funds
- Allocate and control funds
- Distribute profits or surplus
- Monitoring financial activities

### 1.3 Budgeting

It is the analysis which gives the sense of available funds over a period of time. It also gives a path for utilization of funds and categorizes the areas where the investments need to be made.

Setting a budget gives the manager the financial boundaries of the project and allows him to plan a proper fund distribution. It gives him the control and a decision making ability to manage the funds.

Firstly, the enterprise budget permits the project manager to decide how much the task is perhaps about to cost. Over the span of the task, it offers the project manager an opportunity to see whether or not the enterprise is adhering to its spending limit.

The advantage of budgeting is that a proper financial planning can be done. It is carried out on the grounds of general structured values, but the particular type of budgets, the composition of budgets within the budgeting scheme and also the set of indices used rely on the particular scenario at the company, i.e. on the leadership needs for certain precision and planning disaggregation. That is the need for information management that forms the foundation for the method of setting up the budget system at the particular company. Nonetheless, some widespread techniques are assigned for developing the company's budgets on which it is essential to depend in the course of budgeting.

Project budget can be set by:

- Evaluation of projected income and expenses through the life of the project.
- Relation of identical projects.
- Assessment of widely available resources.
- Requirements pre-design assessment.
- Analysis of substitutes for preliminary design

The complete project budget of the client can include:

- The cost of construction.
- Possession of property or land
- Fees for approval of plan.
- Cost of planning
- Cost of finance
- Site inspections.
- Cost of equipment, cost of fittings and fixtures if any
- Decanting cost and cost of relocating, comprising of costs related to relocating personnel.
- Subcontractors.
- Insurance.
- Fees for Consultant.
- Economic Growth.
- Occurrence.
- VAT.

### 1.4 Microsoft Project

A project management software package designed and sold by Microsoft is Microsoft- project. The software functions to help project managers develop schedules, allocate resources to assignments, monitor progress, handle budgets and evaluate workloads. Microsoft Project was the third implementation based on Microsoft Windows in the company. After few years of the launch of this software, it has become one of the dominant software for PC-based project management. It was never engaged in any of the office suites as part of the Microsoft Office family. Recently, the software is available in two variants, i.e. Standard as well as professional.

### 1.5 Features of MSP

- Manages financial assets
- IT management simplification
- Provide adequate presentation
- Predict the change
- Works smoothly across the tools
- Real-time communication

- Well organized feature
- Successfully deliver project
- Improves frequent co-operation
- Admittance from virtually anywhere
- Select optimal financial assets
- Deliver projects successfully
- It recognizes the information and the data can be shared.

### 1.6 Aids of Microsoft Project Software

Microsoft Project is well-established, appreciated and robust software for project management. The following are the benefits:

- Software enhances productivity of the project.
- Scheduling can be done in detail.
- Once the project scheduling has been completed, the changes in tasks as well as resources can be modified.
- Cost management and control.
- Allocation of resources.
- Quality control and management.
- Critical path and the progress of the work can be tracked.

## 2. METHODOLOGY

In this work, residential building having two blocks namely Block A and Block B located in Panjim Goa was considered for the analysis. A detailed schedule using MSP is developed for execution of construction activities on the site.

### 1. Planning and Scheduling in MSP

Once after the project is affirmed and started, the time has come to assemble that using booking programming. Exercises that are included right now include:

- Adding assignments to a calendar.
- Developing the relationship between assignments utilizing delineating and undertaking connecting.
- Assigning individuals and different assets to assignment.

The arranging and planning incorporates Gantt diagram, Entry Table and Bar Chart.

### 2. Gantt chart

Gantt chart is a blend of the entry table and the bar diagram. It is the primary working area which gives the

complete points of interest of the undertaking and comprehends too effectively.

### 3. Entry Table

It is the one which will hold a posting of each task involved in the venture and will give the figured points of interest for every assignment. The entry table contains segment, for example, indicator field, task mode, task name, term, begin, complete and so forth. There is additionally a decision for inserting sections.

### 4. Bar Chart

This chart will indicate the bars which are drawn to represent the time span of every task against a calendar timescale.

### 5. Resources Calculations and Allocation

The resources are of three types, they are work resources, and two special kind of resources: Cost and Material. Resources are the equipment, supplies and the people which enables to complete the tasks in a project.

Figure below represents the types of resources.

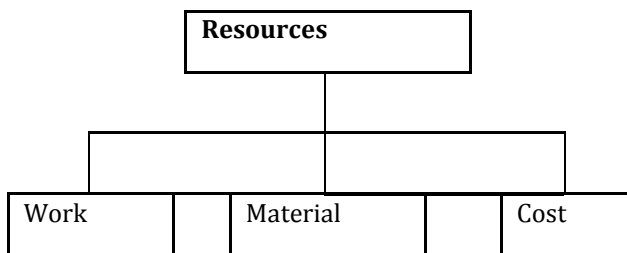


Fig-1: Types of Resources

#### ➤ Work Resources

This indicates the equipment or people which consume time while working for a task. When the work resources has been set up, the time spent on the resources will be defined on the task a project.

#### ➤ Material Resources

During the construction of project there will be need of material items which is therefore called as Material resources. While assigning of material resources, appropriate quantities and units must be specified. These are the items which are consumable and are completely utilized in the tasks of a project.

#### ➤ Cost Resources

It is the financial cost where it is associated with the task which has to be considered. The value of cost

resources is independent of the quantity of work performed on the task or duration of the task.

### 6. Task Types

Determines the efforts that could change the work, task units, or length which has the count of the other two fields for this assignment. There are 3 errand sorts which are as per the following:

#### ➤ Fixed Duration

This shows the task duration to stay consistent, notwithstanding if any adjustments in task units or work for the assignment. For altered term assignments:

- If units are modified, venture will recalculates work.
- If span in the settled term errand is changed, undertaking will recalculates work.
- If the measure of work is reconsidered, venture recalculates units.

#### ➤ Fixed Units

This will show the task's number of assigned units to stay constant, notwithstanding if any adjustment in term or work for the task. This is default. For fixes unit tasks:

- If units in a settled unit are re-examined, undertaking will recalculates length.
- If term is re-examined, undertaking will recalculates work.
- If the measure of work is reconsidered, undertaking will recalculates span.

#### ➤ Fixed Work

This shows the task's measure of work ought to stay constant, in any case if any adjustment in term or task units for the assignment. Since, by definition, altered work assignments are exertion driven, the exertion driven check box will consequently chose for fixed work tasks. For fixed work assignments:

- If units are changed, task will recalculates span.
- If length is modified, undertaking will recalculates units.
- If the measure of work in an altered work undertaking is reconsidered, venture will recalculates span.

### 7. Critical Path

It is the sequence of the activities which will determine the minimum time required for project

completion, if the tasks are restrained. The word critical in this reference, gives an idea of the importance of the tasks for the entire project. It is mainly used during investigation on a computer for the large organizations. It predicts the schedule and how it will affect the finish date of the project. The project finish date is of great significance in many of the project. If the duration of the project has to be shortened to bring the finished date, the critical path tasks duration should be started to shorten.

### 3. RESULTS

The various activities of a multi-storied building was planned and scheduled using Microsoft Project Software. The activities carried out in MSP are listed as follows:

- The calendar was created allotting Sunday as a holiday.
- The tasks were planned and scheduled.
- The resources were allocated for each task.
- Predecessors and successors for each activity were determined.
- Final Gantt chart was generated.
- Critical path was obtained.

The representative Figure was shown in Fig- 1

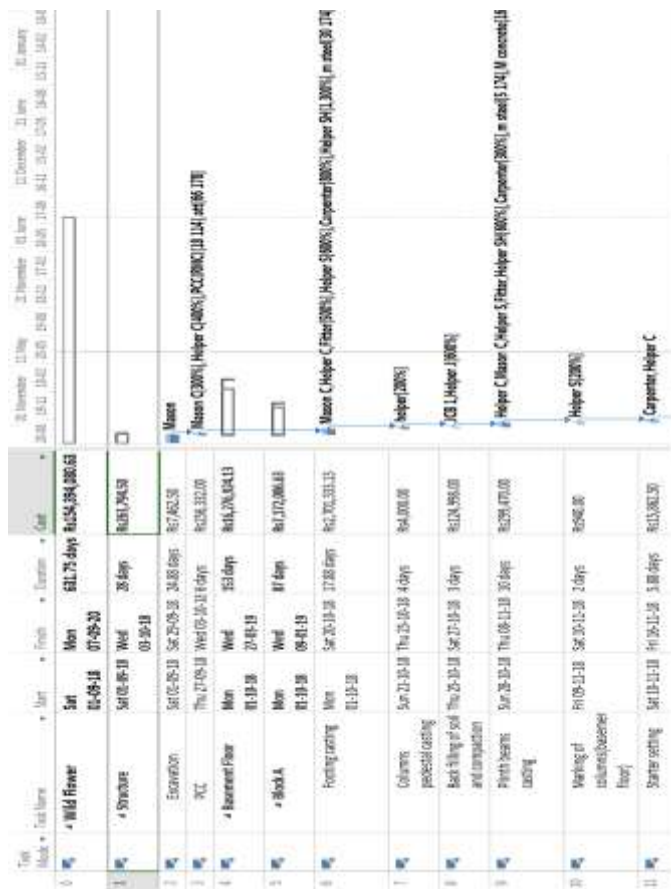


Fig-2: Planning and Scheduling using MSP

The total duration and total cost of the activities are listed below. The estimated start date was and finish with the total duration of 632 days and total cost of Rs.154,394,081/-

Table -1: Planning and Scheduling in MSP

<b>START</b>	01-09-2018
<b>FINISH</b>	07-09-2020
<b>TOTAL DURATION</b>	631.75 DAYS
<b>TOTAL COST</b>	Rs. 154,394,080.63/-

### 4. CONCLUSIONS

From the work carried out following conclusions are drawn:

- 1) The total Baseline Duration of the project obtained using MSP is 632 days
- 2) The total cost of the project obtained using MSP is Rs. 154,394,081/-

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**BIOGRAPHIES****Miss. Prajakta Prasad Gauns**

Pursuing M.Tech, Department of Civil Engineering, Jain College of Engineering, Belagavi, Karnataka, India.

**Prof. Amey A. Kelkar**

Guide & Assistant Professor, Department of Civil Engineering, Jain College of Engineering, VTU Belagavi, Karnataka, India.