

PLANNING, SCHEDULING AND RESOURCE MANAGEMENT FOR A MULTISTORIED BUILDING USING MICROSOFT PROJECT

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Abstract - Construction technology has a immense potential to improve efficiency and reduce project period. Delay happens in several construction activities due to improper resource management. Microsoft Project helps in obtaining the exact duration and amount to be spent on the project. The objective of this study is resource management during the construction. In order to improve the plan, allocation of resources, improvement during the execution of the work MSP is used. Resources in the project may be in the form of labours, machines and the materials essential for the construction project. Work assigned to the labours and the materials required for the construction are the main aspects which affect the budget of the project. Through MSP we will obtain the labour cost and material cost of the building at different stages of the project

Key Words: Construction Technology, Delay, Microsoft project, Resource Management, Labour cost, Material Cost.

1. INTRODUCTION

Developing a full fletched plan for a construction project is necessary these days .Project management software i.e. MSP is designed in such way that it helps in development and completion of project. Following are applications of MSP:

- To develop a plan for construction execution.
- To list different activities.
- Resources allocation.
- Project tracking.
- Identify the critical path after assigning the resources and predecessor.
- Obtaining total project duration and cost.

Based on resources rates allotted, duration of the project and number of activities carried out the budget of project is obtained. Multiple tasks are allotted by a single resource depending on its availability. The software cannot solve complex problems. Different path schedules are created and resource leveling is done in MSP. Results in MSP are displayed in the form of gnat chart, pie chart, graphs and bar chart.

1.1 Management of Project Time

As the size of project increases the complexity in the project also increases. For completion of the project within the estimated cost and time there is need of good ideas, heavy investment. Project will be unsuccessful because of lack of time, cost and money. Delaying in construction projects is one of the major and repeatedly occurring problems. Due to delay in the project several conflicts takes place which intern further cause's delay. The period of time required for the completion of project is called duration. In project, time is considered in the form of days.MSP gives the total duration required for completion of the project. Time management is the main aspect affecting the cost of the project. Planning of the project, designing and execution of the work on site should be well planned and scheduled. Time management should be done to complete the project within the scheduled time. Schedule involves activities, critical path, work break down structure etc.

1.2 Management of Project Cost

Estimation of the project is done in order to know the total cost to be spent for completion of the project. Finance requirement at the different stages of construction should be known to understand the cash flow. Project cost is fixed after the estimation of complete building including labour wages. Deviation in the price of materials must be noted down to know the variation in the cost of the project.

1.3 Objectives of This Work

- To schedule project using MSP for obtaining project completion time.
- To find the cost of materials and labours required during different stages of construction execution.
- To obtain the finance requirement at different stages with a view of material procurement.

These objectives are set with the view of giving a complete picture of various stages in a construction project. Primary importance is given for obtaining the project cost at different stages which will help the owner to manage his funds in an efficient manner.

This will reduce the unnecessary procurement of funds and help him for a better financial planning.

2. METHODOLOGY

A project should have the proper start and end time. The events should be carried out in sequence. In order to

complete the project in the defined period there is necessity of project management. The tasks should be managed within the allotted time and project should be completed with the available funds and resources. This is done by using MSP software. The work process in this process is carried out in following way. The flow chart of the work process is presented below

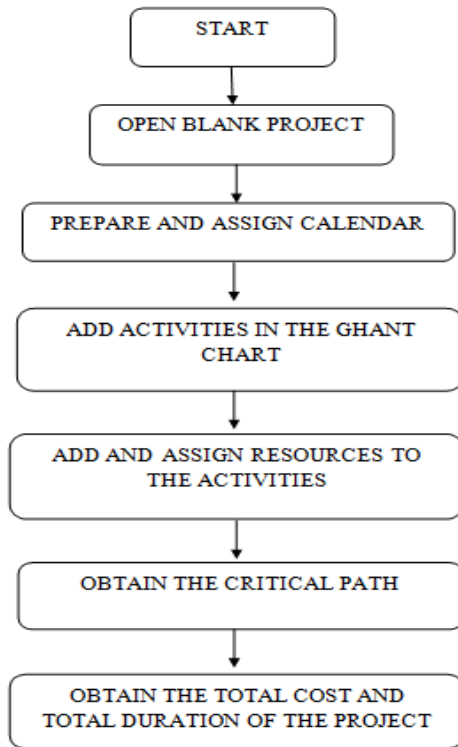


Fig-2.1 Flow chart of steps carried out in setting a project in MSP

2.1 Stage wise MSP to obtain labour cost and Material cost.

MSP is done for the entire building depending on the stages of construction. The labour cost and material cost are obtained separately. The stages of construction are as follows.

- **Stage 1.**Upto plinth level
- **Stage 2.** Up to first slab level
- **Stage 3.**Upto second slab level
- **Stage 4.**Upto third slab level
- **Stage 5.**Upto fourth slab level
- **Stage6.**Upto terrace roof
- **Stage7.**Machine room
- **Stage8.**Compound wall and gate

3. RESULTS AND DISCUSIONS

From MSP the number of days required for the completion of construction work is obtained as 339 days.In this study a detailed labour cost and material cost of a multistoried building is obtained and importance is given to obtain the funds required for construction in stage wise. Then the

graph is plotted for the material cost, labour cost and the comparison between them.

Table 1: Material and Labour cost at different stages

STAGES	MATERIAL COST(RS)	LABOUR COST(RS)
UPTO PLINTH LEVEL	509788	149908
UPTO FIRST SLAB LEVEL	1227815	726025
UPTO SECOND SLAB LEVEL	1962812	511715
UPTO THIRD SLAB LEVEL	1962812	513716
UPTO FOURTH SLAB LEVEL	1962812	521716
UPTO TERRACE ROOF	1006413	487793
MACHINE ROOM	329089	75574
COMPOUND WALL AND GATE	210128	39581
TOTAL COST	9171669	3026028

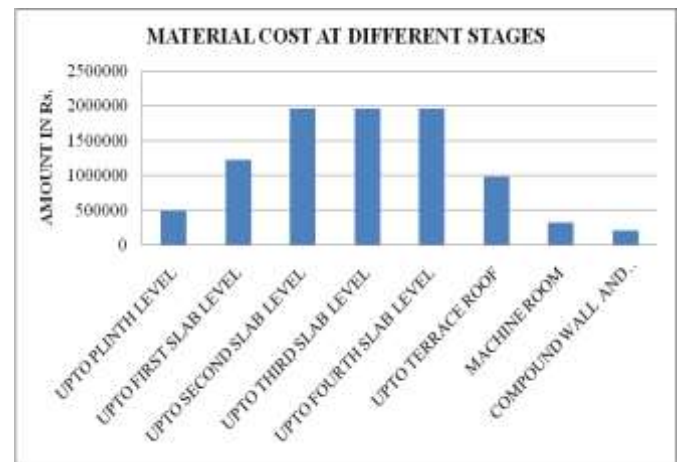


Fig-2.2 Graph representing Material cost at each stage

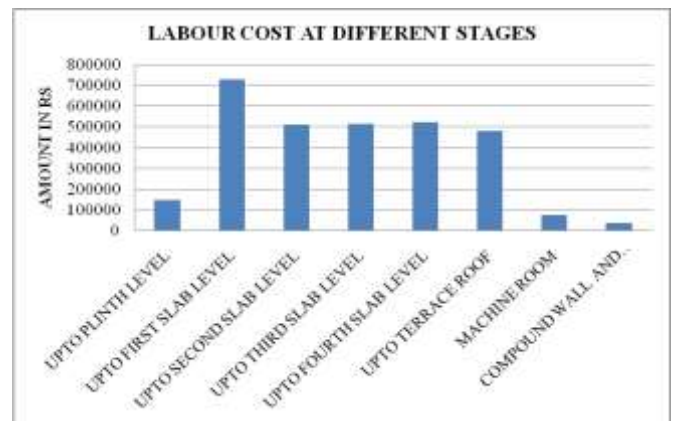


Fig-2.3 Graph representing Labour cost at each stage

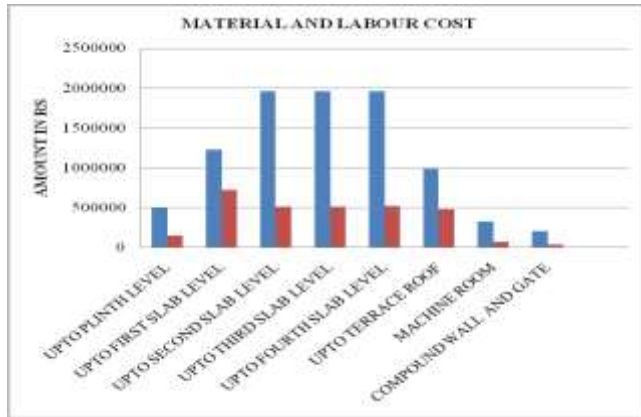


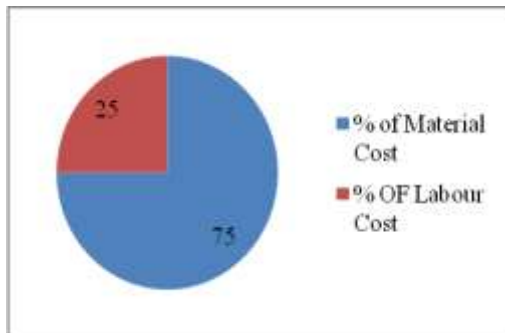
Fig-2.4 Graph representing comparison between Labour cost and material cost at each stage.

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4. CONCLUSION

1. Material cost and labour cost are the two vital components of estimation.
2. On an average we can conclude that for each stage the material cost comes up to 75% of the total cost where as labour cost is about 25%.



3. The total duration required for completion of this project as per MSP is 339 days. Thus this work gives an idea of finance required at different stages which can help the contractor/owner to make the arrangements of the funds required.
4. Further it will also help in material procurement and the budget required for it.

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