

Time and Resource Management in Conventional and Prefabricated Construction Using MS project

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Abstract: In India Construction Firms, Construct the Projects in a Traditional ways, this sometimes proves Uneconomical & Tedious too. It is also proves that Traditional way is Time Consuming and Confusing. The presented work will provide them an Opportunity to clearly observe the difference between the Microsoft Project (MSP) and the Traditional Planning Techniques which speeds up Construction and also make the Project Cost Effective with Proper Planning with the help of the case study on the single wing of project executed in Pune, Maharashtra, India. Disparate methodologies adopted for finding out various aspects that proves efficient planning & execution of the project, and International journal papers were referred to find out remedial measures. Finally coming to the conclusion with the help of methodology adopted includes defining of problem statement, insinuating the objectives from the data collected in two part viz. Primary data and secondary, analyzing the data.

In our own life, every one of us is a manager of projects. We all work on different tasks with deadlines, from a house wife to an employee to financial analyst, from banker to doctor, from engineer to administrator, from a teacher to a student. We all work on tasks that are eccentric and involve people who do not usually work together, regardless of our occupation, norms, or location in an organization. Every project may have a simple goals that does not require many people or a great deal of money or it may be quite complex, calling for diverse skills and plethora of resources. But every one of us manages projects is the bottom line. Not only execution but effective and efficient execution of project is essential that is the purpose of dealing with the project which is needed to be highlighted.

KEYWORDS: Resource Management, Project Management, Construction Organization, Microsoft Project

I. INTRODUCTION

In our country the major construction activities involves, different building constructions which includes commercial and residential buildings, Heavy infrastructure projects such as dams, roads, bridges, and industrial constructions etc, using old and traditional construction practices these construction activities are carried out which causes several problems in the construction such as poor quality in construction, increased risk of crises, increased cost of construction, delay in delivery of project all these flaws in construction practices calls for an effective project management and quality control system.

Around the world many countries provide major preference to the construction industry, as shelter and transportation facilities are the basic needs of a society and also for the growth of the country, contribution of construction industries is vast.

In construction project a lot of construction activities includes which are not limited only to the physical activity of allocating men, materials and machines, it involves more than this, such as effective management of machinery, man power as well as materials by proper planning using project management tools such as Microsoft Project, Primavera, Microsoft Excel and techniques such as CPM, PERT which helps to reduce the efforts and also helps to maintain the accuracy and quality of the project. By controlling the cost of construction, scheduling, managing resources, and maintaining the quality in construction the effective management of a construction project can be achieved. As these constituents contribute significantly to the efficiency of the project these can be effectively managed using Microsoft project software. In the present study for the purpose of scheduling the residential apartments effective construction project management techniques are adapted, as some of the areas under the scanner are schedule development, resource planning and budget cost of the project using the project management tool MS Project.

1.1 ABOUT MICROSOFT PROJECT

Microsoft Project has many unique features specifically designed to make the use of the software simple. However when it comes to updating a schedule using MSP, construction schedulers often find MSP extremely confusing. This is mainly due to the MSP's 'ease of use features' getting in the way of reflecting the consequences of the current status. It gets even more complicated if you ever have to do a forensic delay analysis on a MSP schedule. Cheer up, as all is not lost. A clear understanding of how MSP calculates a schedule will make it possible to properly use MS Project in place of a Primavera product, if needed. MSP has its advantages; it costs less than many of its competitors and it is 'user-friendly'. It is easy to start scheduling activities immediately. MSP easily produces decent default graphics and reports.

1.2 IMPORTANCE OF PRECAST CONSTRUCTION

1. Precast concrete is versatile:

Factory production allows a wide choice of surface finishing, colour range and special shapes. Precast concrete has another advantage: its mould ability which entails designers to copy classical details like keystones and capitals or match the finish of materials like weathered stones. The precast concrete industry can source a wide range of aggregates locally and offer a tremendous variety of colours and visual effects.

2. Precast concrete is comfortable:

The material has intrinsic properties of thermal Inertia (allowing a more constant temperature both in cold and hot regions) and acoustic insulation.

3. Precast concrete is safe:

Everybody knows that concrete does not burn! Not only is the structural stability maintained for longer periods, but concrete construction prevents the spread of the fire from one building to another. It is sufficiently strong to resist impacts, blasts and natural catastrophes like earthquakes, tornadoes and floods.

4. Precast concrete is optimized:

Advanced technologies used in the pre-casting Plants create an improved quality product (i.e. reduced tolerances, thinner sections, engineered solutions) compared with cast-on-site concrete. Additionally this quality can be checked before a unit is inserted into the structure or site work!

II. LITERATURE REVIEW

For completion of any construction project proper scheduling of resources is required for completion of activities within time and cost. Since 1950s for scheduling and controlling of projects, communicating plan and training new managers Critical Path Method (CPM) is technique that has been used. This technique has some limitations that it does not consider the resources required for the execution of construction project. Apart from CPM project scheduling can be done by using different software's such as MSP, Primavera, Optimization techniques, Fuzzy logic etc. The present study involves use of MSP Software for scheduling the activities of construction projects (Conventional and Prefabricated construction). By using the start date and end date of various activities MSP helps to define hierarchy of the activities of the project. With the use of MSP various resources involved in project are efficiently handled, cost budget of the project can defined prior to the start of the project or at any stage of the project.

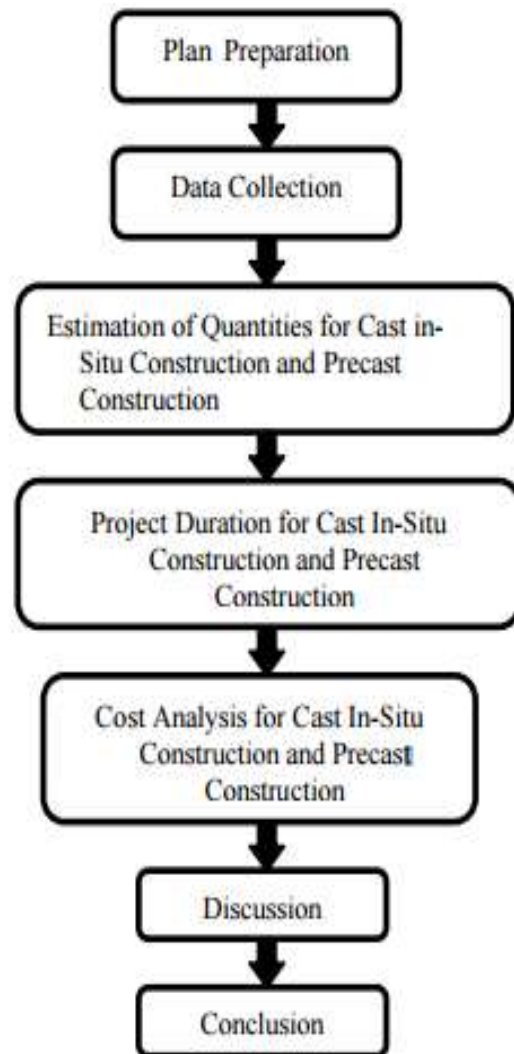
Due this reason skills and Techniques are used for project activities to meet project requirements. It is a planned ability to do something successfully for organizations, enabling them to patch the project results to Organizational goals and thus, superior battle in their markets. It helps for the optimum and effective organization of activities which helps to give the vision to complete the project in planned duration and within the market [1]. Management techniques such as Critical Path Method, Program Evaluation and Review Techniques (CPM/PERT) have been successfully implemented prior to the 1970's, in various Civil Engineering projects in the countries like USA, Canada, Australia. With the help of MSP scheduling various construction activities, allocation of resources and resource leveling is done for residential building [2]. This study compared time performance of the conventional method of construction for high- rise residential and Industrial Building System method by originate level measures of industry norms for overall construction period using scheduling simulation modeling.[3] In a construction industry due to improper planning and scheduling, Extensive amounts of time, money, resources are wasted each year. For sinking and scheming delays of the project proper planning and scheduling is very essential in construction projects [4]. By increasing the manpower the completion time of the project can be reduced, as the relation between the project completion time and the manpower availability as inversely proportional [5]. The purpose of the project schedule is to show the organization, how the work will be performed and to uncover the mistakes of the plan and design and that's why project schedule is considered as the core of the project plan [6]. The variations between the time and optimum usage of resources are observed and all necessary data of information are collected by using two methods [7].

III RESEARCH METHOD

For comparison purpose a residential building will be taken and by using the data inputs pertaining to construction methodology, such as activities and their durations, materials, resources etc, MS Project schedule will prepare for both the construction methodology (Conventional method and prefabrication method). Project duration for both type of construction(Conventional method and prefabrication method) will collected from the respective companies and the total project duration for both type of construction method will be obtained by using Critical Path Method with MS Project which compares the time of completion period for project.

3.1 RESEARCH SECTOR

In this research we limited our research to India and focussed only on the real estate sector as this sector is having maximum number of projects which are behind schedule and of many reasons of delay of the project.



FLOWCHART OF METHODOLOGY

IV CONCLUSION

The Microsoft Project software provides user friendly options while performing any tasks. Planning and scheduling helps to solve future situation and also implementation of the project. The cost of individual work break down can be known along with the duration by using MS Project. Thus for proper management decisions can be made sensibly. For managing multiple projects, scheduling real-time projects is also an important standard. Using Microsoft project Software for scheduling of project gives good controlling and clear schedule to a project. In this project Microsoft project software is used to schedule the activities of projects for comparison of time and cost parameters.

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