

Productivity Cycle of Construction Site in India

A. Divyang Solanki¹ B. J. D. Raol²

¹M.E. Student ²Professor

^{1,2}Department of Infrastructure Engineering

^{1,2}LDRP Institute of Technology and Research, Gandhinagar, Gujarat-382015

Abstract— with the huge investment being done in the construction sector, foreign players and more domestic players have entered into their field. This has increased the competition in the market. Also the client now a day is more conscious about his investments and is strict about the project cost and duration along with quality of construction. This has increased the importance of cost planning and control to achieve the set targets. The contractors have to use various tools and techniques to monitor and control the time and cost overrun, thereby ensuring that the work gets completed with minimum cost and time. The investment required in a construction projects is very large, time and resources are always limited. Under this scenario, this work contains an overview of cost control techniques and tools used for control of cost and time schedules, used on the construction industry and further analysis of the techniques and tools use in various cases of infrastructure projects.

The main Objective of this project is to fluctuation in the productivity of the construction site.

Key words: Productivity Cycle of Construction, Warning System, Primavera

I. INTRODUCTION

The criteria for measuring productivity of a construction work for the contractor is more than that of Owner. The owner's prime concern is to undertake a macro view of the project to ensure that the cost spirals are not so high that the very validity of the project is questioned. The Contractor's prime concern is to see that the desired profit earning is not lost and the best use of available resources is made to large extent the Owner desire for better productivity can be satisfied if the contractor maintains a good level of productivity to suit his needs.

These maintain a good level of productivity is important from the point of view of both the Owner as well as the contractor. It would be of great help if there were available a project monitor with the contractor which gives warning signals in case of instances of low productivity.

The signal could be in the form of an indication of delay in the execution of work or lavish use of resources. Such a productivity Monitoring System should provide organized and timely information to facilitate immediate action from the Contractor.

It is in regard that the objective of this Research Thesis Work is designed. The main objective of this work is to study the requirement of a Warning System that would keep a watchful eye on the project and indicate a fall in productivity status of the job in India.

II. METHODOLOGY

The study begins with a literate review of some either studies conducted in the field of productivity Monitoring. Since Productivity maintenance largely focuses on maintaining a strict schedule and efficient use of resources,

one of the main ideas then is to focus extensively on efficient planning and to line out the resources responsible for variations in productivity of a job.

The next step then is to study the basic aspects/features that need to be considered in developing an efficient warning system. The essentials of such warning system are that it provides timely, accurate and pertinent information to the planning Personnel. Here, is achieved by regularly updating the data and making sure that the information provide reflects present events. Accuracy refers to keeping the data error Pertinence is attained manner so as to send the desired warning signal. Since the study focuses mainly on development of a warning system other important aspects governing the efficient use of the generated information (feedback and control) are taken for granted.

Factors affecting Site productivity vary across sites depending on some external factors which include nature of work, location of site, prevalent laws of the technological advancement of the nation in construction and even the culture of the people. In India so many different cultured peoples are living so it affects much more rather than other effects. Any large construction work involves many professions workers as Architects, Engineers, Construction Management Consultants, and laboures. In addition, materials and equipment suppliers and vendors and other support groups are involved. Considering the professional attitude and views, loss in productivity may result due to of failure of commitment from the groups. Scope of the study is limited to the three recourses of Man power, Material, Equipment.

III. EXISTING METHODOLOGY

At present Productivity have been measures by keeping book records and making excel sheet. In that some contractors make it daily report or some of make it monthly reports. After that client get that data from the contractor as per its requirements. On a big infrastructure projects day by day work should be recorded as there are so many activities is done in a day. In small scale sites calculations of the Manpower, Materials & Machinery is calculated by keeping bills. And by these paid bills are keep as a calculated Cost of the project. So the list of the methods which are use now days are as below:

- Hand written book keeping method
- Bill collections
- Excel sheet calculations
- Quantity surveyors

These methods are very time consuming and need much more inspection on the work which is already done. To overcome this problem there are certain new softwares are developed, which calculate s Productivity as well as shows graphical representation of those calculations. These softwares are also useful at the planning stage. Recently

used softwares are Excel, Primavera, Word (For making letter format).

IV. THE COMPUTER BASED PRODUCTIVITY MONITORING SYSTEM USING PRIMAVERA

- This software's are narrow down on
 - 1) Consumption of materials per activity
 - 2) Efficiency of Equipment usage
- Loss of production due to breakdown
 - 3) Engineering staff efficiency
 - 4) Manpower efficiency can be defined by comparing target production Vs. Achieved Production.

A. Primavera:

- 1) Primavera is the industry leading project and program management solution for projects of any size.
- 2) Primavera enables to manage time, tasks, costs, resources, contracts, change and risks to consistently execute profitable projects.

As per objective labour productivity is main concern about the use of this software. Which calculate the labour's working hours and through that the fluctuation in the productivity also get through the pictorial format or graphical method. Here is the screenshot of the use of the Primavera P6 as below.

1) Work Break down Structure (WBS):

It will narrow down the list of months of which labour data is being Calculate. This is also shows the bar chart with the list. Bar Chart shows the Month verses No. of labours available with the duration. Also the Project status it will shows in the Column of Project status. If there any changes in the duration is done in the project it will shows in the bar chart itself.

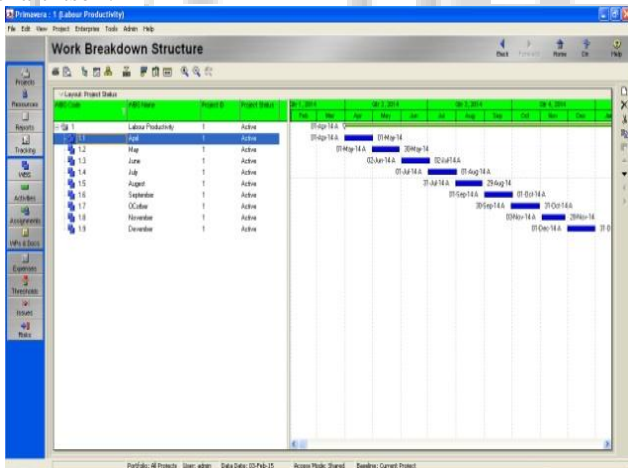


Fig. 1: Work Breakdown Structure

2) Resource Assignment:

In this Part Resources of the Project will be narrow down as per activity. Here only labours productivity is going to be calculated so that different type of labours is the resources. In this format Rate of the single labour with the unit is feed in the table and total cost is calculated automatically. All you have to do is to assign the single labour charge and it will sum all the charges of that single day. After that in the activity are you should assign that resource with activity duration.

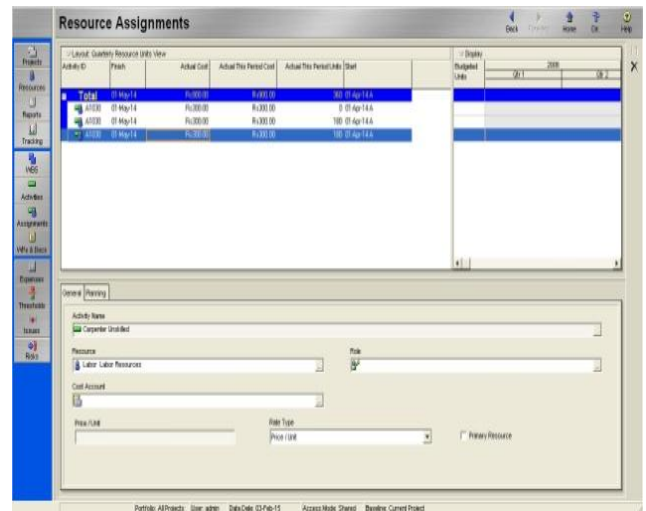


Fig. 2: Resource Assignment

3) Activities:

This area in the Primavera shows all the activities of the project running or completed with the duration. Details of the single activity such as Starting time, Finishing time, Actual, Budgeted and remaining Units along with the Particular date mentioned. Also shows the Percentage of Completion of the activity. Here different types of the labours are listed. Along with the unites of the labour and the working hours are also mentioned. In the activity area Bar Chart also shows in the right side of the screen. This shows the Months verses Number of labours available.

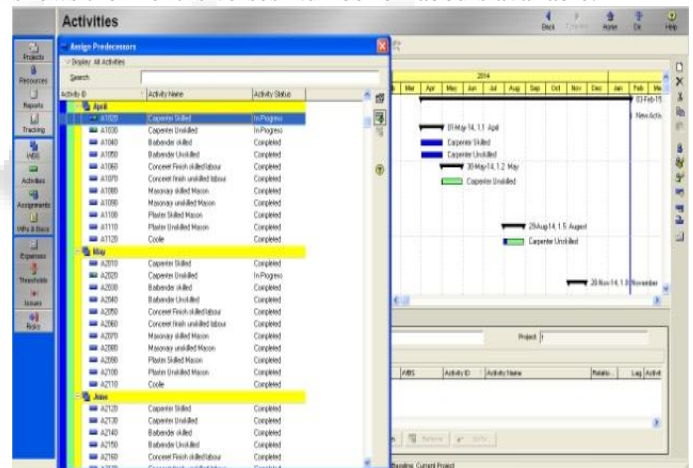


Fig. 3: Activities

V. CONCLUSION

- Using this software we conclude that whatever work is going on if it is collected in particular format we can easily identify the problem among that and find alternatives.
- By this software we re-arrange the laboures at particular work for the particular task.
- So we can get thorough productivity of our site.

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