Minimize the fluctuation in Labour Productivity using Primavera P6
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Abstract— 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 labours. 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. The main Objective of this project is to fluctuation in the productivity of the construction site.

Key words: Labour Productivity, Primavera P6

I. INTRODUCTION
Productivity enhancement in construction is an important issue. Spiraling costs have been the bane of many a construction projects.

A report in a construction journal indicates that a very small number of construction projects get completed within the project cost estimate and more over some have even registered cost overrun of over 100 percent and above.

The above mentioned are some really alarming cases of low productivity of large construction projects. In general almost all of the construction jobs insure productivity losses in the form of increased costs. But if the regular and effective project monitoring system is introduce, it rings the bell into the time for the management to take corrective action.

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.

Basically three different sites were select for the period of one year. So that actual idea of ongoing activity will know with respect to different factors. After that collected data was entered in the software named Primavera P6. As it contains all facility to calculate the productivity, and generate graphical representation wonderfully itself. New methodology will apply on actual site. Which shows that weather it is fruitful or not. On the multipurpose stadium site that methodology is apply to overcome the problem of lagging in the labour productivity.

Once the data collection is done its time to analyze that collected data. So analysis is done and according that final conclusion will come up. Factors which mainly affect the Labour productivity is find out. According to those factors new methodology is created. These minimize the fluctuation in the labour productivity.

New methodology will apply on actual site. Which shows that weather it is fruitful or not. On the multipurpose stadium site that methodology is apply to overcome the problem of lagging in the labour productivity. That process consume one month and after that final conclusion come up.

The data of that process is collected and graphical representation of that data is created. These shows that result of that methodology. Final conclusion is list out and also compares it with the objective. It is also compare with the literature which is collected so far.

In that whole process different data is collected from the actual site, journals, books, with the use of Websites. After that collected data is put into the different software according to its use. General calculations are done in that software as well. Graphical representations of the different data are created and compare it with each other. Factors are generating from the collected data.

A. Primavera
Primavera is the industry leading project and program management solution for projects of any size.
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. Primavera serves these objectives:
Create a project with activities and resources, Calculate a schedule, Analyze resource/cost data, Create a baseline/target schedule, Status a schedule with progress, Compare current Vs. target schedules, Customize Personal and Project workspaces, Manage a project from creation through initiation, Analyze project schedule and assess resource over allocation, View and approve timesheets from project resources, Collaborate with project team members.

B. The benefits of using Primavera P6 software include:
Reduced risk and cost of schedule overrun.
It helps easily plan and manage project activities.
It optimizes management of all resources.
It gives clear visibility of what’s going on in the project.
It allows quick and easy forecasting of WBS’s, activities or projects.
You can keep track of progress and view past period performance for reporting purposes.
Use of Primavera P6 by companies worldwide allows better communication between each other.
Furthermore creating, management, and understanding of schedule, costs information becomes simpler.
- Helps you easily breakdown projects and activities structure.
- It allows easy collaboration between all projects users.

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.

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 you should assign that resource with activity duration.

C. 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 labours 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.
From these calculations we come up to the fluctuations in the labour productivity one year. This is shown in the graphical representation as below:

![Total Labour Histogram](image)

**Fig.: Total Labour Histogram**

II. 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 labours at particular work for the particular task.
- So we can get thorough productivity of our site.
- By comparing different sites actual scenario of the labour productivity is defined.
- Festivals of India have great impact on the productivity of the construction site in India.
- In the month of the March lagging in the productivity is encountered, as Holy festival is on that month. Labours used to take leave for that hospital. So that at that month labour productivity is reduces.
- Fluctuation is minimized by applying practical approach.

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