

# BEST PRACTICES OF PRIMAVERA IN RESOURCE MANAGEMENT OF A HOSPITAL BUILDING

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## Abstract

Resource management is one of the important tasks in the construction project and it is complex. As the construction field is growing faster day by day resource management is essential in order to avoid cost overruns and have better economic outcome. In this regard resources play a vital role. Resources include : financial resources, physical resources, human resources and technology resources. This study deals with the management of resources by considering a hospital building and this is done by using a software called primavera. Manual methods are time consuming and hence software are being used in many large construction projects for managing. In continuation to this study it includes the complete capabilities of primavera in resource management where the features can be best utilized and applied for the construction projects.

**Keywords;** Resource Management, Cost overruns, Primavera

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## 1. INTRODUCTION

A resource can be defined as an entity that is assigned to an activity and is required to accomplish the task. It is recommended to create and assign the minimum number of resources to activities. A resource is any quantifiable item in limited supply and of sufficient value to justify tracking and assigning of specific activities for a project.

The fundamental thing for the successful completion of the project is the resource management. This resource management includes : resource defining, resource allocation and resource levelling if there is over allocation. There is always a scope of improvement by experience in the field of construction by maintaining human, machinery, materials and money.

Companies use the primavera software in order to take better decisions in portfolio management, evaluating the risks in the project, and specify whether they have sufficient resources and skills to accomplish the task. The concepts of primavera was used long back since second world war in the United states. Many versions of primavera were introduced . Finally Primavera version 8.1 was created and was officially called as Oracle Primavera. Oracle was a database company and announced that they are buying the primavera software and hence the name Oracle Primavera. There were many changes in the version 8.1 which helps the project management .

The software is used for controlling the various projects. The process starts with entering the tasks to into the software and adding the relationships to them. Then software takes time based on the relationship with the resources and this helps for the project to finish in the

shortest time possible. And if the resources consumption costs are given to the software it calculates the overall expenditure of the project .The software also determines the starting and finishing of each particular task.

Resource levelling is most important in the resource management process. Resource levelling is done by using primavera software .Resource levelling is a function in Primavera Project Management that allows you to optimize the use of resources by delaying activities and adjusting resources to reduce the peaks in the histogram. If any over-allocation in resources exists, you must reduce the over-allocation resource below the maximum available. Two types of resource levelling are Automatic levelling and Manual levelling.

## 2. PROJECT DETAILS

Particulars	Description
Project name	Columbia Asia Hospital, Doddabalpur
Area	12,500 sq feet
Estimated cost	Rs 8,72,81,525
Planned start date	April 25,2015
Planned end date	Feb 20 , 2016
Actual start date	April 25,2015
Actual end date	March 20, 2016
Cost at completion	Rs 7,92,81,525

In this study the resource management features are classified under six categories which are the best practices of primavera in which helps in the project management . All these seven features are explained below.

### 3. METHODOLOGY

#### 3.1 Resource Library With Roles

This is the complete list of all the resources which are used in the project with their roles. In our study , roles like safety

engineer and quality engineer are assigned to engineer 1 and engineer 2 respectively. When unlimited number of resources are defined , roles are assigned to an activity defines the activity's skill requirements .

Resource ID	Resource Name	Resource Type	Unit of Measure	Primary Role	Default Units / Time
Resource 1	Project manager	Labor			1/d
Resource 2	Water proofing material	Material	meter square		10/d
Resource 3	Site engineer	Labor			1/d
Resource 4	Elevator machine	Nonlabor			1/d
Resource 5	Plumbing materials	Material	meter square		10/d
Resource 6	Glass	Material	meter square		10/d
Resource 7	wires and other electrical connections	Material	RFT		10/d
Resource 8	Design engineer	Labor			1/d
Resource 9	Engineer 1	Labor		Safety engineee	8/d
Resource 10	Engineer 2	Labor		Quality engineer	8/d
Resource 11	Painter	Labor			1/d
Resource 12	Plumber	Labor			8/d
Resource 13	AC pipes	Material	RFT		10/d

Fig 1. Resource library with roles

#### 3.2 Resource Usage Profile

The graphical representation of a particular resource in terms of project duration versus units and costs. Resource usage profile can be represented monthly, quarterly, weekly

and daily. The below figure shows the usage of a particular resource ( project manager ) in terms of project duration and units. Red colour indicates over allocation and it can be levelled .

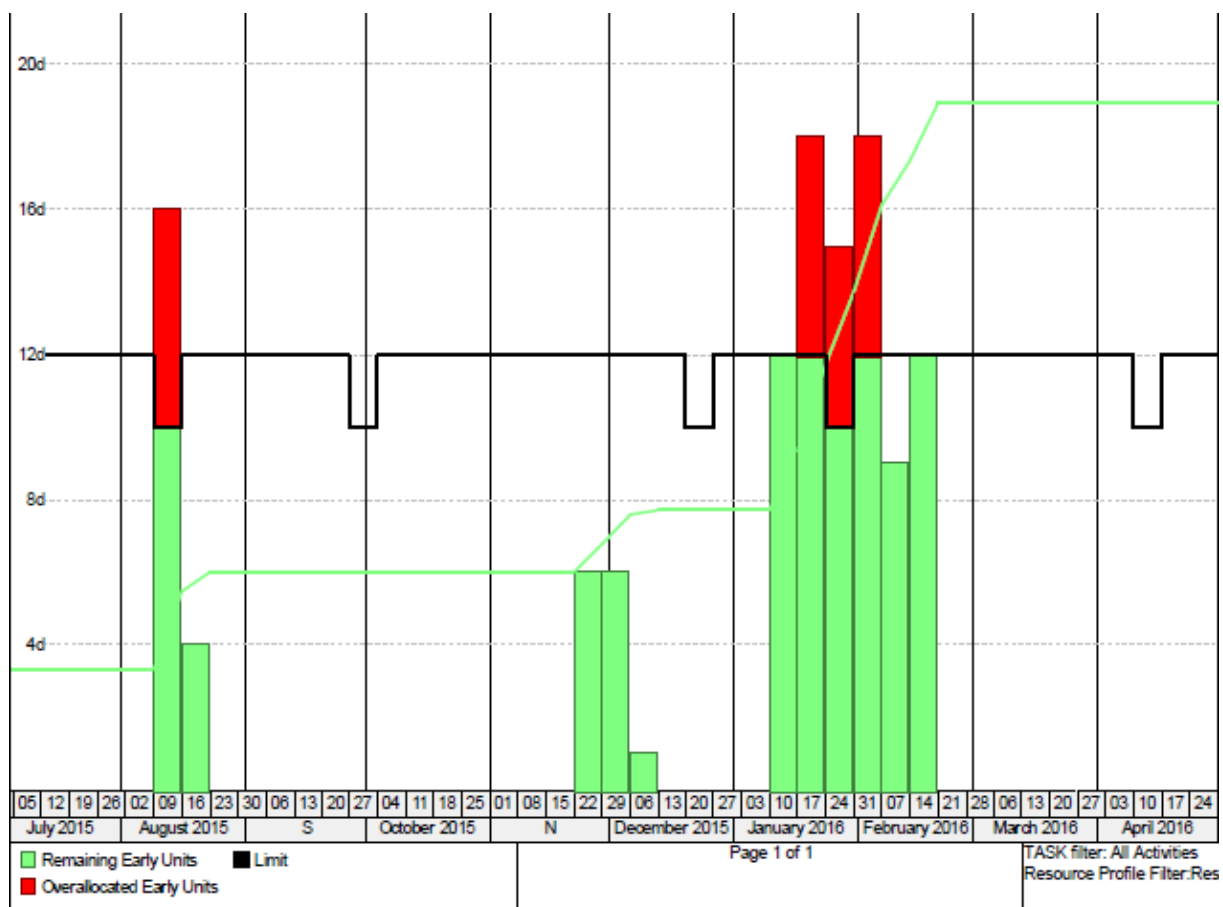


Fig 2. Resource Usage profile of project manager



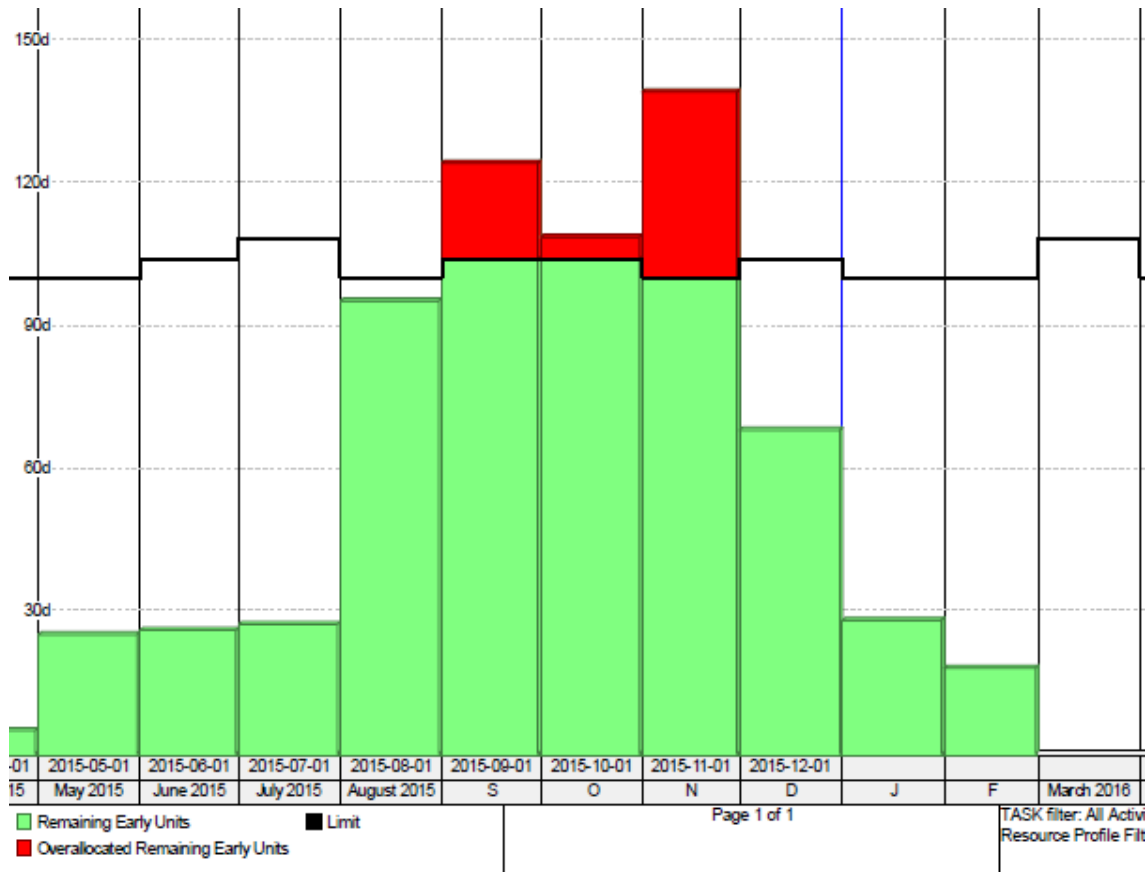


Fig 5. Over-allocation of site engineer

Over allocation is levelled by using resource levelling technique and is as shown in the fig below.

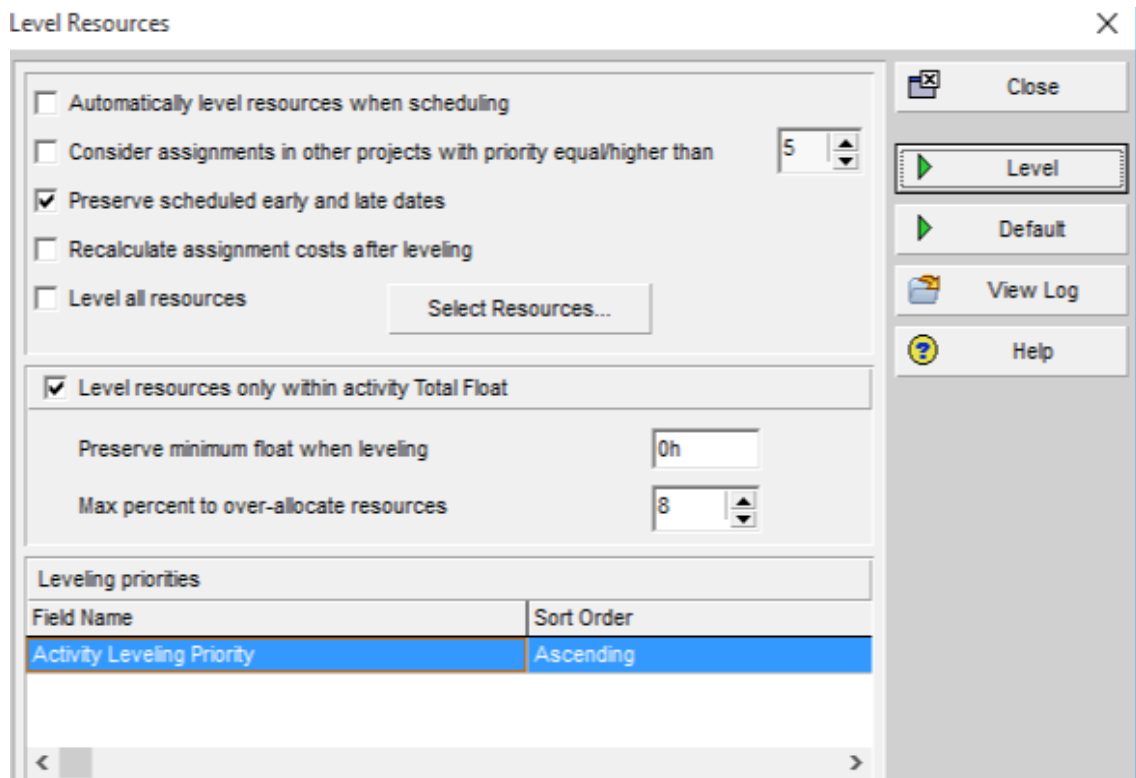


Fig 6 Procedure for resource levelling

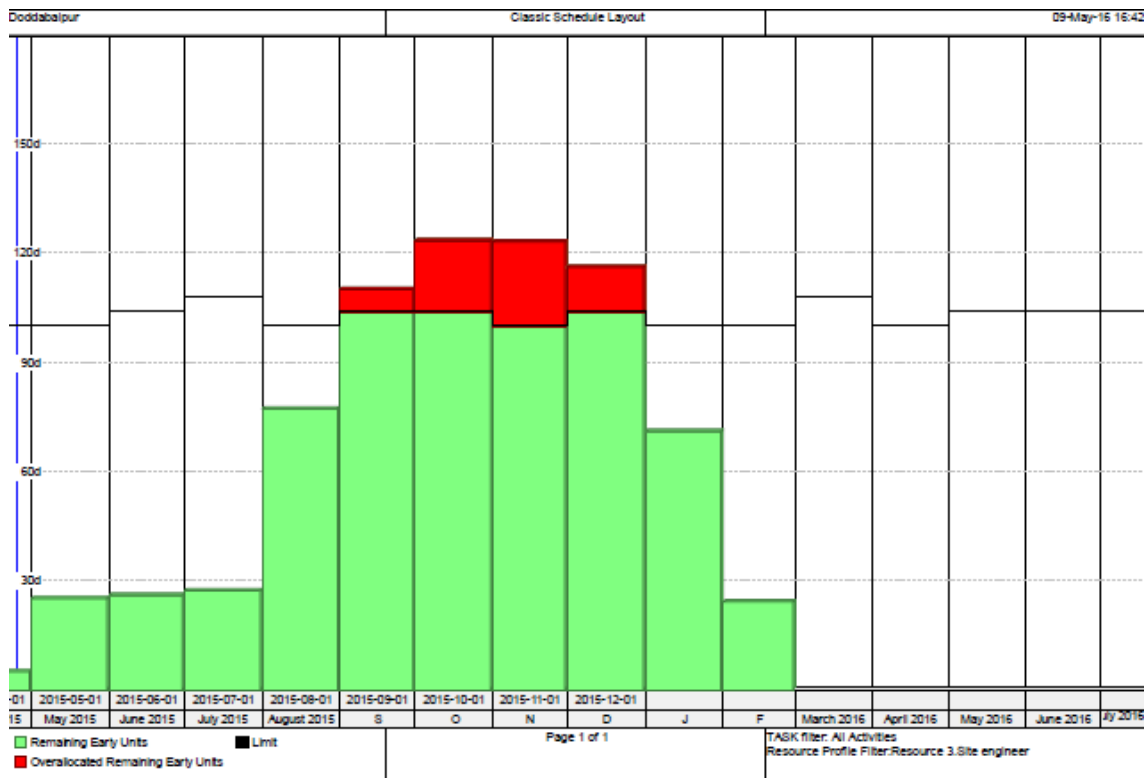


Fig 7 Resource ( site engineer ) is levelled.

**Benefits of resource levelling**

- 1 Balances resources, reducing over allocation and overtime.
- 2 Validates schedule.

**3.6 Activity Usage Profile**

It indicates the capital and units combined with the tasks. In order to know the units for all the activities in the project it is used and is shown in the figure below .

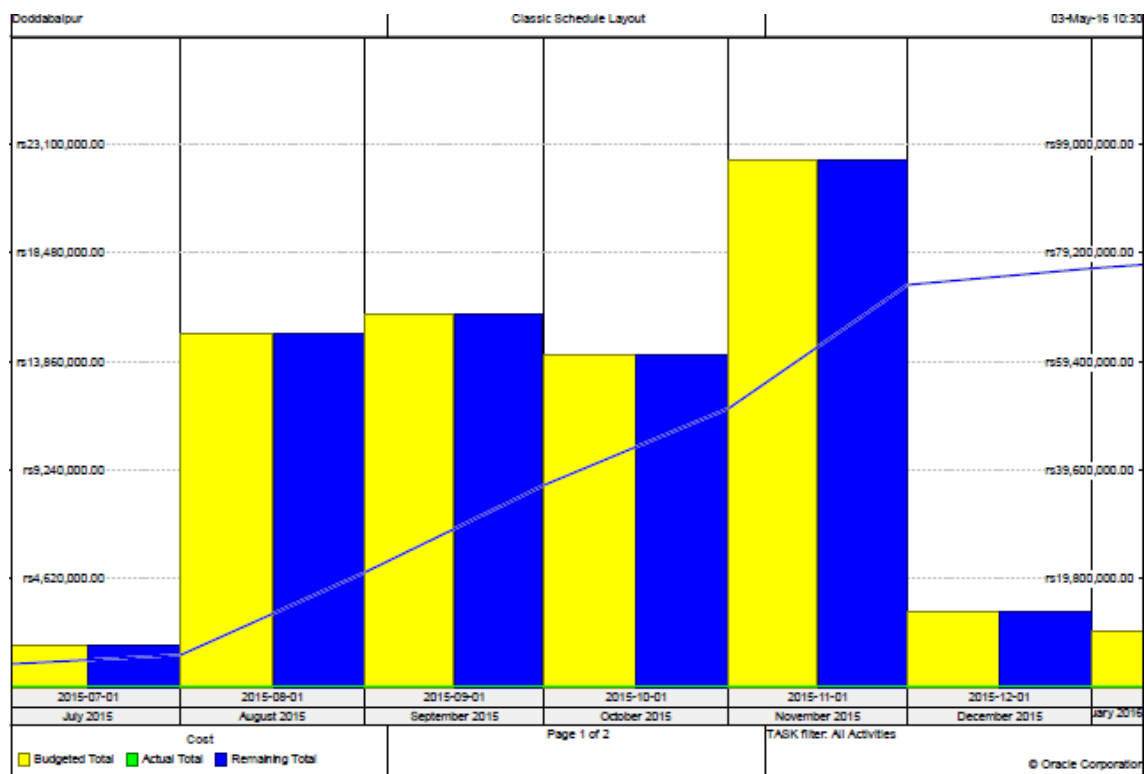


Fig 8 Activity Usage Profile

## CONCLUSION

Based on study carried out on the best features of primavera in resource management, it is concluded that primavera can be used as a time consuming tool in the construction projects by the following reasons:

1. Resource library and roles helps to identify the issues and risks easily and earned value analysis can be found out easily.
2. Tracking of the project and over-allocation can be found out easily by resource usage profile.
3. Resource Usage Spreadsheet helps to manually plan the future distribution of resources.
4. Stacked Histogram helps to view and analyse the resource trends.
5. Project can carried out on schedule and cost and helps in reducing the delays. Therefore it is economic.
6. Activity Usage profile helps in analyzing the performance of the project.

Hence by this study we can conclude that primavera can serve as good marketing tool in the construction industry.

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## BIOGRAPHIES

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