

PROJECT REPORT

Implementation of Project Management in A.J. Corporation Using Primavera

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M.S. PROJECT MANAGEMENT

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It is certified that **Mr. Mian Mubashar Rafique** from Bahria University, has successfully completed his module of Primavera while working at AJ Corporation Lahore. Undersign admit that all the information is correct regarding Project.

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Chapter-1 Introduction

A. Project Management

i. Project Management Terms and Concepts

Following are the terms and concepts involved in project management

- Definition of a project
- Task
- Resource
- Schedule
- Risk Analysis and Risk Management
- Scope and scope creep
- Critical path
- Estimating project duration and costs

ii. Project Definition

A clear and accurate **project definition** is critical to the success of a project. The definition process consists of setting clearly defined **objectives**, determining the key **success criteria** and evaluating the **risks** involved. The final outcome should be a **Project Definition** document, sometimes referred to as a **Project Charter**.

The **Project Definition** should include a statement of the **business need** that the project aims to address and a description of the product, service or other deliverables that will be its **output**. It can be constructed by asking a series of questions:

- What is the purpose, or project mission, i.e. the reason for doing the project?
- What are the goals, i.e. what targets does the project aim to achieve.
- What is the scope of the project, i.e. how will the organization gain?
- What are the quality standards and performance criteria?
- What are the measurable objectives of the project?
- What are the key success criteria?
- What are the project deliverables?
- What are the project constraints, e.g. time, resources, performance criteria?
- What risks are involved?

The project definition process produces the information needed to begin constructing a **Project Plan**.

iii. Task Definition

A **task** is an activity that needs to be accomplished within a defined period of time. Tasks are generally pieces of work that require effort and resources and have a concrete outcome or deliverable. In theory a task can be of any size. Indeed, a project could be regarded as a very large task.

Tasks take place over a period of time and usually consume resources. Projects are made up of tasks, sometimes grouped together into **work packages**. In practice, the term task can be applied to almost any project activity. Task durations can be long or short and there can be huge variations in costs and resource requirements.

The deliverables from many small tasks may be combined together to create the deliverable for a larger task. For example, a project manager may be allocated the task of producing a project plan. This task may involve obtaining information from a number of people. Each meeting could be regarded as a task in its own right. Some of the people the project manager meets with may also have to carry out tasks themselves in order to provide the required information.

iv. Resource Definition

Resources can be defined as the personnel, equipment, materials and services required to complete tasks in a project.

- **Personnel** are the people employed to the organization to work on a project or task.
- **Equipment** is the machinery allocated to the project, whether mechanical or electronic, e.g. engineering machines, computers.
- **Materials** are the property that may be included in or attached to a deliverable or consumed or expended in performing a task. They include assemblies, components, parts, fuels and lubricants, raw and processed materials, and small tools and supplies.
- **Services** are areas where labor is expended without producing a tangible commodity, e.g. accounting, secretarial or legal services.

v. Schedule Definition

A **schedule** is a timeline of events and activities which can be used as an operating timetable. It can be presented on a calendar framework or on an elapsed time scale and specifies the occurrence, times of events and the relative start and finish times of activities.

The schedule specifies the timing and sequence of tasks within a project, as well as the project duration. It consists mainly of tasks, dependencies among tasks, durations, constraints and time-oriented project information.

A display of project time allocation, in the form of milestones, deliverables, activities or Gantt charts, is often referred to as the **project schedule**.

vi. Risk Analysis and Risk Management

A **risk** is an event, which is **uncertain** and has a **negative impact** on some activity.

Risk analysis is the process of quantitatively or qualitatively assessing risks. It involves estimating both the uncertainty of the risk and its impact.

Risk management is the use of risk analysis to devise management strategies to reduce risk.

In project management, these techniques are used to address the following questions:

- Will the project go over schedule? (Schedule Risk)
- Will the project overrun its budget? (Cost Risk)
- Will the output of the project fail to satisfy the goals? (Performance Risk)

At the beginning of a project and throughout its duration, the answers to these questions are unknown, but a 'yes' answer to any of them is obviously undesirable. Each of these elements should therefore be subjected to a **risk analysis**, to help project managers decide whether the project is in danger of failing to meet its commitments and whether or not anything can be done to improve the project's chances of success.

vii. **Schedule Risk**

Schedule risk is the risk that the project takes longer than scheduled. It can lead to cost risks, as longer projects always cost more, and to performance risk, if the project is completed too late to perform its intended tasks fully. Apart from the cost estimation and resource allocation used in CPM, most of the techniques used in quantitative cost risk analysis are different from those used in schedule risk analysis.

The earliest technique used for schedule risk analysis was the **Gantt Chart**, developed by Henry Gantt in 1917. A Gantt chart gives a graphical summary of the progress of a number of project activities by listing each activity vertically on a sheet of paper, representing the start and duration of each task by a horizontal line and then representing the current time by a vertical line. This makes it easy to see where each activity should be and to show its current status.

Many tasks require that prior tasks are completed before they can be initiated, but unfortunately, Gantt charts are not a good method of showing the **interrelationship** between tasks, so computers must be used to set up and maintain the network of tasks. One commonly-used technique is **Program Evaluation Review Technique (PERT)** which uses a detailed diagram of all anticipated tasks in a project, organized into a network to represent the dependence of each task on those that must precede it.

PERT can be used to analyze the tasks involved in completing a project, especially the duration of each task, and identify the minimum time needed to complete the total project. PERT makes it possible to schedule a project without knowing the precise details and durations of all the activities.

The **Critical Path Method (CPM)** is a similar project planning and management technique which also uses a network representation. Earlier versions did not try to estimate probability distributions for task durations, making it easier to derive the critical path, i.e. the set of tasks that determined the final project length. Various enhancements were made to CPM to allow alternative resource allocations to be explored, within specified cost constraints.

The increasing availability of computing power allowed led to the inclusion of probability distributions for task durations in CPM. This allowed **Monte Carlo** simulation to be substituted for the PERT assumptions. (Monte Carlo simulations are a type of algorithm used to simulate the behavior of systems. They are described as **stochastic** or **nondeterministic** because they are based on the use of random numbers. A **stochastic model** is a method of estimating probability distributions of potential outcomes by allowing for random variation in one or more inputs.

viii. **Cost Risk**

Cost risk is the risk that the project costs more than budgeted. It can lead to performance risk if cost overruns lead to reductions in scope or quality. Cost risk can also lead to schedule risk if the schedule is extended because not enough funds are available to complete the project on time.

The main technique used for cost analysis of complex projects is based on the **Work Breakdown Structure (WBS)** which organizes project tasks into hierarchical stages or phases.

WBS is a project management technique for defining and organizing the total scope of a project using a hierarchical tree structure. The first two levels, known as the **root node** and **Level 2**, define a set of planned outcomes representing the entire project scope. At each subsequent level, the children of a parent node represent the entire scope of their parent node.

A well-designed WBS describes planned outcomes instead of planned actions. Outcomes are the desired ends of the project and can be predicted accurately, whereas actions make up the project plan and may be difficult to predict accurately. A well-designed WBS makes it easy to assign any project activity to one and only one terminal element of the WBS.

WBS cost estimation attaches a cost to each component and sums these to obtain a total. Experts in relevant areas are asked to specify a probability distribution for each part of the WBS and then Monte Carlo simulation is used to estimate a probability distribution for the total project cost.

ix. **Performance Risk**

Performance risks include the risks that the completed project, when complete, fails to perform as intended or fails to meet business requirements that justified it. Performance risks can lead to schedule and cost risks if technological problems increase the duration and cost of the project.

The methods used for schedule and cost risk analysis are similar for all types of projects, but methods of performance risk analysis can depend more on subject area. Quantifying the relationships between different aspects of performance can be difficult.

There have been some attempts to construct quantitative estimates of performance risk, e.g. for aerospace systems, but current practice seems to be to use a mix of quantitative methods and models.

x. Scope and Scope Creep

The **scope** of a project is the sum total of all project products and their requirements or features. Sometimes scope is used to refer to the totality of work needed to complete a project.

The primary tool to describe a project's scope is the **work breakdown structure**. If requirements are not completely defined and described and if there is no effective change control in a project, **scope or requirement creeps** may occur.

Creep is a problem that occurs in project management where the initial objectives of the project are placed in jeopardy by a gradual increase in overall objectives as the project progresses.

Addition in Scope without approval of Integrated Change Control Board or uncontrolled Scope is called "**Scope Creep**". **Scope Creep** refers to uncontrolled changes in a project's scope. It can happen when the scope of a project is not properly defined, documented and controlled and can result in time or budget overruns.

Scope creep can involve a **scope increase**, consisting of new products or new features of existing products. This can happen if the project team drifts away from its original purpose. Scope creep is often a result of weak project management, poor change control or incorrect identification of the products and features required to achieve project objectives.

xi. Critical Path

Critical Path Analysis (CPA) is an effective method for planning and managing projects. "It is the path of 0 Total Float through the project."

The critical path analysis represents what tasks need done, and when they need done, as a diagram. Timescales and costs can be attached to each activity and resource. This is a fairly trivial example which only shows a few activities taking place over a few minutes. Real business projects are likely to have far more activities and to take place over weeks or months.

A spreadsheet like Microsoft Excel or a specialized project management package like Microsoft Project can be used to carry out Critical Path Analysis.

- No Project Deadline
- No Constraints
- No Actuals

xii. Longest Path

The Longest Path is the path through a project network from start to finish where the Total Duration is longer than any other path. The Longest Path is a Critical Path, but not all Critical Paths are the Longest, Because we can alter Critical Path through constraints, actuals, deadlines and other mechanisms, often we end up with a path that has more Critical activities than would be on the Longest Path.

xiii. Gantt Charts

Gantt Charts are a very useful tool for project management. Project management packages like Microsoft Project generally offer a Gantt chart function, but you can easily construct one using Excel or a similar spreadsheet. A Gantt chart can be used to keep track of progress for each activity and how the costs are running.

Create a time-line for the duration of the project. Each activity is represented by a separate line. In our Breakfast example the timescale is given in minutes, but normally you would use weeks, or even months, for long-term projects. We can color code the time blocks to denote type of activity, e.g. intense, watching brief, directly managed, delegated and left to run, and you can schedule review and break points. You can also move the time blocks around to report on actual versus planned, to re-schedule and to create new plan updates.

At the end of each line you can show as many cost columns as required for the activities. Our Breakfast example shows **Capital Cost (Cap)** of the consumable items and the **Revenue Cost (Rev)** for labor and fuel. Cost columns can show planned and actual expenditure and variances, and calculate totals, averages, ratios, etc.

Gantt Charts are flexible and useful project management tools, but they do not show the importance and inter-dependence of related parallel activities, and they don't show the need to complete one task before another can begin, like a critical path analysis. Both tools are necessary, especially at the planning stage.

xiv. Estimating Project Duration and Costs

The **duration** of a project can only be estimated once you know what resources are available, for example, if a project is estimated to require 1000 hours of effort and only one person is available to work on it, it may take six months or more. However, if three people are available, it may be possible to complete the project in two months.

Costs are normally split into labor costs and non-labor costs. The labor cost can be determined by examining the number of hours of effort required and the cost per hour. If you are using **external labor**, e.g. contractors or consultants, the costs should be estimated and budgeted in advance. This is straightforward if you already know your exact requirements, but if the final staffing requirements are not yet known you may need to make some assumptions based on the general type of staff required, e.g. use standard hourly cost for accountants, programmers, office administrators.

Methods of calculating the costs of **internal labor** vary from company to company. In some cases, the labor costs for internal employees are assumed to be zero, since they are already accounted for in a departmental budget. This does not mean that there is no cost; it simply means that there are no further costs in addition to what the company is already paying. Other companies use an **average hourly cost** per employee when calculating project budgets. This may be an average cost per hour for all employees or it may vary depending on job function.

Non-labor costs include everything not directly related to salary or contractor costs. Some of these, such as training and team-building costs are employee-related, but they are not regarded as labor costs as they do not relate directly to employee salary or contractor costs. Every project manager should be familiar with the accounting rules in

his or her own company to ensure that labor and non-labor costs are allocated correctly. Non-labor costs generally include:

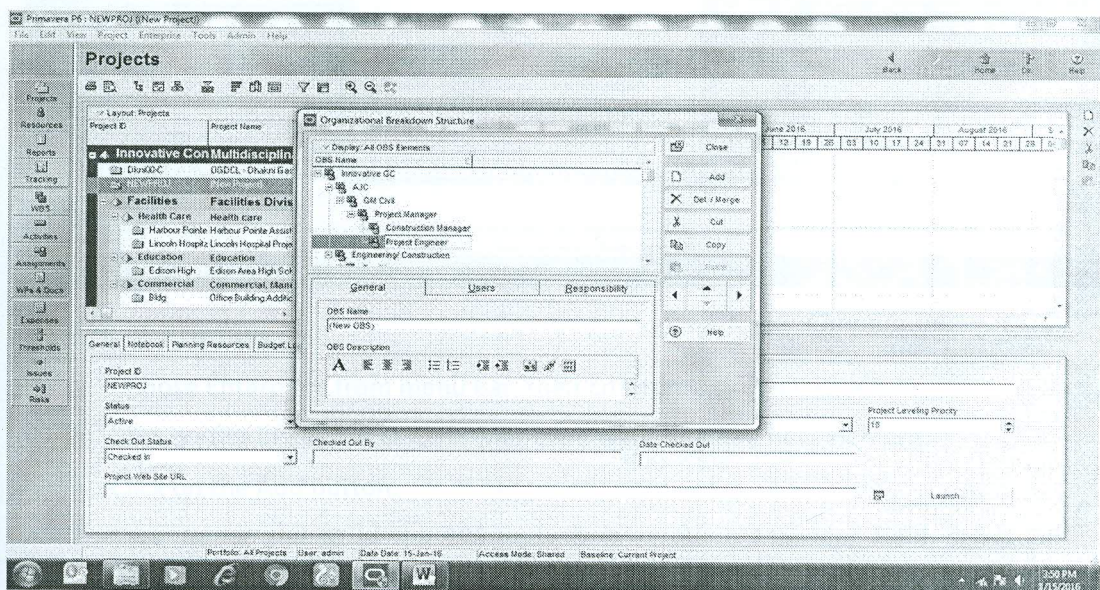
- Hardware and software
- Equipment
- Materials and supplies
- Travelling expenses
- Training
- Team building
- Facilities

If parts of a project are **outsourced**, this is normally regarded as a non-labor cost since the company is paying for deliverables and is not concerned about the supplier's labor costs.

B. Primavera

i. Organizational Breakdown Structure (OBS)

OBS is the hierarchical structure used to depict the organizations structure on the software. The Organizational Breakdown Structure (OBS) defines how people within a company are organized and what rights and access they have within projects. For example, a company that builds ships may have different facilities, with different staff at each facility. Yet certain functions such as the executive team or IT support may span the different facilities. The OBS reflects the chain of command within the company. It can often mirror the EPS, but the two may also diverge. The specific OBS elements may be a mix of specifically named people, business units, departments, and specialties. The OBS and EPS are interconnected such that the OBS can be used to apply security roles and access all projects.

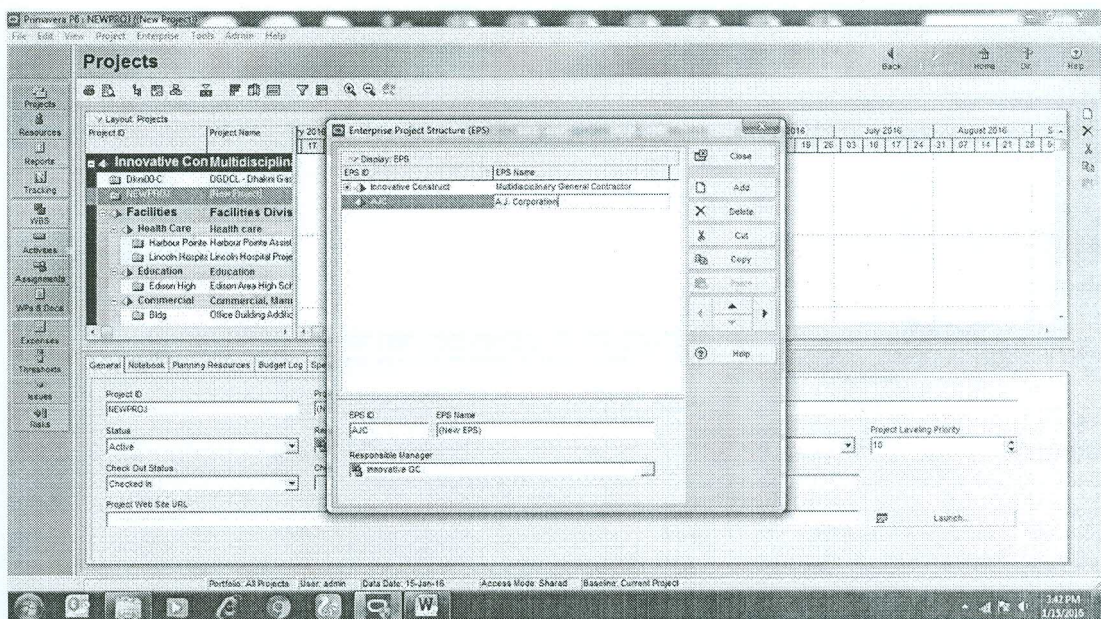


a. OBS in Primavera

1. Go to Enterprise from menu bar & select OBS.
2. Using Add button, we can add as many OBS as we want.
3. Enter the name of the OBSs.
4. Hierarchy of OBS can be changed by using arrow keys.
5. Close the OBS window after adding OBS.

ii. Enterprise Project Structure (EPS)

The EPS is the outsider's view of your company, showing your lines of business. The EPS is laid out in a tree structure. A construction company may have an EPS tree with only two nodes: Development, for work on existing sites and Construction, for new sites. Or an oil company may split their work first between Natural Gas and Heavy Oil. The structure may be broken down further. For example, Heavy Oil may be broken down into Primary, Cold EOR, and Thermal. The idea is that all projects under an EPS node share common characteristics and may be managed by the same team.



a. EPS in Primavera

1. Choose Enterprise from menu bar, then Enterprise project Structure.
2. Click on the EPS name column where we want to add a new element.
3. Click on the Add button.
4. Type Name and ID of the EPS node & in resource Manager Field, select OBS element for new element.

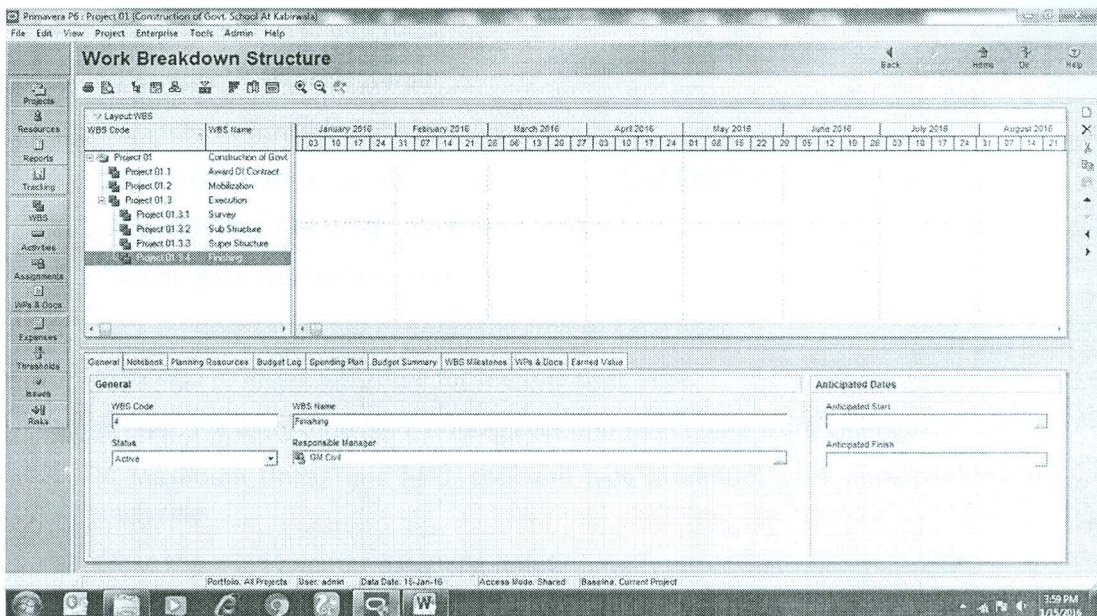
5. Hierarchy can be changed by using arrow keys.
6. Close the EPS window, go to Enterprise then Projects and specify the project details of budget, resources and dates etc.

iii. Creating Project in Primavera

1. Go to File in the menu bar, and select new.
2. Select EPS in Create New Project window.
3. Enter Project ID & Project Name.
4. Click on Finish Window to create a new Project.

iv. Work Breakdown Structure (WBS)

Within a project, activities can be grouped, filtered, planned, and organized by Work Breakdown Structure (WBS). The WBS classifies all of the deliverables of a project and is often formed into a hierarchy with an increasing level of detail. How WBS is defined varies by company and by project, but having a well-planned WBS is a key first step to implementing good project controls.



a. WBS in Primavera

1. Click on Project from menu bar, Select WBS.
2. Select Add from the command bar, or right click or insert from the keyboard to add a new level on the WBS.
3. Use arrow keys for adjustments.
4. Close the WBS window.

v. Roles

Roles are project personnel job titles or skills, such as mechanical engineer, inspector, or carpenter. They represent a type of resource with a certain level of proficiency rather than a specific individual. Roles can also be assigned to specific resources to further identify that resource's skills. For example, a resource may have a role of an engineer and manager.

We can create a set of roles to assign to resources and activities in all projects in the enterprise. We can establish an unlimited number of roles and organize them in a hierarchy for easier management and assignment. The set of roles you assign to an activity defines the activity's skill requirements. We can also define unique price per unit rates for each role for accurate cost planning.

We can temporarily assign roles during the planning stages of the project to see how certain resources affect the schedule. Once we finalize your plans, you can replace the roles with resources that fulfill the role skill levels. Five proficiency levels can be assigned to roles: Master, Expert, Skilled, Proficient and Inexperienced. Roles can be assigned in the Resource Details window or from the Roles dialog box.

a. Roles in Primavera

1. Click on Enterprise from menu bar, and then select Roles.
2. Click Add button to add roles.
3. Enter Role ID and role Name.
4. Hierarchy can be adjusted by using arrow keys.
5. In description detail window, type description of Role's Responsibility.
6. Click on Prices Tab to add price of each Role.
7. Click on Rate type field to enter the Rate.
8. Click on Role Limits tab to enter the limit of Each Role.
9. Click Add to insert unit/time for the role over time.
10. In Effective date/time field, double click and select date from Calendar.
11. In Maximum Units/Time field, click and type maximum work units per time for each role.
12. Close the window after Assigning Roles.

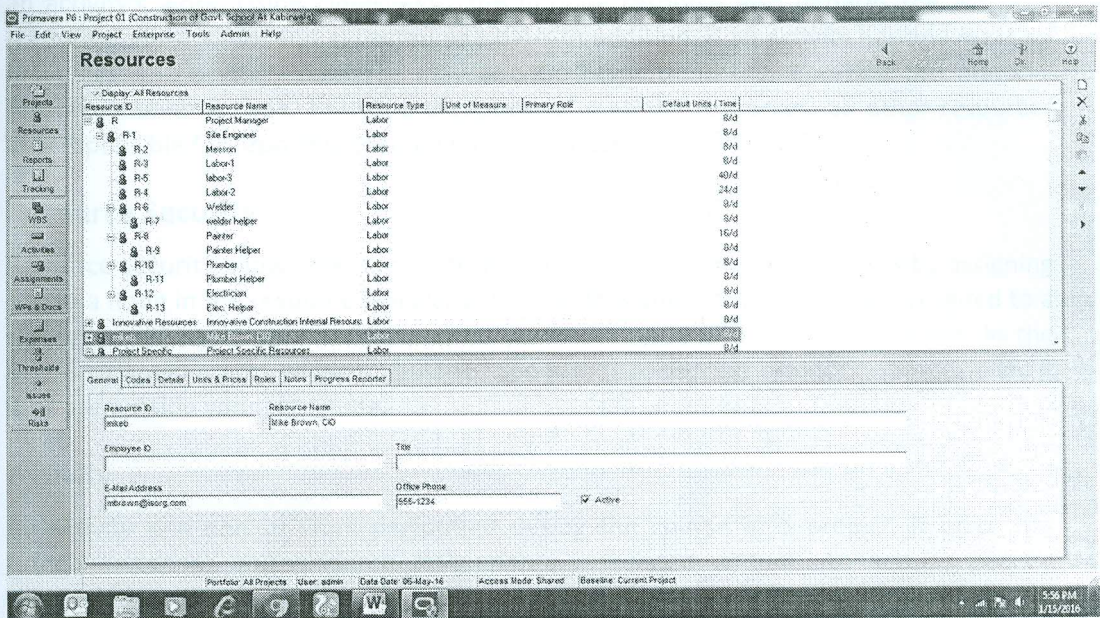
vi. Resources

Resources include the personnel and equipment that perform work on activities across all projects. Resources are generally reused between activities and/or projects. In the Project Management module, we can create a resource pool that reflects our organization's resource structure and supports the assignment of resources to activities. The PM module also enables us to distinguish between labor, material, and non-labor resources. **Labor and non-labor** resources are always time-based, and material resources, such as consumable items, use a unit of measure you can specify. We can create and assign resource calendars and define a resource's roles, contact information,

and time-varying prices. If a resource uses Timesheets, we can also assign a login name and password to the resource.

Define a master list of resources consisting of the resources necessary to complete the project, and then group resources to create an easily accessible pool from which we can draw when assigning resources to a project. For each resource, set availability limits, unit prices, and a calendar to define its standard work-time and non-work time, then allocate resources to the activities that require them. To enable grouping and rollups of our resources across the organization, set up resource codes and assign code values.

Resources are different than expenses. While resources can be time-based and generally extend across multiple activities and/or projects, expenses are one-time expenditures for non-reusable items required by activities. The PM module does not include expenses when leveling resources.



a. Resources in Primavera

1. First enable New Resource Wizard by clicking on Edit button from menu bar, select User Preferences access the "Assistance" tab & then check the box to enable the wizard.
2. Go to Project from menu tab, and then select Resource Assignments or Select Resources from Directory bar.
3. Click Add button on the command bar.
4. Enter Resource ID and Name and Click Next.
5. Specify the type of resource (labor, non-labor, or material).
6. Enter the unit price, default units per day & maximum units per day for the new resource.
7. Enter the office telephone & email.

8. Assign "Roles" to the new resource. We can assign multiple roles, identify the proficiency of the resource when performing the role, and designate the "Primary Role" for the resource.
9. Select the resource calendar. We can choose from a list of existing calendars or we can create a new calendar.
10. Identify whether to "auto-compute actuals" for the resource.
11. Enter information for the Progress Reporter.

vii. Primary Resources

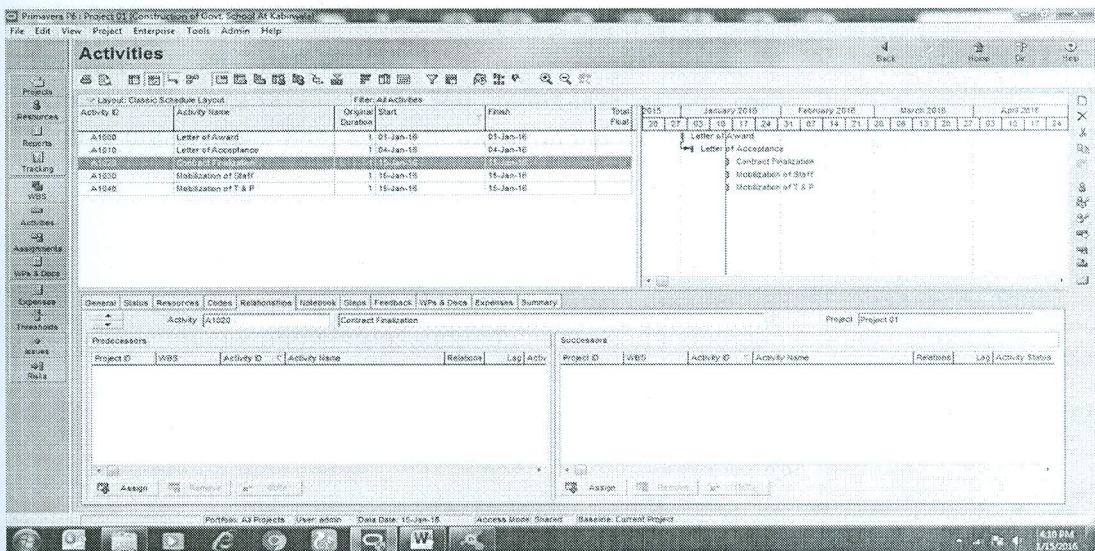
The Project Management module allows you to assign primary resources to activities. An activity's primary resource is typically the resource that is responsible for coordinating an activity's work. Using Timesheets, the primary resource also updates the activity's start date, finish date, and expected end date. In addition, if an activity has any material resources, the primary resource may also be responsible for reporting the material resource's units as well. With the exception of material resources, all other resources are responsible for reporting their own hours for assigned activities.

viii. Resource Security

Resource security allows the administrator to restrict your resource access by assigning you to a node in the resource hierarchy. That node is your root node. Once assigned to a resource node, you have access only to your root node and all of its children. In the Resource Assignments window you still have access to current project resources even if they are outside your root node.

ix. Activity

An activity is a unit of work performed during the course of a project. It often has activity expenses and resource assignments associated with it. An activity can be subdivided into activity steps. An activity has a parent WBS object, but WBS objects are not required to have activity children.



a. Activity codes in Primavera P6

Oracle Primavera P6 provides the capability to setup and assign Activity Codes to activities in your projects. Activity Codes are used to classify, categorize, and organize activities based on your organization's reporting needs. Activity Codes are usually created and assigned at the beginning of the project. For example, if you subcontract the majority of your project activities, you may want to setup an activity code entitled "Subcontractor". You can then establish the set of all Subcontractors that might be used (i.e. activity code values). The Activity Codes can be assigned to activities and used to categorize, organize, group and sort, and filter activities to support your reporting needs.

b. Activity Codes can be used for the following:

- Group and sort activities into specific categories in the activity table & layouts
- View summary bars on the Gantt Chart based on activity code values
- View and roll up activities in the activity table
- Summarize activities
- Filter activities
- Build reports in the wizard or editor
- Examples of activity codes include Phase, Location, Responsibility, Subcontractor

c. Activity codes can be setup at three levels:

Global – Users can create an unlimited number of global activity codes, which are available to all activities in your P6 database. This level enables you to organize activities within a single project or across the entire enterprise project structure (EPS).

EPS – These codes are available to activities within an EPS node. Users are able to create an unlimited number of EPS level codes. Activities can be organized within a single project or across all projects sharing a common EPS node.

Project – Codes are available to activities in the project in which the codes are created. Users can create up to 500 project-level activity codes. Project codes allow you to organize and filter activities based on unique project reporting requirements.

d. Activity Types

An Activity may be assigned one of the following default Activity Types using the drop down box in the Project Defaults tab:

- Finish Milestone
- Level of Effort
- Resource Dependent
- Start Milestone
- Task Dependent
- WBS Summary

Task Type	Description
Task Dependent	These Activity Types have duration and will only calculate the duration using the assigned calendar even when one or more resources are assigned to an activity.
Resource Dependent	<p>These Activity Types have duration and will calculate the duration only using the calendar assigned to the activity when NO resources are assigned to the activity.</p> <p>These activities acknowledge Resource Calendars when resources are assigned.</p> <p>This is similar to an Independent Activity Type in P3 and SureTrak.</p> <p>They acknowledge the Activity calendar to calculate the Early Start date.</p>
Level of Effort LOE	This Activity type is similar to P3 and SureTrak Hammock activities. It spans from the start or finish of one or more predecessor activities to the start or finish of one or more successor activities which are linked by relationships.
Start Milestone	A Start Milestone has a start date and no finish date and is scheduled at the start of a time period and may not be assigned Resources.
Finish Milestone	<p>A Finish Milestone has a finish date, no start date and is scheduled at the end of a time period and may not be assigned Resources.</p> <p>Changing a milestone from Start to Finish would not affect a schedule when all the tasks are on one calendar but would move the milestone from the start of a day to the finish of the previous day.</p>
WBS Summary	This Activity type calculates in the same way as P3 and SureTrak WBS activities and they span all activities with the same WBS code, but without relationships that are used with LOEs.

x. Schedule

The project schedule is the tool that communicates what work needs to be performed, which resources of the organization will perform the work and the timeframes in which that work needs to be performed. The project schedule should reflect all of the work associated with delivering the project on time.

Essentially, driving without any idea of how you're going to get there is the same as working on a project without a schedule. No matter the size or scope of your project, the schedule is a key part of project management. The schedule tells you when each activity should be done, what has already been completed, and the sequence in which things need to be finished.

Luckily, drivers have fairly accurate tools they can use. Scheduling, on the other hand, is not an exact process. It's part estimation, part prediction, and part "educated guessing."

Because of the uncertainty involved, the schedule is reviewed regularly, and it is often revised while the project is in progress. It continues to develop as the project moves forward, changes arise, risks come and go, and new risks are identified. The schedule essentially transforms the project from a vision to a time-based plan.

Schedules also help you do the following:

- They provide a basis for you to monitor and control project activities.
- They help you determine how best to allocate resources so you can achieve the project goal.
- They help you assess how time delays will impact the project.
- You can figure out where excess resources are available to allocate to other projects.
- They provide a basis to help you track project progress.

a. Schedule Inputs

Several types of inputs are required to schedule the project.

- **Personal and Project Calendars** – Understanding working days, shifts, and resource availability is critical to completing a project schedule.
- **Description of Project Scope** – From this, you can determine key start and end dates, major assumptions behind the plan, and key constraints and restrictions. You can also include stakeholder expectations, which will often determine project milestones.
- **Project Risks** – You need to understand these to make sure there's enough extra time to deal with identified risks – and with unidentified risks (risks are identified with thorough Risk Analysis).
- **Lists of Activities and Resource Requirements** – Again, it's important to determine if there are other constraints to consider when developing the schedule. Understanding the resource capabilities and experience you have available – as well as company holidays and staff vacations – will affect the schedule.

A project manager should be aware of deadlines and resource availability issues that may make the schedule less flexible.

b. Scheduling Tools

Here are some tools and techniques for combining these inputs to develop the schedule:

- **Schedule Network Analysis** – This is a graphic representation of the project's activities, the time it takes to complete them, and the sequence in which they must be done. Project management software is typically used to create these analyses – Gantt Charts and PERT Charts are common formats.
- **Critical Path Analysis** – This is the process of looking at all of the activities that must be completed, and calculating the 'best line' – or critical path – to take so that you'll complete the project in the minimum amount of time. The method calculates the earliest and latest possible start and finish times for project activities, and it estimates the dependencies among them to create a schedule of critical activities and dates. Learn more about Critical Path Analysis.
- **Schedule Compression** – This tool helps shorten the total duration of a project by decreasing the time allotted for certain activities. It's done so that you can meet time constraints, and still keep the original scope of the project. You can use two methods here:
 - **Crashing** – This is where you assign more resources to an activity, thus decreasing the time it takes to complete it. This is based on the assumption that the time you save will offset the added resource costs.
 - **Fast-Tracking** – This involves rearranging activities to allow more parallel work. This means that things you would normally do one after another are now done at the same time. However, do bear in mind that this approach increases the risk that you'll miss things, or fail to address changes.

c. Project Review

Once you have outlined the basic schedule, you need to review it to make sure that the timing for each activity is aligned with the necessary resources. Here are tools commonly used to do this:

- **'What if' Scenario Analysis** – This method compares and measures the effects of different scenarios on a project. You use simulations to determine the effects of various adverse, or harmful, assumptions – such as resources not being available on time, or delays in other areas of the project. You can then measure and plan for the risks posed in these scenarios.
- **Resource Leveling** – Here, you rearrange the sequence of activities to address the possibility of unavailable resources, and to make sure that excessive demand is not put on resources at any point in time. If resources are available only in limited quantities, then you change the timing of activities so that the most critical activities have enough resources.

-
- **Critical Chain Method** – This also addresses resource availability. You plan activities using their latest possible start and finish dates. This adds extra time between activities, which you can then use to manage work disruptions.
 - **Risk Multipliers** – Risk is inevitable, so you need to prepare for its impact. Adding extra time to high-risk activities is one strategy. Another is to add a time multiplier to certain tasks or certain resources to offset overly optimistic time estimation.

After the initial schedule has been reviewed, and adjustments made, it's a good idea to have other members of the team review it as well. Include people who will be doing the work – their insights and assumptions are likely to be particularly accurate and relevant.

d. 6 Steps to Successful Schedules

Creating a comprehensive schedule is one of the more difficult activities that project managers face. Schedule creation is often considered more art than science, and results often support this. What is often more frustrating is that team members often find themselves on one team with a project manager that creates and manages schedules a particular way and on another team with a project manager with a different approach.

Following are the 6 steps for creating a successful schedule:

Step 1: Define the Schedule Activities

Take your Work Breakdown Structure (WBS) work packages and decompose them further into schedule activities.

Take each WBS work package, and decide what activities are required to create that package. For example, if your work package is "configure new computer hardware," your schedule activities might include "set up network configuration," "install the video card," "install applications," and then "set up mail client."

Step 2: Sequence the Activities

Remember back in grade school where you were given a bunch of pictures and you had to figure out their order. You had to decide which picture represented the 1st activity, the 2nd activity and so on? Well, that is exactly what the second step is all about. In the second step we sequence the schedule activities by simply placing them in the order in which they need to happen. For example, perhaps we need to install the video card first, then set up the network configuration, install applications and then finally set up the mail client. In some cases two or more activities can be done simultaneously. Perhaps we can set up the mail client while other applications are being installed. This step is where we look at the different types of schedule dependencies such as finish-to-start, start-to-start, finish-to-finish, and start-to-finish to figure out how each of these activities relate to each other.

Step 3: Estimate the Resources Needed for the Activity

The third step involves estimating what resources will be required to accomplish each activity. This includes estimating needed team resources, financial resources,

and equipment. These resource needs should be selected for each activity prior to estimating the duration of each activity which is the next step.

Step 4: Estimating the Duration of Each of the Activities

This step requires you and your team to analyze how long it will take to accomplish each of the activities. These estimates can be quantified through the following tools:

Expert Judgment: by conferring with someone who is familiar or experienced in what it takes to accomplish a particular activity.

Analogous Estimating: a top-down estimation approach is taken by looking at similar projects within your organization for estimates on how long a particular activity should take.

Parametric Estimating: basically this is scaling an estimate. For example, perhaps you know it takes on average 10 minutes to install a software application. If the "install applications" activity includes the installation of 6 applications, you can use parametric estimation to estimate that it will take approximately 6 times 10 minutes, or 60 minutes to install all the applications.

Three point estimation: sometimes referred to as PERT analysis, is a great tool for estimating activity durations. You basically take a weighted average of a pessimistic, expected, and optimistic estimate for the activity duration. This estimate is in the form of $(\text{Pessimistic} + 4 \times (\text{Expected}) + \text{Optimistic}) / 6$

Step 5: Schedule Development

This step is the process where the sequence of activities, resources needed for the activities, and the duration of each activity is used to optimize the overall project schedule. Tools used in this process include critical path method, schedule compression, what-if scenario analysis, resource leveling, and critical chain methods. Each of these topics could have one or more articles dedicated to it, so we will not go into the detail of each.

Once the schedule is developed, it should be base lined to provide a snapshot of the original schedule plan of the plan.

Step 6: Monitoring and Controlling the Schedule

The final step is monitoring and controlling the schedule. This step is performed throughout the life of the project and ensures that the work results lines up with the schedule plan. Schedule control requires the use of progress reporting, schedule change control systems, such as the use of project change requests, performance management, and variance analysis to determine if additional action is required to get the schedule back in line with the plan

xi. Earned Value

Earned value project/performance management (EVPM) is a project management technique for measuring project performance and progress in an objective manner. It has the ability to combine measurements of the project management triangle:

- Scope
- Schedule, and
- Costs

In a single integrated system, Earned Value Management is able to provide accurate forecasts of project performance problems, which is an important contribution for project management. **Primavera P6** has the functionality to measure project performance according to cost and schedule using Earned Value measurement techniques.

a. Steps to Calculate Earned Value in Primavera

1. Add Activities, Tie Logic, Set Percent (%) complete to Physical.
2. Add Resource Assignments.
3. Maintain Baseline and Assign to Project.
4. Customize Columns for Analysis.
5. Update Physical Percent (%) complete.
6. Update Resource Actual units (Or Expenses).
7. Schedule Project, Advance Data Date.
8. Analyze Earned Value.

b. Actual Cost (ACWP)

Actual Cost (ACWP) is the actual total cost incurred on the activity as of the project data date. ACWP is the same as the Actual Total Cost.

- $ACWP = \text{Actual Labor Cost} + \text{Actual Non-Labor Cost} + \text{Actual Material Cost} + \text{Actual Expense Cost}$

c. Budget at Completion (BAC)

This is always the Total cost from the Baseline, calculated using the Baseline Budgeted Values or Baseline At Completion values depending upon the 'Earned Value Calculation' setting (Admin, Admin Preferences, Earned Value).

If the 'Earned Value Calculation' is set to 'Budgeted Values with Planned dates' or 'Budgeted Values with Current Dates':

- $BAC = BL \text{ Budgeted Labor Cost} + BL \text{ Budgeted Non-Labor Cost} + BL \text{ Budgeted Material Cost} + BL \text{ Budgeted Expense Cost}$.

If the 'Earned Value Calculation' is set to 'At Completion Values with Current Dates':

- $BAC = BL \text{ at Completion Labor Cost} + BL \text{ At Completion Non-Labor Cost} + BL \text{ At Completion Material Cost} + BL \text{ At Completion Expense Cost}$.

d. Cost Performance Index (CPI)

A CPI greater than 1 means that Earned Value is greater than the actual amount spent. A CPI of less than 1 means that the Earned Value is less than the actual amount spent.

- $CPI = EV / \text{Actual Cost}$

e. Cost Variance (CV)

Cost Variance is the difference between the Earned Value and the actual cost of that activity.

- $CV = EV - \text{Actual Cost}$

f. Earned Value Cost (BCWP or EV)

Earned Value Cost (EV) is the portion of the budgeted total cost of the activity that is actually completed as of the project data date. Also known as the Budgeted Cost of Work Performed for the activity. The method for computing the performance percent complete depends on the Earned Value technique selected for the activity's WBS.

- $EV = BAC * \text{Performance \% Complete}$

g. Estimate at Completion (EAC)

EAC is the estimated cost at completion for the activity.

- $EAC = \text{Actual Cost} + ETC.$

h. Estimate to Complete (ETC)

Estimate to Complete is the estimated cost left to complete on the activity. The calculation can be customized at the WBS level (On the 'Earned Value' tab in the WBS view).

It can be computed as either:

- $ETC = \text{Remaining Total Cost for the activity}$
- $ETC = PF * (BAC - EV)$

Where 'PF' is a multiplier to weight the ETC calculation. This can be either '1', '1/CPI' or '1/(SPI * CPI)' or user defined amount.

i. Planned Value Cost (BCWS or PV)

Planned Value Cost (PV) is the portion of the budgeted total cost of the activity that is scheduled to be completed as of the project data date according to the baseline dates. Also known as the Budgeted Cost of Work Scheduled for the activity. The Schedule % Complete specifies how much of the activity's original duration has been completed so far based on the baseline dates.

- $PV = BAC * \text{Schedule \% Complete}$

j. Schedule Performance Index (SPI)

A SPI greater than 1 means that Earned Value is greater than the Planned Value. A SPI of less than 1 means that the Earned Value is less than the Planned Value.

- $SPI = EV / PV$

xii. S-Curve

S-Curve is a display of cumulative costs, labor hours or other quantities plotted against time. A type of curve that shows the growth of a variable in terms of another variable, often expressed as unit of time.

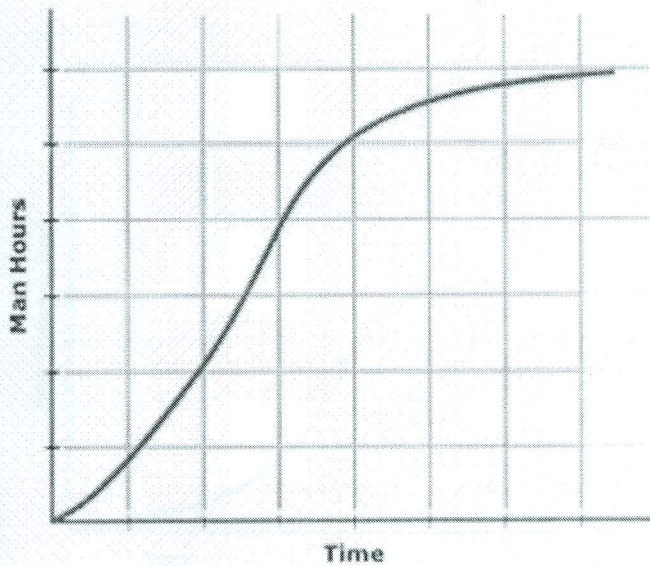
S-Curve represents the utilization of resources over the proposed time of the project. The name derives from the S-like shape of the curve, flatter at the beginning and end and steeper in the middle, which is typical of most projects. The beginning represents a slow, deliberate but accelerating start, while the end represents a deceleration as the work runs out.

a. Types of S-Curve

There are a variety of S-curves that are applicable to project management applications, including:

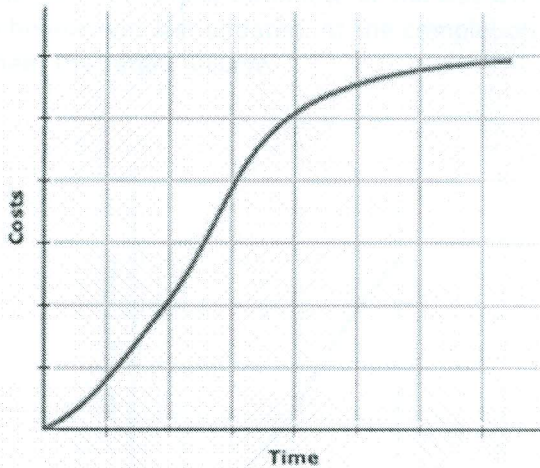
1. Man Hours versus Time S-curve

This type of analysis is suitable for projects that are estimated as labor intensive, in which the project manager has to know the cumulative amount of man hours worked at a specific stage of the project. Results of the graph will provide the basis for adjustment, whether there is underperformance that warrants additional labor force or the implementation of closer supervision.



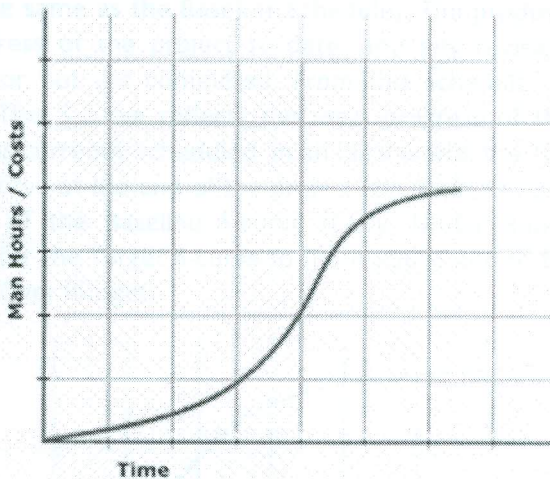
2. Costs versus Time S-curve

This type of analysis is suitable for projects that require both labor and non-labor intensive elements. The main concern here is the cumulative costs at a specific stage of the project and its effect on the cash flow as well as the potential risks of exceeding the allotted costs.



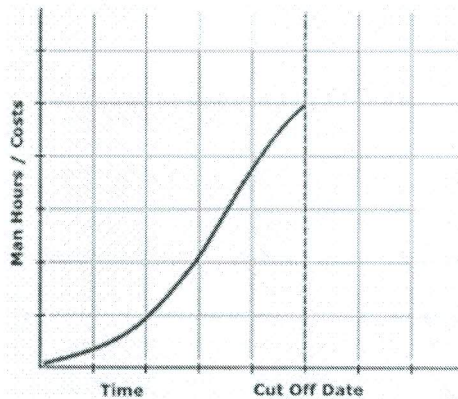
3. Baseline S-curve

This is the S-Curve against which all other S-Curves will be compared as it comprises the proposed allocation of expenditures and man hours to be used for the project's completion within a proposed duration.



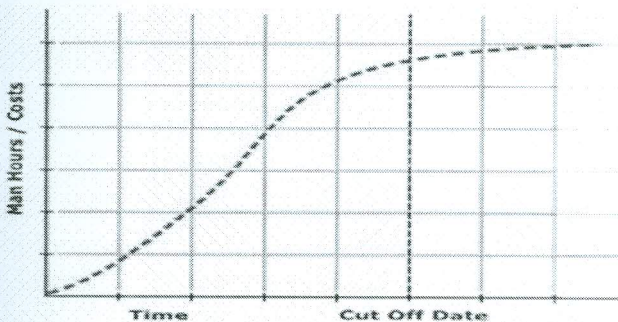
4. Actual S-curve

The production schedule is updated on a regular basis throughout the duration of the project. These updates include the revision of percentage complete for each task to date. Using this information, an Actual S-curve may be generated. This S-curve reflects the actual progress of the project to date, and may be compared with the Baseline and Target S-curves to determine how the project is progressing. During the project, the Actual S-curve will terminate at the Cut Off Date. This is the date the Production Schedule was last updated. At the completion of the project, the Actual S-curve will meet the Target S-curve.



5. Target S-curve

Following project commencement, modification of the Baseline Schedule is usually required. Changes are continually made to the Production Schedule (which is originally the same as the Baseline Schedule). The production schedule reflects the actual progress of the project to date, and any revisions made to tasks yet to commence or not yet completed. From this schedule, a Target S-curve may be generated. This S-curve reflects the ideal progress of the project if all tasks are completed as currently scheduled. In an ideal world, the Target S-curve will meet the Baseline S-curve at the end of the project (On Time, On Budget) or finish below and to the left of the Baseline S-curve (Early, Under Budget). In reality, it is not uncommon for the Target S-curve to finish above and to the right of the Baseline S-curve (Late, Over Budget).



Chapter 6

Overview of Value S-curves

6. Value and Percentage S-curves

S-curves may be graphed as absolute values (i.e. Man Hours or Costs) versus Time, or as percentage values versus Time. Value S-curves are useful for determining Man Hours or Costs expended to date, and Man Hours or Costs to complete. Percentage S-curves are useful for calculating the project's actual percentage complete against target and baseline percentage complete, and for calculating the project's percentage growth (or contraction).

The initial vision of Corporation AIC was to provide a high quality, low cost, and reputation in the field of Time S-curves. The construction of the project process starts with the initial vision of the project and the initial vision along with the structure.

AIC has a number of objectives for the project. The first objective is to execute the projects without any problems. The second objective is to ensure that the projects are planned by using modern methods of project management. The third objective is to ensure that the projects are planned by using modern methods of project management.

AIC has the concept of the project. The project is defined as follows:

The project is defined as follows:

And ensures the proper utilization of resources and the proper utilization of resources that the encountered risk is reduced to a minimum.

AJ Corporation has provided a number of services to its customers. The services include the construction of the project, leading the project, and the construction of the project. The services include the construction of the project, leading the project, and the construction of the project.

a. Vision

To become

- World class organization
- Manufacturing
- Construction Program

b. Mission statement

To provide quality, cost effective services to our customers and at least 5% cost reduction in the region.

Chapter-2

Overview of AJ Corporation

AJ Corporation established in early 1980, having the target is to become a world-class manufacturers of equipment and Construction Company with brand as fortunner, management as base, personnel as core, renovation as power, mechanism as guarantee, information as breakthrough and culture as guide. AJ Corporation is proud that with the blessing of almighty Allah moving fastly towards their splendid future with their intelligence, courage and honesty.

The initiator of AJ Corporation "Engr. Azam Bhatti" kept his professional reputation in the field of "Manufacturing and Construction" of Storage Tanks, process plants, Plant Piping, Oil & Gas Pipeline , Heavy equipment installation along-with steel structure.

AJC has batteries of equipment and their own electric generators to execute the projects without any problem at remote areas of the country. Projects are planned by using modern techniques Microsoft Project & Primavera Time Scheduling.

AJC has the concept of three "Zeros" during multiple constructions which are as follows:

ZERO INJURY
ZERO ACCIDENT
ZERO LIFE LOSS

And ensures the proper utilization of personal protective equipment (PPE's) so that the encountered risk in construction could be minimized.

AJ Corporation has provided quality construction at its best remains the main warship, leading the Company activities under one ridge, on well-defined professional, ethical grounds.

a. Vision

To become

- ✦ World-class engineering
- ✦ Manufacturing
- ✦ Construction Company

b. Mission statement

To provide quality, cost effective & reliable solutions to our valued customer and at door EPC contractor and a plant & equipment manufacturer in the region.

c. Core Values

- ✧ Profession Honor & Ethics
- ✧ Better Environment for Employee
- ✧ Growth of Individual and Human Dignity Esteem
- ✧ Leadership, Initiative and Innovation Encouragement
- ✧ Serve to Nation
- ✧ Commitment to Objective
- ✧ Teamwork
- ✧ Satisfaction of Customer
- ✧ Quality and Efficiency
- ✧ Respect for each Other

- **Major Line of business**

- **AJ Mechanical Engineering**

AJC is specialized in undertaking, designing, detail engineering, fabrication, erection, installation and commissioning of industrial plants discussed below.

- ✧ Bulk oil storage terminals/tanks as per API-650 standard.
- ✧ Thermal, Hydro and Gas Power Plants.
- ✧ Chemical Plants.
- ✧ Sugar Plants.
- ✧ Cement Industry.
- ✧ Cooking Oil Units.
- ✧ Distilleries.
- ✧ Paper industry.
- ✧ Milk plants.
- ✧ Fauji Fertilizer, Bin Qasim, Karachi.
- ✧ Oil/Gas/ Water Cross Country Pipelines.
- ✧ Oil and Gas Plant Installation.
- ✧ Oil Refineries (NRL, PRL, Attock Oil).
- ✧ Caravans for offices / Livings.
- ✧ Water Treatment and Softening Plants.
- ✧ Industrial Infrastructures.
- ✧ Specialized in Electric Arc, TIG, MIG and Gas welding (Radiographic-Standards).
- ✧ Pre-engineered / pre-fabricated industrial buildings.

AJ Civil Construction

AJC is specialized for the construction of civil works and has achieved appreciation in completing most difficult tasks in remote areas of the country.

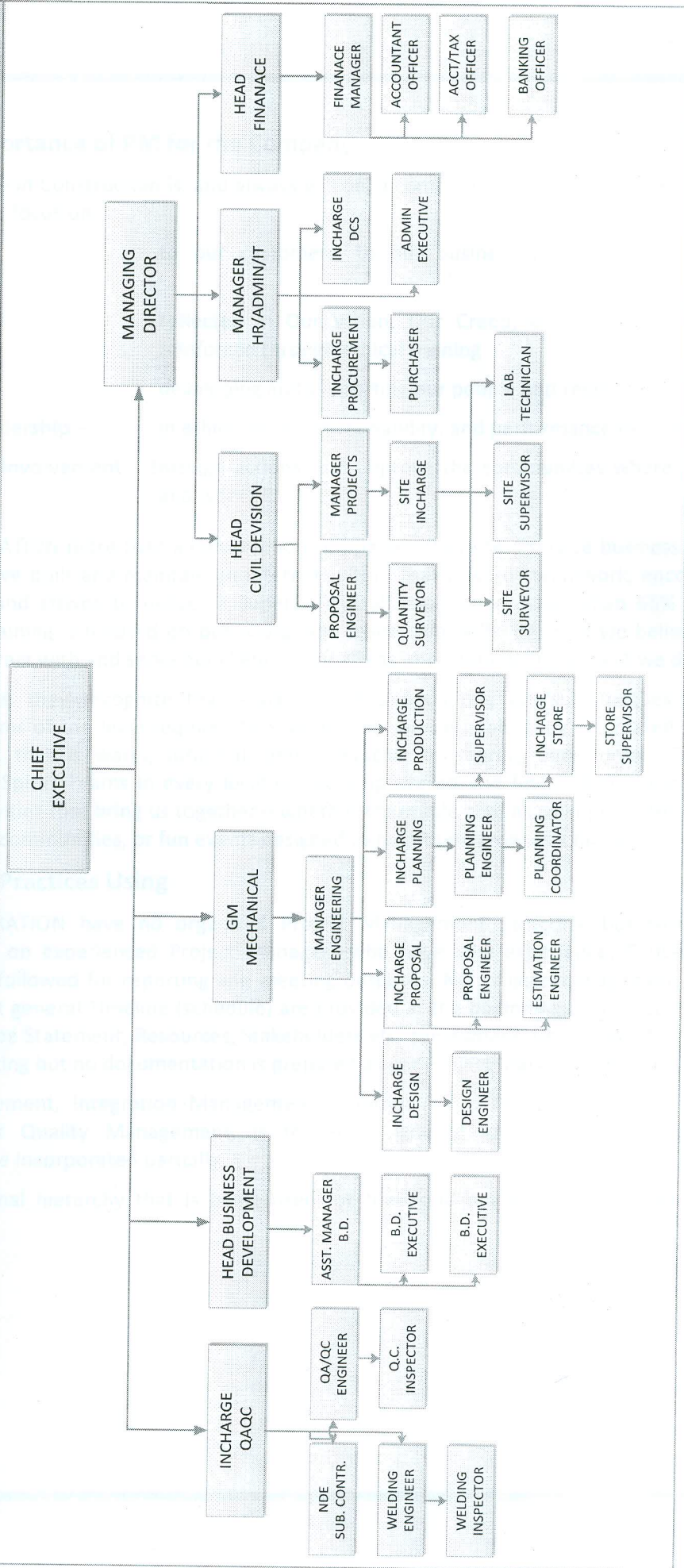
The main fields of approach are as below.

- ✧ Building Works.
- ✧ Roads Construction.
- ✧ Water Supply and Sewerage systems.
- ✧ Water and Sewerage Treatment Plants.
- ✧ Housing Colonies.
- ✧ RCC and Masonry Culverts.
- ✧ RCC Bridges and Walk Ways.
- ✧ Suspension Bridges.
- ✧ Brick / Concrete lining of Canals and Distributaries.
- ✧ Earth Works.
- ✧ Bulk Store Yards and Sheds.
- ✧ Large sized Steel Trussed roofs.



AJ CORPORATION

OVERALL ORGANIZATION CHART



➤ Importance of PM for the Company

A.J. Corporation Construction is, and always will be, a company whose exemplary success is driven by our focus on

Service – to our customers, to our business partners, and to one another

Values – reflected in Our Vision, Our Creed, and Our Promise and reinforced through ethical training

People – developing and supporting our people and relationships;

Industry Leadership – in ethics, safety, sustainability, and performance excellence

Community Involvement – through actions that improve the communities where we live and work

A.J. CORPORATION more than a construction company – they are a service business. That's why they have built and maintain an internal culture that rewards teamwork, encourages leadership, and strives to deliver a superior overall experience. More than 65% of our employee training is focused on behavioral and leadership skills. Because we believe that how we interact with and serve our clients is equally as important as the project we deliver.

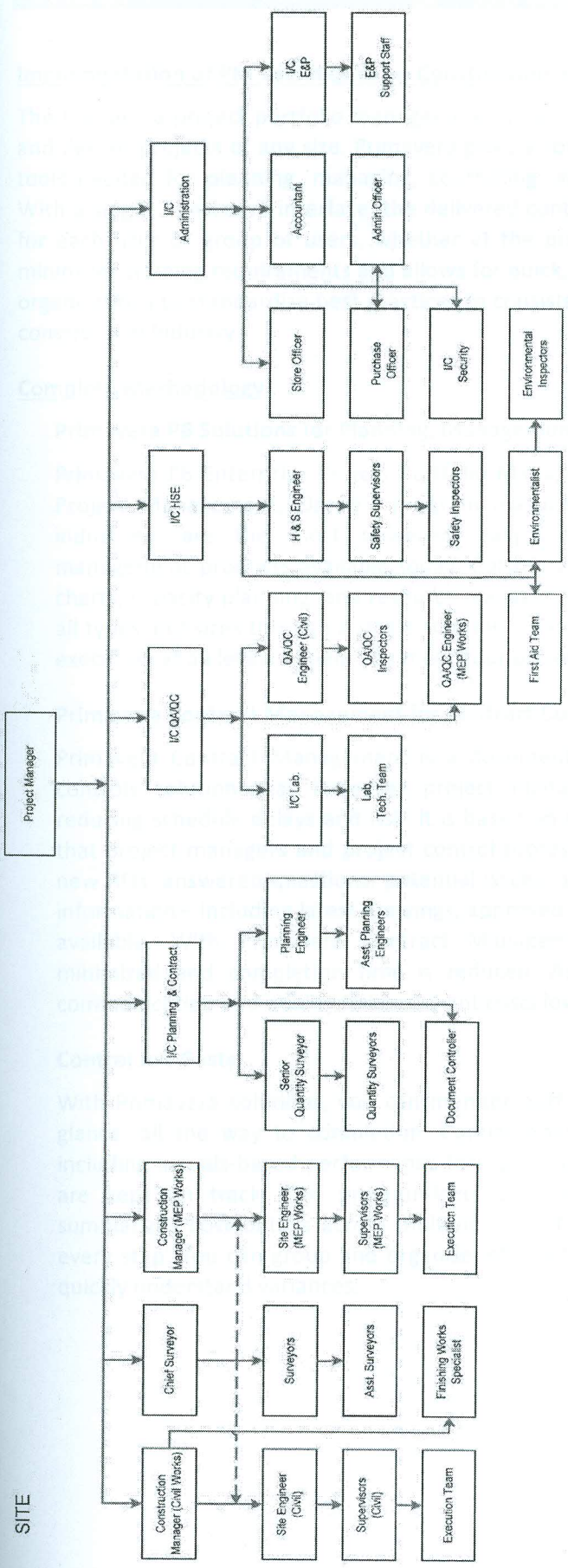
And, because they recognize that knowing and appreciating one's colleagues fosters stronger teams of the level required to support our service goals, they've created a work environment that is warm, informal, and conducive to sharing and humor. Our A.J. Corporation Spirit! Teams in every location are empowered and financed to organize the kinds of activities that bring us together – whether charitable actions to improve the quality of life in our communities, or fun events designed to help them grow as a family.

➤ PM Practices Using

A.J. CORPORATION have no organized Project Management Structure but success of Projects lies on experienced Project Managers who have vast experience. Conventional hierarchy is followed for reporting and meeting purposes. NO Project management Plan is prepared but general Timeline (schedule) are provided at the beginning of projects. Project Charter, Scope Statement, Resources, Stakeholders etc. somewhere are discussed in Project kick off meeting but no documentation is prepared as per Project Management Standard.

Risk Management, Integration Management, Communication Management, Stakeholder management Quality Management, is the most ignored knowledge areas whereas remaining are Incorporated partially.

A conventional hierarchy that is being used for their one ongoing project is as under:



Example of ongoing Project Structure

Implementation of PM Techniques on Construction Industry

The Primavera project portfolio management system enables me to plan, manage, control, and deliver projects of any size. Primavera gives a consolidated dashboard with exactly the tools needed for planning, managing, controlling, and delivering projects and programs. With a single, consistent interface, the delivered content and functionality are configurable for each user or group of users, whether at the project or program level. This not only minimizes training requirements and allows for quick, meaningful adoption but also enables organizations to standardize best practices to consistently deliver successful projects across construction Industry.

Complete Methodology

Primavera P6 Solutions for Planning, Management, and Scheduling

Primavera P6 Enterprise Project Portfolio Management and Primavera P6 Professional Project Management, Oracle's program management solutions for project-intensive industries, are the most powerful, easy-to-use project planning and program management products available today. Collaborative scheduling with interactive Gantt charts, capacity planning, and resource management enables you to manage projects of all types and sizes through a single solution. These solutions deliver high-quality project execution at all levels to help you meet your project and strategic business goals.

Primavera Contract Management for Contract Control

Primavera Contract Management is a document management, job cost, and project controls solution that increases project management efficiency and speed while reducing schedule delays and risk. It is based on a collaborative platform, which means that project managers and project control professionals can immediately be alerted to new RFIs, answered questions, potential issues, and changes. Access to current project information—including latest drawings, approved submittals and daily events—is readily available. With Primavera Contract Management, delay and cost exposure are minimized and completion time is reduced. As a result, you can improve project communication and quality to keep client costs low.

Control Job Costs

With Primavera solutions, you can monitor performance across multiple projects at a glance, all the way to completion. Configurable key project performance indicators, including actuals-based performance forecasts, foster proactive action so your projects are kept on track. The program-level cost worksheet automatically collects and summarizes cost details across multiple projects, so you can track program costs at every step. You can group and organize information in an easy-to-read spreadsheet to quickly understand variances.

Maximize Resources and Capacity

The Primavera product line fully supports both top-down and bottom-up resource planning. You can dynamically map out resource requirements for both equipment and personnel across your organization to ensure that you have the appropriate capacity on hand. By filtering resource requirements by specific roles or equipment types, you can quickly understand your future resource requirements across all projects.

Enable Collaborative Scheduling

With Primavera solutions, you can create, schedule, and manage projects—whether simple or complex—online. With user-level security, all project participants can see and update just the information they need, so the entire project team benefits. Interactive Gantt charts support team collaboration by allowing for the addition, deletion, and modification of projects, from work breakdown structure, activities, and relationships to resource assignments and costs (given the proper security rights). The intuitive spreadsheet like interface enables quick navigation and direct work on activity data.

Control Contracts and Documents

Primavera applications help you control contracts by tracking changes and maintaining accountability across the project team through a complete, collaborative contract and document control system. You can directly monitor vendor performance, surety status, and payment requests through contract status and summary to manage contractors. Real-time updates on approved changes, pending changes, and outstanding contract balances ensure that you are in full control of obligations.

With Primavera solutions, you can pay subcontractors and vendors based on actual performance. You can opt to create, manage, and approve payment requisitions only for work done on schedule, materials ordered and delivered, and approved changes.

Ensure Collaborative Project Management

Application dashboards enable the project team and executives to review and share key performance indicators (KPIs) in a single, configurable view. The integrated cost worksheet provides detailed cost information by Construction Specifications Institute (CSI) division across projects. You can quickly see all outstanding items, such as Requests for Information (RFIs) and submittals, in one place, and you can measure turnaround times and manage subcontractor performance. Primavera solutions enable you to keep your projects on track through quick reference and identification of critical issues, preventing projects from going over budget or falling behind schedule.

Manage Change

Primavera applications enable you to manage change proactively by capturing and organizing change information that affects the overall project schedule and cost. You can also standardize workflows with a change management workflow processing center, which enables you to capture each change, from the estimate phase to final approval, for both budgeted and committed costs.

Prevent Claims

Primavera solutions enable you to track all contract documents—such as RFIs, submittals, and changes—while capturing and identifying who is responsible, when they are due, and if multiple reviewers are required. You can use a flexible workflow to create, share, and review items. Additionally, you can leverage detailed log reports to prevent claims or protect yourself from them.

3. SELECTED PROJECT

This school is being constructed at kabirwala sponsored by the Govt. of Pakistan.

➤ Project Charter

Name of the Project: Construction of Govt. High School at kabirwala

Sponsor of the Project: Govt. of Pakistan

Project Manager: Engr. Muhammad Almeem

Objectives: the main objective of this project is to construct a building consisting of 9 rooms with a staff room.

Preliminary Statement of Work: RCC and Brick masonry structure

Budget: Rs. 5.3 Million

Time/Schedule of Project:

Duration:

Start Date – January 01, 2016

Finish Date – May 05, 2016

Project Scope Statement

Scope of this project is to construct Construction of a Govt. High School. The structure of this school is partially RCC and Brick work with complete works of Plumbing and electrical. And fine finishing is required.

Deliverables

Excavation, RCC Structure of Ground Floor, RCC Structure of First Floor, Brick masonry, Finishing, Roof Treatment, Electric and Plumbing Works

Constraints

- Completion should be before Mid of May.
- Excavation at some locations should be Manual.
- While excavation, underground services must not be damaged.

Key People / Key Stakeholders

Project Manager

Engr. Muhammad Almeem

Client –

Govt. of Pakistan

Project Support or Project Administration

AJ Corporation

In Scope

Manual and Machine Excavation, barricading of area, construction of Column foundation and BW foundations, construction of RCC Column, beam & Slabs ,Brick work of walls, backfilling with compacted material, Plastering, Flooring, paint works and Water proofing of Roof.

Out of Scope

All the maintenance work of project shall be in client scope. Debris will be disposed of by sub-contractor.

Project Administration, Monitoring and Reporting

Reporting

Daily:	E-mail, Meeting
Weekly:	Meeting
Monthly:	Report

Chapter-3

Comparison of MS Project & Primavera based on your experiences

Microsoft Project

Strengths	Weaknesses
Quickly Generated Reports	Does not allow for Multiple User Access: MS Project does not have a Centralized Database, Making Access Limited.
Good Compatibility With Other Microsoft Programs	Inability to Track Project Issues and Risks: Does not allow you to Assign Different Levels of Authority to Different Users. This may be Compromising to Security
Appealing Visual Display and User Friendly Interface: Often Less Training is Required	Inability to Track Project Issues and Risks.
Nil	Limited Web Functionality and Support: There is no way to convert information directly to HTML. With an increasing reliance on Web-Based Information, this may limit future possibilities.

Primavera P6

Strengths	Weaknesses
Multiple User Access: A centralized database gives multiple user access at any given time.	A Greater Degree of Training May Be Necessary: It makes sense that some training might be necessary to become familiarized with the larger array of options available in Primavera.
Greater Security Options: Different levels of authority can be assigned to different users in Primavera for security and organizational purposes.	Communication with Microsoft Programs Not As Seamless: While Primavera does have the ability to communicate with the Microsoft suite of programs; it is perhaps not as seamless in the import/export process.
Unlimited Baselines	
Tracking of Project Issues and Risks	
Multiple Schedules: Primavera allows multiple project-level construction schedules to be open simultaneously	

for program-level analysis.	
Better Web Support: Plans, documents and other information can be converted to HTML directly from the software. Additionally, it can create a comprehensive website comprising of complete project details including activities, resources, reports, risks, issues, WBS, and everything that has been entered.	
Simultaneous Updates: Resources can be assigned individual work calendars, allowing for simultaneous updates to be made to all construction schedules that utilize that specified resource.	
Multiple Activity Relationships: More than one type of relationship can be established between activities.	
More Column Creation: Over 200 columns in-built, each giving you different information.	

Greater Flexibility with Multiple Project Creation: Unlike MS Project, Primavera allows for multiple project tracking, multiple project or WBS comparisons, and cost and units calculations.	
Ability to Add Project Expenses: Besides costs, in project expenses such as training, travel, etc. can be added.	

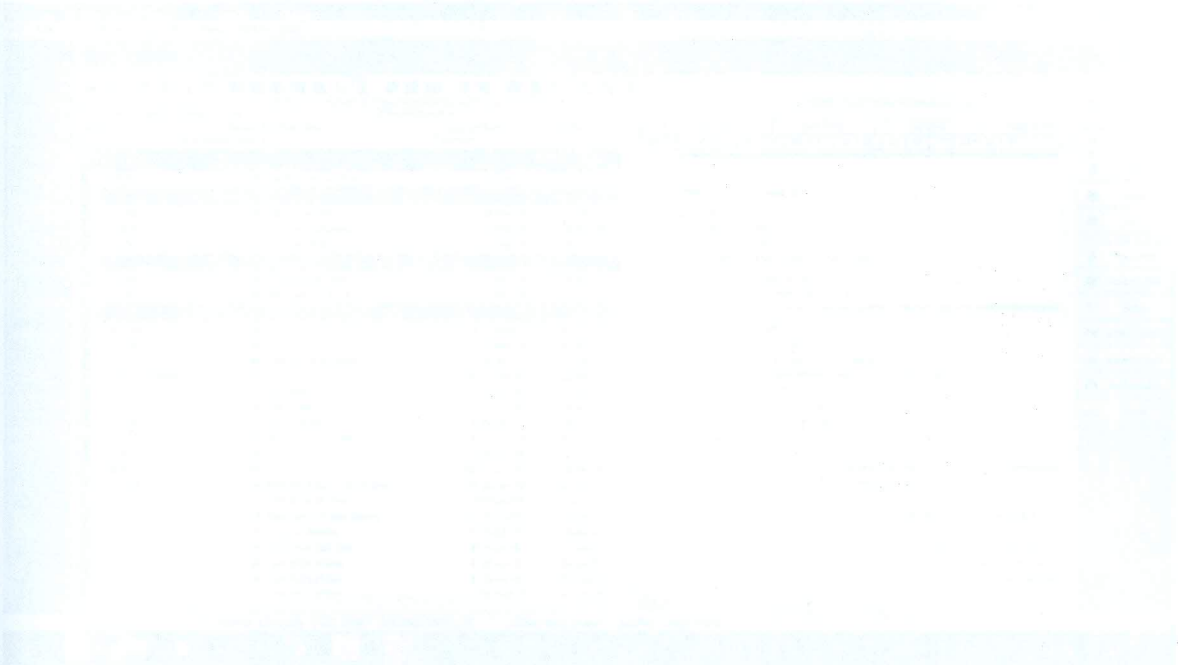
Summary

There are many more minor differences between Primavera P6 and Microsoft Project but above list attempts to highlight seem of the more commonly referred differences between the two tools. We are well aware of folks that favor one system over the other and I'm sure this list will spark much conversation, debate and disagreement. Using this list to support a decision to buy one product over the other would not be a wise idea. Choosing an enterprise project management system should be based on your organizational

requirements which would be at a much higher level than a few detailed features listed here.

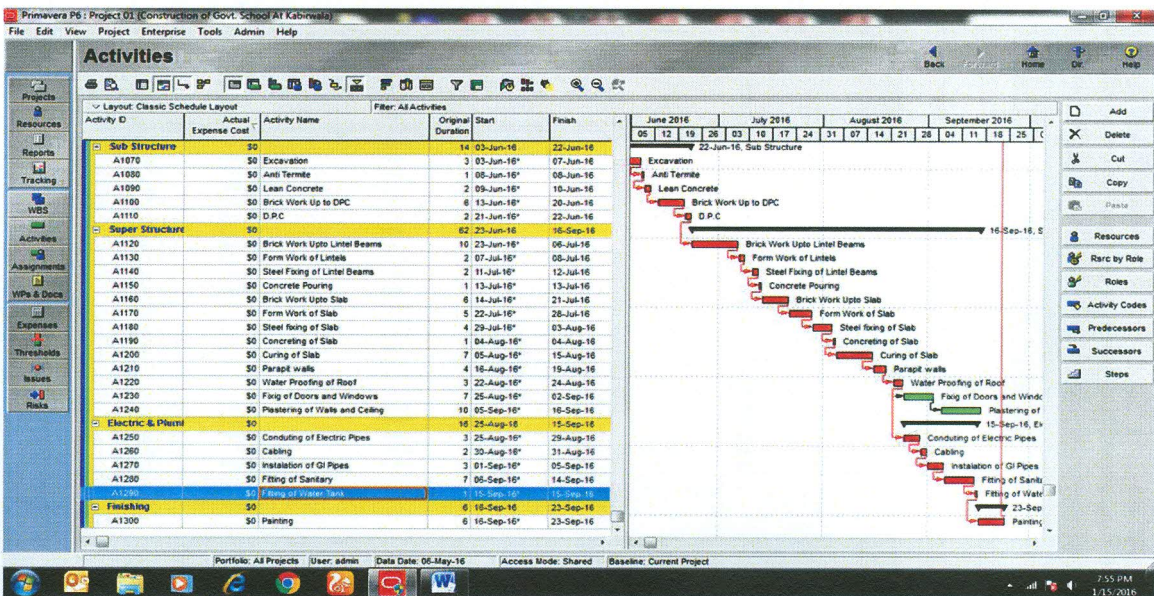
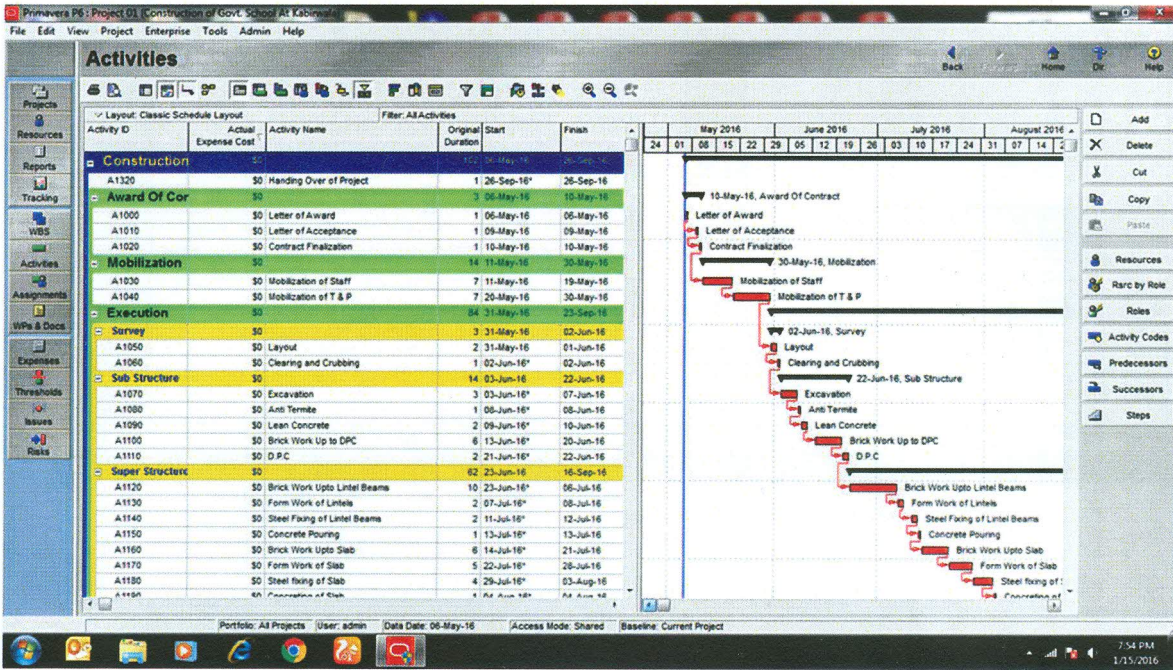
Finally, enterprise deployments often involve integration and information sharing with other corporate applications, must run on a particular IT infrastructure and support existing processes. All of these requirements can have an effect on your decision which way to go.

Activity and Gantt Chart



PRIMAVERA ACTIVITIES

1. Activity and Gantt Chart



2. Work Breakdown Structure

The screenshot shows the Primavera P6 interface for a Work Breakdown Structure (WBS). The main window displays a hierarchical tree structure of WBS elements. Below the tree, there are several tabs: General, Notebook, Planning Resources, Budget Log, Spending Plan, Budget Summary, WBS Milestones, WPs & Docs, and Earned Value. The 'General' tab is active, showing the following details:

- WBS Code:** Project 01
- WBS Name:** Construction of Govt. School At Kabirwala
- Status:** Active
- Responsible Manager:** GM Civil

On the right side, there are fields for 'Anticipated Start' and 'Anticipated Finish'. The bottom status bar indicates 'Portfolio: All Projects', 'User: admin', 'Data Date: 06-May-16', 'Access Mode: Shared', and 'Baseline: Current Project'.

3. Resources

The screenshot shows the Primavera P6 interface for the Resources view. The main window displays a table of resources with the following columns: Resource ID, Resource Name, Resource Type, Unit of Measure, Primary Role, and Default Units / Time. The resources are listed as follows:

Resource ID	Resource Name	Resource Type	Unit of Measure	Primary Role	Default Units / Time
R-1	Project Manager	Labor			8/d
R-1	Site Engineer	Labor			8/d
R-2	Mason	Labor			8/d
R-3	Labor 1	Labor			8/d
R-5	Labor 3	Labor			8/d
R-6	Welder	Labor			8/d
R-7	welder helper	Labor			8/d
R-8	Painter	Labor			16/d
R-9	Painter Helper	Labor			8/d
R-10	Plumber	Labor			8/d
R-11	Plumber Helper	Labor			8/d
R-12	Electrician	Labor			8/d
R-13	Elec. Helper	Labor			8/d
R-22	Doors	Material			8/d
R-23	Windows	Material			8/d
R-21	water tank	Material			8/d
R-20	Wire	Material			8/d
R-19	GI Pipe	Material			8/d
R-18	Paint	Material			8/d
R-17	Bricks	Material			8/d
R-16	Crush	Material			8/d
R-14	Cement	Material			8/d
R-24	Steel	Material			8/d
R-15	Sand	Material			8/d
R-26	Sawbar	Material			8/d
R-25	Electric Motor	Nonlabor			8/d
R-27	Lumpsum	Nonlabor			8/d
R-28	Mixing Machine	Nonlabor			8/d

The bottom status bar indicates 'Portfolio: All Projects', 'User: admin', 'Data Date: 06-May-16', 'Access Mode: Shared', and 'Baseline: Current Project'.

4. Resource Assignment

The screenshot displays the Primavera P6 interface for a project titled "Construction of Govt. School At Kabinsala". The main view is a Gantt chart showing activity durations from May 2016 to September 2016. The activity list on the left includes:

Activity ID	Actual Expense Cost	Activity Name	Original Duration	Start	Finish
A1040	\$0	Mobilization of T & P	7	20-May-16	30-May-16
A1050	\$0	Execution	64	31-May-16	23-Sep-16
A1050	\$0	Survey	3	31-May-16	02-Jun-16
A1060	\$0	Layout	2	31-May-16	01-Jun-16
A1080	\$0	Clearing and Crubbing	1	02-Jun-16*	02-Jun-16
A1070	\$0	Sub Structure	14	03-Jun-16	22-Jun-16
A1070	\$0	Excavation	3	03-Jun-16*	07-Jun-16
A1080	\$0	Anti Termite	1	06-Jun-16*	08-Jun-16
A1090	\$0	Lean Concrete	2	09-Jun-16*	10-Jun-16
A1100	\$0	Block Work Up to DPC	8	13-Jun-16*	20-Jun-16
A1110	\$0	D.P.C	2	21-Jun-16*	22-Jun-16

The resource assignment table below shows the following resources:

Resource ID	Resource Name	Resource Type	Activity ID	Start	Finish
R-1	Project Manager	Labor	A1040	20-May-16	30-May-16
R-2	Site Engineer	Labor	A1050	31-May-16	23-Sep-16
R-3	Mason	Labor	A1050	31-May-16	23-Sep-16
R-4	Labor-1	Labor	A1050	31-May-16	23-Sep-16
R-5	Labor-2	Labor	A1050	31-May-16	23-Sep-16
R-6	Welder	Labor	A1050	31-May-16	23-Sep-16
R-8	Painter	Labor	A1050	31-May-16	23-Sep-16
R-10	Plumber	Labor	A1050	31-May-16	23-Sep-16
R-12	Electrician	Labor	A1050	31-May-16	23-Sep-16

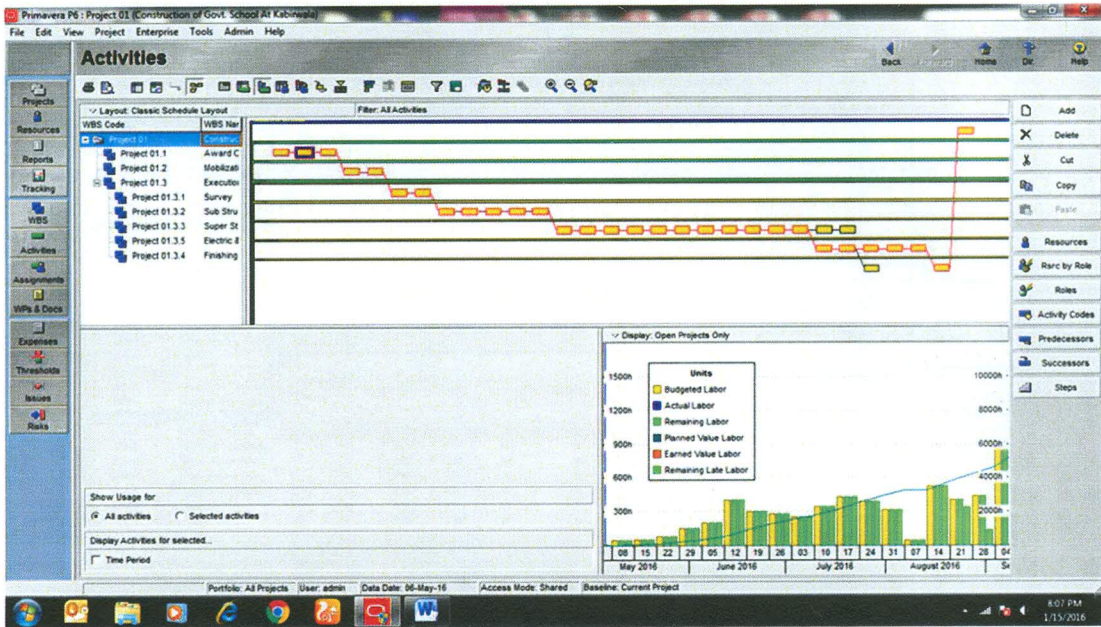
The screenshot displays the "Resource Assignments" view in Primavera P6. The table below shows the assignments for the project:

Activity ID	Activity Name	Resource ID Name	Start	Finish	Remaining Units
A1200	Handing Over of Project	R-1 Project Manager	20-Sep-16	20-Sep-16	
A1040	Mobilization of T & P	R-1 Site Engineer	20-May-16	30-May-16	
A1000	Letter of Award	R-1 Project Manager	06-May-16	06-May-16	
A1010	Letter of Acceptance	R-1 Project Manager	09-May-16	09-May-16	
A1030	Mobilization of Staff	R-1 Project Manager	11-May-16	19-May-16	
A1040	Mobilization of T & P	R-1 Site Engineer	20-May-16	30-May-16	
A1040	Mobilization of T & P	R-27 Lumpsum	20-May-16	30-May-16	
A1050	Layout	R-4 Labor 2	31-May-16	01-Jun-16	
A1050	Layout	R-1 Site Engineer	31-May-16	01-Jun-16	
A1060	Clearing and Crubbing	R-1 Site Engineer	02-Jun-16	02-Jun-16	
A1060	Clearing and Crubbing	R-5 Labor 3	02-Jun-16	02-Jun-16	
A1060	Clearing and Crubbing	R-4 Labor 2	02-Jun-16	02-Jun-16	
A1080	Anti Termite	R-5 Labor 3	08-Jun-16	08-Jun-16	
A1090	Lean Concrete	R-4 Labor 2	09-Jun-16	10-Jun-16	

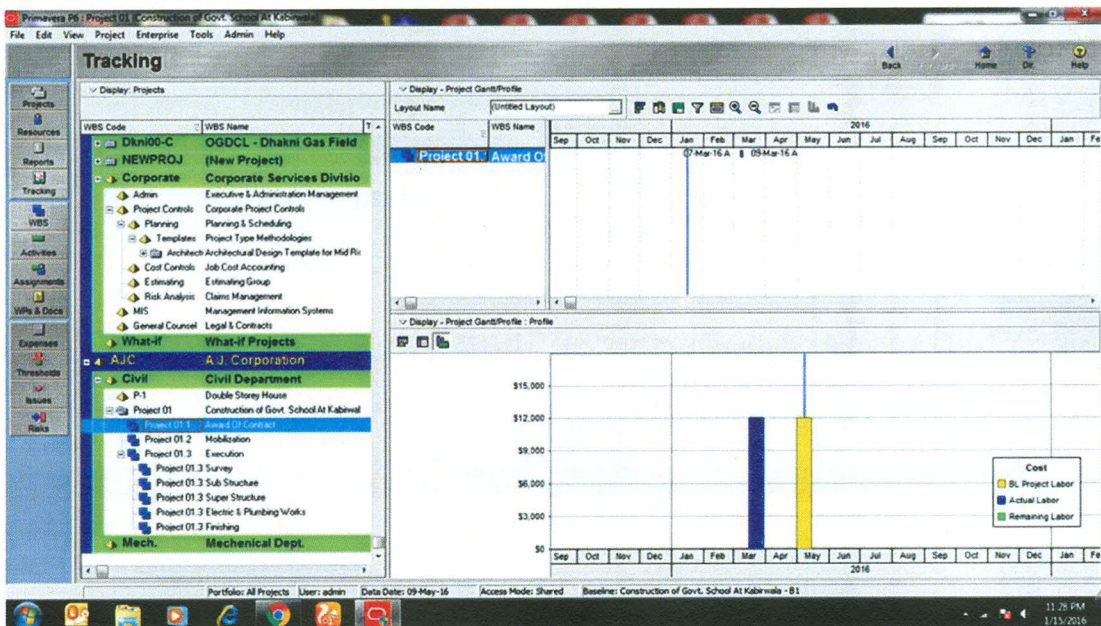
The "General Planning" form at the bottom shows the following details for the selected activity:

- Activity Name: Contract Finalization
- Resource: R-1 Project Manager
- Role: [Assigned]
- Cost Account: [Blank]
- Price / Unit: \$500/h
- Rate Type: Price / Unit
- Primary Resource:

5. Activities linked with WBS



6. Tracking



7. Assign Base Line

The screenshot displays the 'Maintain Baselines' dialog box in Primavera P6. The dialog is titled 'Construction of Govt. School At Kabirwala' and shows the 'Project Name/Baseline Name' as 'Construction of Govt. School At Kabirwala - B1'. The 'Baseline Type' is currently set to '<None>'. The background interface shows a Gantt chart and a table of activities. The table has columns for Activity ID, Activity Name, Original Duration, Performance, Cost, Schedule, Actual Cost, Earned Value, Start, and Finish. The activities listed include 'Award Of Contract', 'Mobilization', and 'Execution' with various sub-activities like 'Letter of Acceptance', 'Contract Finalization', 'Letter of Award', 'Mobilization of Staff', 'Mobilization of T & P', 'Layout', 'Clearing and Crubbing', 'Excavation', 'Ans Termite', 'Lean Concrete', 'Brick Work Up to DPC', 'D.P.C', 'Brick Work Up to Lintel', 'Form Work of Lintels', 'Steel Fixing of Lintel', 'Concrete Pouring', 'Brick Work Up to Slab', 'Form Work of Slab', 'Steel fixing of Slab', 'Concreting of Slab', 'Curing of Slab', and 'Parapet walls'.

8. Activity usage Profile

The screenshot shows the 'Activities' window in Primavera P6. The top part of the window displays a Gantt chart for the project 'Construction of Govt. School At Kabirwala'. Below the Gantt chart, there is a section titled 'Display: Open Projects Only' which contains a cost profile chart. The chart plots various cost metrics over time from March 2016 to October 2016. The Y-axis represents cost in dollars, ranging from \$30,000 to \$150,000. The X-axis represents time in months. The chart includes data series for 'Budgeted Labor Cost', 'Actual Labor Cost', 'Remaining Labor Cost', 'Planned Value Cost', 'Earned Value Cost', 'BL Project Labor Cost', and 'Remaining Late Labor Cost'. The 'Actual Labor Cost' is shown as a blue line, while the other metrics are represented by different colored bars and lines. The chart shows a steady increase in labor costs over the period, with a significant spike in late labor costs towards the end of the project.

1/15/2016

AC-01 Activity Earned Value

AC-01 Activity Earned Value

WBS Activity ID	Activity Name	Activity Status	Planned Value Cost	Earned Value Cost	Actual Cost	Budget At Completion	Estimate To Complete	Estimate At Completion Cost	Variance At Completion
AJC	A.J. Corporation								
Civil	Civil Department								
Project 01	Construction of Govt. School At Kabirwala								
A1320	Handing Over of Project	Not Started	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Project 01.1	Award Of Contract								
A1000	Letter of Award	Completed	\$4,000	\$4,000	\$4,000	\$4,000	\$0	\$4,000	\$0
A1010	Letter of Acceptance	Completed	\$0	\$4,000	\$4,000	\$4,000	\$0	\$4,000	\$0
A1020	Contract Finalisation	Completed	\$0	\$4,000	\$4,000	\$4,000	\$0	\$4,000	\$0
Subtotal			\$4,000	\$12,000	\$12,000	\$12,000	\$0	\$12,000	\$0
Project 01.2	Mobilization								
A1030	Mobilization of Staff	Completed	\$0	\$20,000	\$20,000	\$20,000	\$0	\$20,000	\$0
A1040	Mobilization of T & P	Completed	\$0	\$20,160	\$20,160	\$20,160	\$0	\$20,160	\$0
Subtotal			\$0	\$40,160	\$40,160	\$40,160	\$0	\$40,160	\$0
Project 01.3	Execution								
Project 01.3.1	Survey								
A1050	Layout	Completed	\$0	\$9,200	\$9,200	\$9,200	\$0	\$9,200	\$0
A1060	Clearing and Chubbing	Completed	\$0	\$14,600	\$14,600	\$14,600	\$0	\$14,600	\$0
Subtotal			\$0	\$23,800	\$23,800	\$23,800	\$0	\$23,800	\$0
Project 01.3.2	Sub Structure								
A1070	Excavation	Completed	\$0	\$0	\$0	\$0	\$0	\$0	\$0
A1080	Anti Tamble	Completed	\$0	\$10,000	\$10,000	\$10,000	\$0	\$10,000	\$0
A1090	Leak Concrete	Completed	\$0	\$30,700	\$30,700	\$30,700	\$0	\$30,700	\$0
A1100	Block Work Up To DPC	Completed	\$0	\$118,250	\$118,250	\$118,250	\$0	\$118,250	\$0
A1110	D.P.C	Completed	\$0	\$32,500	\$32,500	\$32,500	\$0	\$32,500	\$0
Subtotal			\$0	\$159,576	\$159,576	\$159,576	\$0	\$159,576	\$0
Project 01.3.3	Super Structure								
A1120	Block Work Up To Lintel Beams	In Progress	\$0	\$94,850	\$94,850	\$157,700	\$63,104	\$157,700	\$0
A1130	Form Work of Lintel	Not Started	\$0	\$0	\$0	\$10,000	\$10,000	\$10,000	\$0
A1140	Steel Fixing of Lintel Beams	Not Started	\$0	\$0	\$0	\$21,440	\$21,440	\$21,440	\$0
A1150	Concrete Pouring	Not Started	\$0	\$0	\$0	\$20,200	\$20,200	\$20,200	\$0
A1160	Block Work Up to Slab	Not Started	\$0	\$0	\$0	\$118,856	\$118,856	\$118,856	\$0

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1/15/2016

AC-01 Activity Earned Value

A1170	Form Work of Slab	Not Started	\$0	\$0	\$0	\$75,000	\$75,000	\$75,000	\$0
A1180	Steel Reinf of Slab	Not Started	\$0	\$0	\$0	\$57,280	\$57,280	\$57,280	\$0
A1190	Concreting of Slab	Not Started	\$0	\$0	\$0	\$29,600	\$29,600	\$29,600	\$0
A1200	Curing of Slab	Not Started	\$0	\$0	\$0	\$2,800	\$2,800	\$2,800	\$0
A1210	Parapet Walls	Not Started	\$0	\$0	\$0	\$121,920	\$121,920	\$121,920	\$0
A1220	Water Proofing of Roof	Not Started	\$0	\$0	\$0	\$77,280	\$77,280	\$77,280	\$0
A1230	Fixing of Doors and Windows	Not Started	\$0	\$0	\$0	\$983,400	\$983,400	\$983,400	\$0
A1240	Plastering of Walls and Ceiling	Not Started	\$0	\$0	\$0	\$208,400	\$208,400	\$208,400	\$0
Subtotal			\$0	\$94,656	\$94,656	\$1,763,824	\$1,669,160	\$1,763,824	\$0
Project 01.3.5 Electric & Plumbing Works									
A1250	Conduiting of Elects Pipes	Not Started	\$0	\$0	\$0	\$4,000	\$4,000	\$4,000	\$0
A1260	Cabling	Not Started	\$0	\$0	\$0	\$2,720	\$2,720	\$2,720	\$0
A1270	Installation of GI Pipes	Not Started	\$0	\$0	\$0	\$5,040	\$5,040	\$5,040	\$0
A1280	Fitting of Sanitary	Not Started	\$0	\$0	\$0	\$230,160	\$230,160	\$230,160	\$0
A1290	Fitting of Water Tank	Not Started	\$0	\$0	\$0	\$48,880	\$48,880	\$48,880	\$0
Subtotal			\$0	\$0	\$0	\$290,880	\$290,880	\$290,880	\$0
Project 01.3.4 Finishing									
A1300	Painting	Not Started	\$0	\$0	\$0	\$16,800	\$16,800	\$16,800	\$0
A1310	Floor Tile Fixing	Not Started	\$0	\$0	\$0	\$77,400	\$77,400	\$77,400	\$0
Subtotal			\$0	\$0	\$0	\$94,008	\$94,008	\$94,008	\$0
Subtotal			\$0	\$317,032	\$317,032	\$2,371,068	\$2,054,056	\$2,371,068	\$0
Subtotal			\$4,000	\$377,192	\$377,192	\$2,431,248	\$2,054,056	\$2,431,248	\$0
Subtotal			\$4,000	\$377,192	\$377,192	\$2,431,248	\$2,054,056	\$2,431,248	\$0
Subtotal			\$4,000	\$377,192	\$377,192	\$2,431,248	\$2,054,056	\$2,431,248	\$0
Total			\$4,000	\$377,192	\$377,192	\$2,431,248	\$2,054,056	\$2,431,248	\$0

AD-02 Activity Relationships

Project Activity ID	Activity Name	Predecessors	Successors
Construction of Govt. School At Kabirwala			
A1000	Letter of Award		A1010
A1010	Letter of Acceptance	A1000	A1020
A1020	Contract Finalization	A1010	A1030
A1030	Mobilization of Staff	A1020	A1040
A1040	Mobilization of T & P	A1030	A1050
A1050	Layout	A1040	A1060
A1060	Clearing and Crubbing	A1050	A1070
A1070	Excavation	A1060	A1080
A1080	Anti Termite	A1070	A1090
A1090	Lean Concrete	A1080	A1100
A1100	Brick Work Up to DPC	A1090	A1110
A1110	D.P.C	A1100	A1120
A1120	Brick Work Upto Lintel Beams	A1110	A1130
A1130	Fom Work of Lintels	A1120	A1140
A1140	Steel Fixing of Lintel Beams	A1130	A1150
A1150	Concrete Pouning	A1140	A1160
A1160	Brick Work Upto Slab	A1150	A1170
A1170	Fom Work of Slab	A1160	A1180
A1180	Steel fixing of Slab	A1170	A1190
A1190	Concreting of Slab	A1180	A1200
A1200	Curing of Slab	A1190	A1210
A1210	Parapit walls	A1200	A1220
A1220	Water Proofing of Roof	A1210	A1230, A1250
A1230	Fixig of Doors and Wndows	A1220	A1240
A1240	Plastering of Walls and Ceiling	A1230	
A1250	Conduating of Electric Pipes	A1220	A1260
A1260	Cabling	A1250	A1270, A1310
A1270	Instalation of GI Pipes	A1260	A1280
A1280	Fitting of Sanitary	A1270	A1290
A1290	Fitting of Water Tank	A1280	A1300
A1300	Painting	A1290	A1320
A1310	Floor Tile Fixing	A1260	
A1320	Handing Over of Project	A1300	

SR-06 Schedule Report - Predecessors Successors

Activity ID	Activity Name	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
Construction of Govt. School At Kabirwala								
A1000	Letter of Award	07-Mar-16 A	07-Mar-16 A	09-May-16	09-May-16			A1010
A1010	Letter of Acceptance	08-Mar-16 A	08-Mar-16 A	09-May-16	09-May-16		A1000	A1020
A1020	Contract Finalization	09-Mar-16 A	09-Mar-16 A	09-May-16	09-May-16		A1010	A1030
A1030	Mobilization of Staff	10-Mar-16 A	18-Mar-16 A	09-May-16	09-May-16		A1020	A1040
A1040	Mobilization of T & P	21-Mar-16 A	29-Mar-16 A	09-May-16	09-May-16		A1030	A1050
A1050	Layout	30-Mar-16 A	31-Mar-16 A	09-May-16	09-May-16		A1040	A1060
A1060	Cleaning and Crubbing	01-Apr-16 A	01-Apr-16 A	09-May-16	09-May-16		A1050	A1070
A1070	Excavation	04-Apr-16 A	06-Apr-16 A	09-May-16	09-May-16		A1060	A1080
A1080	Anti Termite	07-Apr-16 A	07-Apr-16 A	09-May-16	09-May-16		A1070	A1090
A1090	Lean Concrete	08-Apr-16 A	11-Apr-16 A	09-May-16	09-May-16		A1080	A1100
A1100	Brick Work Up to DPC	12-Apr-16 A	19-Apr-16 A	09-May-16	09-May-16		A1090	A1110
A1110	D.P.C	20-Apr-16 A	21-Apr-16 A	09-May-16	09-May-16		A1100	A1120
A1120	Brick Work Upto Lintel Beams	22-Apr-16 A	12-May-16	09-May-16	12-May-16	0	A1110	A1130
A1130	Form Work of Lintels	13-May-16*	16-May-16	13-May-16	16-May-16	0	A1120	A1140
A1140	Steel Fixing of Lintel Beams	17-May-16*	18-May-16	17-May-16	18-May-16	0	A1130	A1150
A1150	Concrete Pouring	19-May-16*	19-May-16	19-May-16	19-May-16	0	A1140	A1160
A1160	Brick Work Upto Slab	20-May-16*	27-May-16	20-May-16	27-May-16	0	A1150	A1170
A1170	Form Work of Slab	30-May-16*	03-Jun-16	30-May-16	03-Jun-16	0	A1160	A1180
A1180	Steel fixing of Slab	06-Jun-16*	09-Jun-16	06-Jun-16	09-Jun-16	0	A1170	A1190
A1190	Concreting of Slab	10-Jun-16*	10-Jun-16	10-Jun-16	10-Jun-16	0	A1180	A1200
A1200	Curing of Slab	13-Jun-16*	21-Jun-16	13-Jun-16	21-Jun-16	0	A1190	A1210
A1210	Parapet walls	22-Jun-16*	27-Jun-16	22-Jun-16	27-Jun-16	0	A1200	A1220
A1220	Water Proofing of Roof	28-Jun-16*	30-Jun-16	28-Jun-16	30-Jun-16	0	A1210	A1230, A1250
A1230	Fixig of Doors and Windows	01-Jul-16*	11-Jul-16	11-Jul-16	19-Jul-16	6	A1220	A1240
A1240	Plastering of Walls and Ceiling	12-Jul-16*	25-Jul-16	20-Jul-16	02-Aug-16	6	A1230	

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RA-01 Resource Assignments, All Activities

User's Notes:

Resource Code	Resource Name			Planned Units	Planned Duration	Planned Start	Planned Finish
Project Code	WBS Code	Activity Code	Activity				
R	Project Manager						
Project 01	Project 01	A1320	Handing Over of Project	8	1	02-Aug-16	02-Aug-16
Project 01	Project 01.1	A1000	Letter of Award	8	1	07-Mar-16	07-Mar-16
Project 01	Project 01.1	A1010	Letter of Acceptance	8	1	08-Mar-16	08-Mar-16
Project 01	Project 01.1	A1020	Contract Finalization	8	1	09-Mar-16	09-Mar-16
Project 01	Project 01.2	A1030	Mobilization of Staff	56	7	10-Mar-16	18-Mar-16
			Total	88			
R-1	Site Engineer						
Project 01	Project 01.2	A1040	Mobilization of T & P	56	7	21-Mar-16	29-Mar-16
Project 01	Project 01.2	A1040	Mobilization of T & P	56	7	21-Mar-16	29-Mar-16
Project 01	Project 01.3.1	A1050	Layout	16	2	30-Mar-16	31-Mar-16
Project 01	Project 01.3.1	A1060	Cleaning and Crubbing	8	1	01-Apr-16	01-Apr-16
Project 01	Project 01.3.2	A1090	Lean Concrete	16	2	08-Apr-16	11-Apr-16
Project 01	Project 01.3.2	A1100	Brick Work Up to DPC	48	6	12-Apr-16	19-Apr-16
Project 01	Project 01.3.2	A1110	D.P.C	16	2	20-Apr-16	21-Apr-16
Project 01	Project 01.3.3	A1120	Brick Work Upto Lintel Beams	80	10	22-Apr-16	05-May-16
Project 01	Project 01.3.3	A1130	Form Work of Lintels	16	2	13-May-16	16-May-16
Project 01	Project 01.3.3	A1150	Concrete Pouring	8	1	19-May-16	19-May-16
Project 01	Project 01.3.3	A1160	Brick Work Upto Slab	48	6	20-May-16	27-May-16
Project 01	Project 01.3.3	A1170	Form Work of Slab	40	5	30-May-16	03-Jun-16
Project 01	Project 01.3.3	A1240	Plastering of Walls and Ceiling	80	10	12-Jul-16	25-Jul-16
Project 01	Project 01.3.4	A1310	Floor Tile Fixing	40	5	08-Jul-16	14-Jul-16
			Total	528			
R-2	Messon						
Project 01	Project 01.3.2	A1090	Lean Concrete	16	2	08-Apr-16	11-Apr-16
Project 01	Project 01.3.2	A1100	Brick Work Up to DPC	48	6	12-Apr-16	19-Apr-16
Project 01	Project 01.3.2	A1110	D.P.C	16	2	20-Apr-16	21-Apr-16
Project 01	Project 01.3.3	A1120	Brick Work Upto Lintel Beams	80	10	22-Apr-16	05-May-16
Project 01	Project 01.3.3	A1150	Concrete Pouring	8	1	19-May-16	19-May-16
Project 01	Project 01.3.3	A1160	Brick Work Upto Slab	48	6	20-May-16	27-May-16
Project 01	Project 01.3.3	A1210	Parapit walls	32	4	22-Jun-16	27-Jun-16
Project 01	Project 01.3.3	A1210	Parapit walls	32	4	22-Jun-16	27-Jun-16
Project 01	Project 01.3.3	A1220	Water Proofing of Roof	24	3	28-Jun-16	30-Jun-16
Project 01	Project 01.3.3	A1220	Water Proofing of Roof	24	3	28-Jun-16	30-Jun-16
Project 01	Project 01.3.3	A1240	Plastering of Walls and Ceiling	80	10	12-Jul-16	25-Jul-16
Project 01	Project 01.3.3	A1240	Plastering of Walls and Ceiling	80	10	12-Jul-16	25-Jul-16
Project 01	Project 01.3.4	A1310	Floor Tile Fixing	40	5	08-Jul-16	14-Jul-16
			Total	528			
R-3	Labor-1						
Project 01	Project 01.3.3	A1130	Form Work of Lintels	16	2	13-May-16	16-May-16
Project 01	Project 01.3.3	A1150	Concrete Pouring	8	1	19-May-16	19-May-16
Project 01	Project 01.3.3	A1160	Brick Work Upto Slab	48	6	20-May-16	27-May-16
Project 01	Project 01.3.3	A1170	Form Work of Slab	40	5	30-May-16	03-Jun-16
Project 01	Project 01.3.3	A1190	Concreting of Slab	8	1	10-Jun-16	10-Jun-16
Project 01	Project 01.3.3	A1200	Curing of Slab	56	7	13-Jun-16	21-Jun-16
Project 01	Project 01.3.3	A1210	Parapit walls	32	4	22-Jun-16	27-Jun-16
Project 01	Project 01.3.3	A1240	Plastering of Walls and Ceiling	80	10	12-Jul-16	25-Jul-16
Project 01	Project 01.3.3	A1240	Plastering of Walls and Ceiling	80	10	12-Jul-16	25-Jul-16
Project 01	Project 01.3.4	A1310	Floor Tile Fixing	40	5	08-Jul-16	14-Jul-16
			Total	408			
R-5	labor-3						
Project 01	Project 01.3.1	A1060	Cleaning and Crubbing	40	1	01-Apr-16	01-Apr-16
Project 01	Project 01.3.2	A1080	Anti Termite	40	1	07-Apr-16	07-Apr-16
Project 01	Project 01.3.2	A1090	Lean Concrete	80	2	08-Apr-16	11-Apr-16
Project 01	Project 01.3.2	A1100	Brick Work Up to DPC	240	6	12-Apr-16	19-Apr-16
Project 01	Project 01.3.2	A1110	D.P.C	80	2	20-Apr-16	21-Apr-16

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RA-01 Resource Assignments, All Activities

Project 01	Project 01.3.3	A1120	Brick Work Upto Lintel Beams	400	10	22-Apr-16	05-May-16
Project 01	Project 01.3.3	A1140	Steel Fixing of Lintel Beams	80	2	17-May-16	18-May-16
Project 01	Project 01.3.3	A1150	Concrete Pouring	40	1	19-May-16	19-May-16
Project 01	Project 01.3.3	A1160	Brick Work Upto Slab	240	6	20-May-16	27-May-16
Project 01	Project 01.3.3	A1170	Form Work of Slab	200	5	30-May-16	03-Jun-16
Project 01	Project 01.3.3	A1180	Steel fixing of Slab	160	4	06-Jun-16	09-Jun-16
Project 01	Project 01.3.3	A1190	Concreting of Slab	40	1	10-Jun-16	10-Jun-16
Project 01	Project 01.3.3	A1190	Concreting of Slab	40	1	10-Jun-16	10-Jun-16
Project 01	Project 01.3.3	A1210	Parapit walls	160	4	22-Jun-16	27-Jun-16
Project 01	Project 01.3.3	A1210	Parapit walls	160	4	22-Jun-16	27-Jun-16
Project 01	Project 01.3.3	A1220	Water Proofing of Roof	120	3	28-Jun-16	30-Jun-16
Project 01	Project 01.3.3	A1220	Water Proofing of Roof	120	3	28-Jun-16	30-Jun-16
Project 01	Project 01.3.3	A1240	Plastering of Walls and Ceiling	400	10	12-Jul-16	25-Jul-16
Project 01	Project 01.3.4	A1310	Floor Tile Fixing	200	5	08-Jul-16	14-Jul-16
				Total	2840		

R-4 Labor-2

Project 01	Project 01.3.1	A1050	Layout	48	2	30-Mar-16	31-Mar-16
Project 01	Project 01.3.1	A1060	Clearing and Crubbing	24	1	01-Apr-16	01-Apr-16
Project 01	Project 01.3.2	A1080	Lean Concrete	48	2	08-Apr-16	11-Apr-16
Project 01	Project 01.3.2	A1100	Brick Work Up to DPC	144	6	12-Apr-16	19-Apr-16
Project 01	Project 01.3.3	A1130	Form Work of Lintels	48	2	13-May-16	16-May-16
Project 01	Project 01.3.3	A1150	Concrete Pouring	24	1	19-May-16	19-May-16
Project 01	Project 01.3.3	A1160	Brick Work Upto Slab	144	6	20-May-16	27-May-16
Project 01	Project 01.3.3	A1170	Form Work of Slab	120	5	30-May-16	03-Jun-16
Project 01	Project 01.3.3	A1180	Steel fixing of Slab	96	4	06-Jun-16	09-Jun-16
Project 01	Project 01.3.3	A1190	Concreting of Slab	24	1	10-Jun-16	10-Jun-16
Project 01	Project 01.3.3	A1210	Parapit walls	96	4	22-Jun-16	27-Jun-16
Project 01	Project 01.3.3	A1240	Plastering of Walls and Ceiling	240	10	12-Jul-16	25-Jul-16
Project 01	Project 01.3.4	A1310	Floor Tile Fixing	120	5	08-Jul-16	14-Jul-16
				Total	1176		

R-6 Welder

Project 01	Project 01.3.3	A1230	Fixig of Doors and Windows	56	7	01-Jul-16	11-Jul-16
Project 01	Project 01.3.3	A1230	Fixig of Doors and Windows	56	7	01-Jul-16	11-Jul-16
				Total	112		

R-7 welder helper

Project 01	Project 01.3.3	A1230	Fixig of Doors and Windows	56	7	01-Jul-16	11-Jul-16
Project 01	Project 01.3.3	A1230	Fixig of Doors and Windows	56	7	01-Jul-16	11-Jul-16
				Total	112		

R-8 Painter

Project 01	Project 01.3.4	A1300	Painting	96	6	25-Jul-16	01-Aug-16
Project 01	Project 01.3.4	A1300	Painting	96	6	25-Jul-16	01-Aug-16
				Total	192		

R-9 Painter Helper

Project 01	Project 01.3.4	A1300	Painting	48	6	25-Jul-16	01-Aug-16
Project 01	Project 01.3.4	A1300	Painting	48	6	25-Jul-16	01-Aug-16
				Total	96		

R-10 Plumber

Project 01	Project 01.3.5	A1270	Installation of GI Pipes	24	3	08-Jul-16	12-Jul-16
Project 01	Project 01.3.5	A1280	Fitting of Sanitary	56	7	13-Jul-16	21-Jul-16
Project 01	Project 01.3.5	A1290	Fitting of Water Tank	8	1	22-Jul-16	22-Jul-16
				Total	88		

R-11 Plumber Helper

Project 01	Project 01.3.5	A1270	Installation of GI Pipes	24	3	08-Jul-16	12-Jul-16
Project 01	Project 01.3.5	A1280	Fitting of Sanitary	56	7	13-Jul-16	21-Jul-16
Project 01	Project 01.3.5	A1290	Fitting of Water Tank	8	1	22-Jul-16	22-Jul-16
				Total	88		

R-12 Electrician

1/15/2016

RA-01 Resource Assignments, All Activities

Project 01	Project 01.3.5	A1250	Conduiting of Electric Pipes	24	3	01-Jul-16	05-Jul-16
Project 01	Project 01.3.5	A1260	Cabling	16	2	06-Jul-16	07-Jul-16
				Total	40		

R-13 Elec. Helper

Project 01	Project 01.3.5	A1250	Conduiting of Electric Pipes	24	3	01-Jul-16	05-Jul-16
Project 01	Project 01.3.5	A1250	Conduiting of Electric Pipes	24	3	01-Jul-16	05-Jul-16
Project 01	Project 01.3.5	A1260	Cabling	16	2	06-Jul-16	07-Jul-16
Project 01	Project 01.3.5	A1260	Cabling	16	2	06-Jul-16	07-Jul-16
				Total	80		

R-22 Doors

Project 01	Project 01.3.3	A1230	Fixig of Doors and Windows	56	7	01-Jul-16	11-Jul-16
Project 01	Project 01.3.3	A1230	Fixig of Doors and Windows	56	7	01-Jul-16	11-Jul-16
				Total	112		

R-23 Windows

Project 01	Project 01.3.3	A1230	Fixig of Doors and Windows	56	7	01-Jul-16	11-Jul-16
Project 01	Project 01.3.3	A1230	Fixig of Doors and Windows	56	7	01-Jul-16	11-Jul-16
				Total	112		

R-21 water tank

Project 01	Project 01.3.5	A1290	Fitting of Water Tank	8	1	22-Jul-16	22-Jul-16
				Total	8		

R-20 Wire

Project 01	Project 01.3.5	A1250	Conduiting of Electric Pipes	24	3	01-Jul-16	05-Jul-16
Project 01	Project 01.3.5	A1250	Conduiting of Electric Pipes	24	3	01-Jul-16	05-Jul-16
Project 01	Project 01.3.5	A1260	Cabling	16	2	06-Jul-16	07-Jul-16
Project 01	Project 01.3.5	A1260	Cabling	16	2	06-Jul-16	07-Jul-16
				Total	80		

R-19 GI Pipe

Project 01	Project 01.3.5	A1270	Instalation of GI Pipes	24	3	08-Jul-16	12-Jul-16
				Total	24		

R-18 Paint

Project 01	Project 01.3.4	A1300	Painting	48	6	25-Jul-16	01-Aug-16
Project 01	Project 01.3.4	A1300	Painting	48	6	25-Jul-16	01-Aug-16
Project 01	Project 01.3.4	A1300	Painting	48	6	25-Jul-16	01-Aug-16
				Total	144		

R-17 Bricks

Project 01	Project 01.3.2	A1100	Brick Work Up to DPC	48	6	12-Apr-16	19-Apr-16
Project 01	Project 01.3.3	A1120	Brick Work Upto Lintel Beams	80	10	22-Apr-16	05-May-16
Project 01	Project 01.3.3	A1160	Brick Work Upto Slab	48	6	20-May-16	27-May-16
				Total	176		

R-16 Crush

Project 01	Project 01.3.2	A1090	Lean Concrete	16	2	08-Apr-16	11-Apr-16
Project 01	Project 01.3.2	A1110	D.P.C	16	2	20-Apr-16	21-Apr-16
Project 01	Project 01.3.3	A1150	Concrete Pouring	8	1	19-May-16	19-May-16
Project 01	Project 01.3.3	A1190	Concreting of Slab	8	1	10-Jun-16	10-Jun-16
Project 01	Project 01.3.3	A1210	Parapit walls	32	4	22-Jun-16	27-Jun-16
Project 01	Project 01.3.3	A1220	Water Proofing of Roof	24	3	28-Jun-16	30-Jun-16
				Total	104		

R-14 Cement

Project 01	Project 01.3.2	A1090	Lean Concrete	16	2	08-Apr-16	11-Apr-16
Project 01	Project 01.3.2	A1100	Brick Work Up to DPC	48	6	12-Apr-16	19-Apr-16
Project 01	Project 01.3.2	A1110	D.P.C	16	2	20-Apr-16	21-Apr-16
Project 01	Project 01.3.3	A1120	Brick Work Upto Lintel Beams	80	10	22-Apr-16	05-May-16
Project 01	Project 01.3.3	A1150	Concrete Pouring	8	1	19-May-16	19-May-16

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RA-01 Resource Assignments, All Activities

Project 01	Project 01.3.3	A1160	Brick Work Upto Slab	48	6	20-May-16	27-May-16
Project 01	Project 01.3.3	A1190	Concreting of Slab	8	1	10-Jun-16	10-Jun-16
Project 01	Project 01.3.3	A1210	Parapit walls	32	4	22-Jun-16	27-Jun-16
Project 01	Project 01.3.3	A1220	Water Proofing of Roof	24	3	28-Jun-16	30-Jun-16
Project 01	Project 01.3.3	A1240	Plastering of Walls and Ceiling	80	10	12-Jul-16	25-Jul-16
Total				360			

R-24 Steel

Project 01	Project 01.3.3	A1140	Steel Fixing of Lintel Beams	16	2	17-May-16	18-May-16
Project 01	Project 01.3.3	A1180	Steel fixing of Slab	32	4	06-Jun-16	09-Jun-16
Project 01	Project 01.3.3	A1210	Parapit walls	32	4	22-Jun-16	27-Jun-16
Total				80			

R-15 Sand

Project 01	Project 01.3.2	A1090	Lean Concrete	16	2	08-Apr-16	11-Apr-16
Project 01	Project 01.3.2	A1100	Brick Work Up to DPC	48	6	12-Apr-16	19-Apr-16
Project 01	Project 01.3.2	A1110	D.P.C	16	2	20-Apr-16	21-Apr-16
Project 01	Project 01.3.3	A1120	Brick Work Upto Lintel Beams	80	10	22-Apr-16	05-May-16
Project 01	Project 01.3.3	A1150	Concrete Pouring	8	1	19-May-16	19-May-16
Project 01	Project 01.3.3	A1160	Brick Work Upto Slab	48	6	20-May-16	27-May-16
Project 01	Project 01.3.3	A1190	Concreting of Slab	8	1	10-Jun-16	10-Jun-16
Project 01	Project 01.3.3	A1210	Parapit walls	32	4	22-Jun-16	27-Jun-16
Project 01	Project 01.3.3	A1220	Water Proofing of Roof	24	3	28-Jun-16	30-Jun-16
Project 01	Project 01.3.3	A1240	Plastering of Walls and Ceiling	80	10	12-Jul-16	25-Jul-16
Project 01	Project 01.3.3	A1240	Plastering of Walls and Ceiling	80	10	12-Jul-16	25-Jul-16
Total				440			

R-26 Sanitary

Project 01	Project 01.3.5	A1280	Fitting of Sanitary	56	7	13-Jul-16	21-Jul-16
Project 01	Project 01.3.5	A1280	Fitting of Sanitary	56	7	13-Jul-16	21-Jul-16
Total				112			

R-27 Lumpsum

Project 01	Project 01.2	A1040	Mobilization of T & P	56	7	21-Mar-16	29-Mar-16
Total				56			

R-28 Mixing Machine

Project 01	Project 01.3.3	A1190	Concreting of Slab	8	1	10-Jun-16	10-Jun-16
Total				8			

Footer 1

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