

Chapter 1

Introduction



1.1 Background

The project management is the operative basis of contracting business. The definition of project management is the process by which the project manager plans and controls the tasks within the projects and the resources used to carry out the projects. Project management has three simple objectives. There are

1. to ensure a project is finished on time (meet schedule)
2. to ensure a project is completed within its cost budget (meet cost)
3. to ensure a project meets the functional and technical performance standards as defined in the initial goals thus satisfies the end users (meet performance)

Resources of project are as following

- Money
- Manpower
- Equipment
- Facilities
- Materials
- Information/Technology
- Time (Schedule)

The relationship between progress, time, and resource availability/usage has to be concentrated. Schedules should be evaluated not merely in terms of meeting project milestones, but also in terms of timing and use of scarce resources.

The extreme points of the relationship between time use and resource use are these :

Time Limited : The project must be finished by a certain time, using as few resources as possible. But it is time, not resource usage, that is critical.

Resource Limited : The project must be finished as soon as possible, but without exceeding some specific level of resource usage or some general resource constraint.

Completion date or final deadline will be certainly fixed in project schedule planning and used for evaluation of project completion on time. The project work is on schedule if we ensure that we have available resources on time when we need. If we lack of some resources supply on time, we might be not able to perform field work and idle time will be occurred. It will effect to the series of work progress steps and the final deadline of entire project schedule. It will also effect to loss in financial project result.

With limited resources that must be shared among the activities, we must determine appropriate allocations to project activities. Two major objectives of resource allocation are to minimize the project duration within the resources constraints and to level or smooth resource requirement over time. The improvement of site resources management help to ensure site resources will be available on time requirement by the good resources planning and good inventory management with the optimized cost.

1.2 Statement of problem

1. The cause of project delay might be from

- inefficiency of site management and operation
- inefficiency of site resources planning and management
- delay from third parties work such as civil, mechanical and piping work that effects to project execution plan
- unforeseen situation such as raining, water flood etc.

etc.

In this thesis, we scope on project delay caused by the inefficiency of site resource planning and management. For example, result on the shortage of materials, equipments and tools supply on time requirement from inefficient resources plan effects to

- waste from idle time or idle manpower, work overtime need to recover plan etc., that cause to loss in financial project result at final.
- project is behind schedule and not complete within final deadline, and the liquidated damage penalty from time extension will be effected.
- clients complaint
- resource sharing is misplanned that effects to series of work progress steps or resources plan of other sites.

2. In general, time for bid estimating is very short. It might be difficult for accurate estimating in scope of materials supply. If no existing database record properly or the estimators have no record reference about available sources of supply, price database, details of specification, available stocks or delivery time, it will cause to

- loss in bidding because lack of information of supply sources and price at that time estimating cause to bid submit too late.
- loss in bidding because the roughly estimating without the real cost of supply back up cause to highly price mark up in order to cover risk of project financial loss, so that the unreasonable price will be submitted and not competitive.
- loss in financial project result because the required resources must be bought more expensive than the prior roughly estimating during bid tendering phase.

3. It might be difficult to take off the correct quantities of resources required in project work. It will cause to

- the shortage resources when we need (understocking) due to the lead time of urgent order and effects to loss in idle time.

- the surplus resources after project completion (overstocking) and effects to loss money in surplus resources order and inventory cost.

4. Circumstances of misuse and waste of resources in the form of materials can be extensive and include

buying the wrong articles

buying materials of inadequate quality

buying too much

buying too little

buying uneconomically

losing materials-in transit, in storage and in use

material stolen or pilfered

spoilage and damage to materials before use

scrap and spoilage during use

reporting out of balance

1.3 Objective

To improve site resources management and inventory management in site work for case study of electrical installation contracting business.

1.4 Scope of study

This thesis aims to improve the site resources management of project work of the contracting company. Site work of the contracting company shall be applied to be case study of this thesis and the project resources in this thesis will only scope on *materials, equipments and tools*.

Scope of study is to concern

1. Site resources management

- resources planning
 site requisition
 scheduling (combined with project execution and manpowers loading plan)
- stores management
- site organizing and procedure for resources management

2. Site inventory management

- issuing
- balancing
- recording
- controlling
- reporting

1.5 Implementation assessment

The implementation of an improvement of site resources management is assessed by

- Actual cost occurrence (compare with budget planning)
- Idle time or waste time of field work due to the shortage of materials, equipments, and tools
- Number of client's or workforce's complaints
- The excess or surplus inventories after project completion

1.6 Step and schedule

1. Review the existing site resources management and inventory management
2. Identify problems
3. Search the literature and find out possible way of solving of each problems
4. Develop systems for improving site resources management
5. Develop systems for improving site inventory management
 - issuing
 - balancing
 - controlling
 - recording
 - reporting
6. Implement and review on problem solving of site resources management and inventory management
7. Assess the implementation of the improvement
8. Summarize the improvement and recommend
9. Prepare thesis report and presentation

The activities involved on the above steps include :

1. Review of existing systems and documentation.
2. Interviews with management and supervisory personnel to determine problems and needs. The people interviewed can also serve as sounding boards to help determine the feasibility of ideas and their potential benefits.
3. Making contact with other firms to determine what they have done and the degree to which their ideas and concepts are applicable.
4. Searching the literature for additional ideas and concepts.
5. Develop the system and procedure to be guideline or frame of implementation.
6. Develop the computer program to be tool for implementation.
7. Analyze result of implementation.

1.7 Expected benefits from an improvement of site resources management

Reduce project cost

The efficient site resources management, plan and control, help to decrease waste from idle resource.

Increase efficiency of site management

A large project shall be broken down into a series of short-term progress steps. A series of short-term progress steps is easy for resource planning. A series of short-term progress steps can be combined with site resources plan and help to improve site productivity, efficiency and client/workforce satisfaction.

Benefit on resource sharing

Price of some specific equipments or tools is very high and the use is only for the specific task. These are not able to purchase or stock in high amounts. Efficient resource plan benefits on sharing the available resources to various projects on time their requirement and avoidance improperly new ordering.

Reduce inventory cost

If resource plan and control were inefficient, materials take off were incorrect or each sites were not share equipments/tools but only request to buy the new ones etc., then sites will have excess or surplus inventories after the project completion.

Achieve competitive advantage

As the projects have been located in various areas, if each sites can share resources each other, project cost will be able to reduce and result to increase capability to bidding in competitive price. Chance of bid award or winning to bid of the company will be increased.

Available record of supply source, price lists, and technical support of material supply etc., help to spend short-time of bid estimating and capable to submit bid before deadline, with reasonable price and the real cost of supply back up, and reduce financial risk of project when bid award.