



## CHAPTER 5

### CONCLUSION AND RECOMMENDATION

Mechanical Department is a department in the Thermal Power Construction Division. The department is organized into four sections: Steam Generator, Mechanical Machine, Piping and Mechanical Equipment Quality Inspection. The department is in charge of the construction, supervision and installation of mechanical equipment for thermal power plant. The human resource of the department is allocated to the thermal power construction projects. In the past, the department has no model for human resource allocation.

The purpose of this thesis is to create a model for human resource allocation planning and to improve human resource allocation planning for Mechanical Department by using Microsoft Project program. The Chief of Mechanical Department can use the model as a tool to allocate human resource to fulfill its demand at time of the future multi projects.

This thesis begins with the literature survey by studying and reviewing techniques and factors from textbooks, researches, journals, web sites, etc., and also from the Microsoft Project program related to human resource allocation planning. Then the existing model of human resource allocation planning for mechanical department is examined. Finally, the proposed model is created and implemented.

The conclusion of the existing method, the proposed method, the development and the application are the following.

#### 5.1 Existing Model

In the existing model, the resource allocation depends on human resource demand of the projects that comes from the Chief of Mechanical Project Department (CMPD). The model has been divided into three steps: Demand, Planning and Allocation. Starting from demand, CMPD initiates by analyzing the multi projects time schedule in terms of

duration and resource demand. CMPD estimates the human resource usage and the resource is fixed by name and units. Then CMPD plans to allocate the resource following the demand that is estimated by CMPD. At last, human resource is allocated from MD to Projects and Projects to MD conforming to the resource demand by CMD. Existing problems are the resource shortage and the over supply of resource. The problems caused exceed resource and extra cost consists of number and cost of over supply of resource and over time cost causes form resource shortage.

## **5.2 Proposed Model**

In the proposed model, the resource allocation is performed by using Microsoft Project program as a tool. The model consists of five steps: Work Scheduling, Resource Assignment, Resource Planning, Allocation and Monitoring. It can be concluded that the proposed model is a systematic method. The resource demands from both projects are combined and compared to the resource supply availability. Then, the resource is planned and allocated among MD, Project 1 and Project 2; and inside Project. Finally, the resource is monitored in order to observe the demand and allocation. Moreover, the proposed model helps MD reduce extra costs cause from over supply of resource and over time relating to resource usage.

## **5.3 Allocation plan for the future multi projects**

The results of both models indicated that the proposed model focuses on the real resource demand concerning the unit at time with lower cost. The allocation according to the proposed model is controlled by CMD and CMPD and the resource is considered for allocation for both projects. The developed model provides MD with more effective allocation. The allocation plan are improved and created from the proposed model for the future multi projects of MD. The plan consists of eight steps: Initial Project, Work Scheduling, Resource Assignment, Allocation Plan, Allocation, Monitoring and Adjustment and Finished Project. Moreover, the Monitoring has divided into three items: Follow up, Comparing and Summarize. Therefore, MD should implement the steps to help allocate its resource to fulfill its demand at all time for its multi projects.

## **5.4 Advantages of the proposed model**

The advantages of the proposed model can be concluded as follow:

5.4.1. The model helps MD allocate resource to fulfill its demand of its future multi projects. Moreover, the model helps MD save cost related to over of resource supply and resource shortage

5.4.2. The model is more systematical comparing to the existing model.

5.4.3. The model makes it better for any Chief of Mechanical Department to allocate the resource because of the model is more effective than the existing model.

5.4.4. The model allows remaining resource from the allocation for MD. The remaining resource can then be planned to allocate to other projects.

## **5.5 Recommendation**

The propose method can help MD allocate the human resource for multi projects to fulfill its demand. Additional comments on the method are:

### **1. Application of the proposed method**

The proposed method can be applied to other departments of TPC because all departments are similar to MD in terms of work for thermal power plant construction project, nature of human resource. However, the assumption for the method is important so that the Chief of each department should carefully consider the conditions for human resource allocation planning of their multi projects.

## **2. Program for the method**

Microsoft Project program is used as a tool for the method in this study. However, other program which is similar to Microsoft Project, and other better program should also be considered for use in comparison to Microsoft Project.

## **3. Communication**

Resource allocation in terms of unit of human resource of the allocation related to the resource demand is requested and assigned by CMPD and CMD, respectively. Therefore, the resource allocation information between CMPD and CMD is important. The more effective communication, the more effective the allocation.

## **4. Technology**

Information technology such as online network should be considered to help MD to communicate among MD and its future multi projects

## **5. Commitment**

The proposed model is different from the existing model. Therefore, the visible and continuing commitment of both CMD and CMPD is essential in order for the proposed model implementation.

## **6. Single-resource to multi-resource**

Human resource in this case is a single resource. MD should consider developing the resource to be a multi-resource by educating and training them to have more knowledge and skills of the other work section. Then the multi-resource allocation across sections should be considered to provide MD with more effective allocation.

### **7. The future multi projects**

The model should be applied to more multi projects and the results should be observed and compared to the two projects in this case study.

### **8. The different job description of human resource**

The model should be introduced to other multi projects of MD that the human resource has a different job description. The other job description is that the resources construct the projects' activity by themselves. And then the comparison of results of the introduction and this case study should be observed.