Chapter 1

Introduction

1.1 Background

1.1.1 Company Background

The case company, an oil company, was established in 1978 as a state enterprise under the supervision of the Ministry of Industry to undertake a fully-integrated petroleum business ranging from exploration, development, procurement, transportation, refining, distribution to other related business, and act as a state mechanism in stabilizing national economic and energy security.

In February 1996, it implemented in stabilizing its corporate restructuring into subsidiaries. It decentralized and divided its business unit into 3 main business units with Head Office that is to take the strategic leadership role. These three main business units are Oil Business Unit (OBU), International Business Unit (IBU), and Gas Business Unit (GBU). They are set up with clearly separated functions and responsibilities as well as an independent fully integrated commercial oriented management.

OBU is mainly responsible for domestic oil market. It procures oil from IBU and domestic refineries and injects it into both wholesale and retail distribution systems through 1,000s gas station nationwide. It is also tasked with national energy security to satisfy rising demand both in normal and critical circumstances with petroleum depots throughout the country: 19 oil terminals, 2 petroleum depots, 14 aviation fuel depots, and 6 LPG depots.

In order to construct and develop oil terminals, petroleum depots, aviation fuel depots, LPG depots and OBU's office buildings which support the primary and support activities in Porter's Value Chain of OBU, OBU assigned the Project Management Department of OBU (PMO) to perform these processes. The primary activities include inbound logistics, operations, outbound logistics, marketing and sales, services. Support activities include procurements, technology development, human resource management, and firm infrastructure.

PMO was formed in February 1996, as a result of the case company's lasted reorganisation. Its staffs were recruited from the Engineering & Service Department of the existing Oil Business and Construction Department of the existing Central Service Business. Staffs from the Engineering & Service Department have skills in material procurement, designing, engineering, and contract management. Staffs from Construction Department have skills in the project supervision, construction, engineering, and etc.

As a result, PMO acts as the project client or project owner that has the duties to complete the project as it is planned within the budget constraint based on the international engineering, safety and environment standard.

PMO 's organisation structure consists of two divisions. They are Project Planning and Control Division, and Engineering Management Division. The duties and responsibilities of these two divisions are as follows:

Project Planning and Control Division

- Prepare and produce the project plan
- Manage the budgets
- Prepare and produce Term of Reference (TOR) to provide engineering consultant services
- Prepare and produce Invitation to Bid and TOR to provide construction contractors
- Monitor and control the project
- Prepare and produce the progress reports
- Perform accounting management
- Perform contract management
- Etc.

Engineering Management Division

- Check and approve engineering deigns, data sheets, drawings and specifications
- Check and control construction work
- Perform safety management
- Submit the permission from government agencies.
- Etc.

PMO was assigned to manage the construction or development project based on the assist of outside engineering consultant service in design and supervision. Because the organisation structure of PMO consists of 2 divisions that have limited personnel, when each project is formed, the personnel of these two divisions are assigned to work in the project team. So, each person in PMO always works in many project- teams at the same time.

We can divide the management of each construction and development project into 2 phases. The first phase is about business management, for example, project analysis, project feasibility study, source of fund, fund management. The second phase is about construction management, when the project is feasible,

The objective of the project management is not to construct, but manage. The reason supporting this idea is that the main product and work is to analyse project management method, to find the strategy to construct the project, to co-ordinate with other related working units and ensure that the project can achieve the quality, time, and cost objectives.

1.1.2 Project Background

The sales of LPG in the northern and north-eastern areas of Thailand was rising up but the case company had only two 2,000 m^3 LPG Sphere tank at BRP LPG Depot which was enough to service because this LPG Depot is the center depot that receives LPG from gas separate plant and distribute LPG to other depots in central, northern and north-eastern areas of Thailand via trains. So, the case

company needs to construct a new 2,000 m^3 LPG sphere tank to increase the LPG reserve volume to make it big enough to serve the selling volume and reserve the additional LPG production from the gas separation plant. Furthermore, the efficiency of loading and off-loading of BRP LPG Depot will be developed in case one of two existing tank cannot be used.

Project Plan

The project plan of this project was developed in the early stage of this project. The PMO has managed this project based on the budget and investment plan that was approved from the National Board of Economic & Social Committee. This investment plan consists of the items as follows:

- Objective : To construct a 1,000 ton (2,000 m^3)LPG spherical tank
- Location : BRP LPG Depot
- Budget : Baht 70 millions
- Duration : Year 1997 - 1999
- Responsibility : Project Management Department of Oil Business Unit

After PMO receives this investment plan, they will develop this investment plan into the operation plan that describes the objective of the project, possible characteristic of the project and the procedure and schedule that is required to complete this project.

Next, the Project Team is formed and they will contact and co-ordinate with the other related units for the required information, details, and the requirement of the operators. Finally, the basic design of this project will be developed. After that, the Project Team will manage and operate this project to achieve the objective that had been set.

The structure, duty and responsibility of this project team will be clearly described with the approval of executive management in the form as follows:

- Name of project
- Project team organisation
- Duty and responsibility in each section in the structure
- Authority
- The selected personnel

Project Objective

The objective of this project is " To construct a 1,000 ton LPG spherical tank at BRP Depot that reserve the additional of sale volume in north and north-eastern area with the good quality and safety, the cost is to be within the budget Baht 70 millions and completed within year 1999".

This objective as described covers all of the quality, time and cost objective. However, the first priority of this objective might be the technical objective or quality objective because the product (spherical tank) is used to contain the flammable product and the construction site is in the hazardous area (LPG operation area) which cannot stop loading and off-loading. So the quality of the product and the construction contractor is of first priority. The cost is of second priority because this project can not run off the budget that was approved. The project cost that the PMO considers is the construction contractor cost and the project management cost. The third priority of the objective is time because the project duration is not that firmed, it is open and could be operated any time during the year 1997 to 1999.

Cost / Budget

For the cost/ budget plan, this project has no engineering consultant service cost because the PMO believes that its man-power has the ability to manage the small project like this. The cost that the PMO plans to pay is the construction contractor cost and Project Management Cost. This project was designed to be a lump-sum (fixed price) contract with the payment on milestones as shown in Appendix A.

Project Schedule

The schedule of this project is shown in Appendix B.

1.2 Statement of the Problem

Due to the enormous impact the current economic crisis has had on Asia, it leads to the reversal in the Thailand's economic growth and investments and the weaker unsteady value of the Thai Baht. This has raised the business cost for many companies and forced the case company to revise the investment plan in various project by giving priorities to those with the potential for high revenues and high returns, canceling and deferring certain project in anticipation of favorable future circumstances.

Moreover, the case company not only cancelled and delayed project implementation it also modified its management and operating plan in accordance with economic conditions by reducing project sizes. So, the economic problem has directly affected the PMO.

For example, PMO must change the concept of one major lump-sum turnkey contractor to one major construction contractor with many minor suppliers and contractors to reduce the cost charged by contractors. In addition to reduce the cost, it must also use the in-house personnel to do the work instead of engineering consultant service. Even if PMO can reduce the cost of contractors and engineering consultant service, its project management costs are absolutely raised up.

Traditional cost accounting systems assign costs from cost pools to outputs using volume drivers such as labor and machine hours, material purchases, and units produced. However, Activity Based Costing (ABC) models the usage of all organisational resources on the activities performed by these resources and then linking the cost of these activities to outputs such as products, services, customer, and projects. So, they are different in that the Activity Based Costing can particularly measure more accurately the cost of activities not proportional to the volume of outputs produced.

As the project management cost becomes the important part of project cost, we then need the Activity Based Costing as a tool to consider and evaluate the process of project management activities instead of the traditional cost accounting that meaningless to develop the process.

1.3 Objective of the Study

The objective of this thesis is to apply Activity Based Costing to evaluate and analyse the cost of project management in the construction of a 2,000 m^3 LPG Spherical Tank Project.

1.4 Scope of the Study

The scope of this thesis are described as follows:

- The cost of project management in the construction of a 2,000 m^3 LPG Spherical Tank Project, which is evaluated and analysed by Activity Based Coasting technique is the project management cost of PMO that acts as the project owner.
- The selected project is the project that is under responsible of PMO, without consultant service basis.
- The starting of the select project, The Construction of a 2,000 m^3 LPG Spherical Tank Project, is the effective date address in the formal assignment order to start the project after the final review and approval of the budget and the scope of work by the executive management. The end of this selected project is when the construction complete and it is handed over to the responsibility of client (project owner) and the project owner issue the initial acceptance certificate after the complete of 1 month operation.
- The Activity Based Costing will be performed according to the project's work break down structure of this selected project.

1.5 Expect Benefits

The expected benefits of this thesis are as follows:

1.5.1 Academic Benefits

Gain an understanding of how to perform the Activity Based Costing that applied to analyse the project management cost.

1.5.2 Company Benefits

The OBU will know the project management cost and recommendation of cost reduction and process improvement of the Construction of a 2,000 m^3 LPG Spherical Tank that analysed by Activity Based Costing method. In addition, this thesis will be a pilot project for other projects that want to be analysed their cost by using Activity Based Costing method.

1.6 Methodology

1) Analyse Activities and Develop Activity Model

   At this phase, the activity model is developed by various techniques.

2) Gather Cost

   At this stage, all relevant expenses that pertain to the selected model and process are captured.

   - Identify organisation costs
   - Distribute organisational costs to the organisation structure

3) Trace Cost to Activities

   At this stage, the costs that were identified are divided and assigned to the activities.

   - Identify categories of organisational elements
   - Select the appropriate level of representative costs
   - Redistribute organisation costs to operational elements
   - Allocate final distribution cost to the activity model

4) Establish Output Measure

At this stage, the activities are analysed that what the activity does and what it produces. Then the decision is making to pick up the output measures that will be used for each activity.

- Analyse activity output and performance
- Select the output measures
- Determine the activity output cost per unit of output
- Determine the time requirement
- Document the output measure

5) Analyse Cost

At this stage, the activity model and process flows, in conjunction with its cost and time measurements, will be reviewed and analysed in depth to determine for improvement.