# CHAPTER 10
# CONCLUSION

As managers have always used information to perform their tasks, the objective of management information system are collecting and processing the data needed to produce the information for managers that is used to plan, control and manage an organization. Organizations are becoming increasingly aware that information is a resource of strategic importance, and that the computer can manage that resource. MIS is the ease with which accurate and current information can be obtained.

EGAT changed some of its organization into business units and uses a decentralized approach to increase productivity and efficiency. Each business unit must run its affairs as a private company would. To support the business challenges, Wang Noi Power Plant, one of the business units, which is used as a case study for this thesis, is transformed requiring business decision information. Such information should support operations, management, and decision-making functions. The Management Information System (MIS) for the power plant shall be implemented, the selected MIS should be flexible enough, interoperable and modular for the power plant business.

## 10.1 System Description

The system of the organization includes smaller systems or modules. Each of these modules has its own objectives, these subsidiary objectives support and contribute to the overall objectives of the organization. It is necessary to identify the major modules of the organization. In this case study, the information requirement for modules is approached by a synthesis from characteristics of the utilizing system. The MIS

implementation plan is started with business objective and then defining business processes. Business processes are used as the basis of data collection and analysis.

Through the result of interviews the power plant managers and staff have obtained input to the plan. The Management Information System (MIS) is an integrated and combined system, which is to include all of the power plant's information requirements. When fully implemented, MIS will be used to control the life cycle of the power plant's equipment assets from construction into operation, maintenance and, eventually, replacement and working operation. These are listed below:

1) Plant Operation Management
2) Plant Maintenance Management
3) Supplies Management
4) Finance
5) Human Resources Management

**10.2 Implementation Strategy**

The MIS Implementation Plan is conducted to develop a plan for the implementation of MIS within the power plant. A major objective of the Plan is to develop an approach to the implementation that will provide productivity improvements wherever possible, to achieve cost reductions that can increase the power plant's profitability.

It is recognized that the power plant does not have much experience of managing a complex computer system. For this reason it is recommended that "Outsourcing" to a reputable service provider should cater for the power plant information technology requirements, via a bilateral contractual agreement. This will be accomplished under a facilities management contract and for a fee. The objective of "Outsourcing" for the power plant is to consolidate and redesign staff to do support functions in order to possibly drive the highest quality service with most effective cost. Currently, EGAT's Information

Technology division (IT division) acts as the outsource of every EGAT's power plant; it has duties of doing maintenance application software, daily backup, being data security that is protection against unauthorized log-in and accessing protected files on the mainframe. Therefore, the power plant has no need to employ additional staff to support the MIS. According to the plan, the IT division will be privatized for getting more flexibility of acting as an outsourcer.

The MIS implementation strategy involves the following major activities:

1) Announce the implementation and setting up the teams to do the implementation.

2) Preparing the database necessary for an implementation.

3) Initial implementation of the software and equipment.

4) Introducing the feature of the systems, with changes to the working processes, where appropriate.

5) Introducing the features that use the data, which is accumulated in the system, to give planners and management improve information concerning the operations, and to have a greater understanding of the businesses.

6) Introduce the twelve months plan of the MIS.

7) Introduction of the three year plan to The power plant.

8) MIS will be implemented on EGAT's mainframe computer and the power plant's screen application server.



**10.3 Implementation Plan**

MIS system is complex and needs an overall plan to guide its initial development and subsequent change. The MIS plan should consist of two components, which is consists of a MIS master plan and a twelve months plan. The master plan provides

general guidelines for direction while the twelve months plan provides a basis for resource allocation and control.

### 10.4 Schedule

From the analysis of the power plant information requirement in Chapter 4, the purpose of MIS implementation is to implement some major modules concurrently and use phasing approach (implement most critical system first then less critical later). Figure 6-2 shows the overall MIS implementation plan for the power plant

The MIS twelve months implementation plan begins with the power plant announcement of the MIS project and establishing the Wang Noi implementation team. Preparation of the database is necessary for the implementation, which ensures that the software modules shall be properly installed. Figure 6-3 shows the twelve months implementation plan.

### 10.5 Organization

To accomplish an implementation, it is considerable that a well-organized structure of MIS implementation is a key factor. Finally the implementation will obtain good support from persons who are involved in this implementation organization. The proposed MIS Implementation organization structure is developed from the power plant existing organization, that is all major staff are assigned to be part of the implementation organization. Figure 7-1 shows the organization Chart of the MIS implementation project.

### 10.6 Investment and Benefits

MIS will give organization a system for managing its business. The system, when fully implemented, will be as good as resources utilized by the best-managed utilities. The

cost and benefit should be factors of the consideration. Figure 10-1 shows estimated investment cost for Wang Noi Power Plant.

| No. | Item | Year 1 Baht | Year 2 Baht | Year 3 Baht |
|---|---|---|---|---|
| 1 | File Server | 600,000 | | |
| 2 | Software | | | 1,200,000 |
| 3 | Hire Contractor to do the implementation | 27,745,000 | 11,120,000 | 15,956,000 |
| 4 | Outsourcing to handle the data processing activities. | | 2,200,000 | 2,500,000 |
| 5 | Wang Noi Manpower | 6,210,000 | 3,105,000 | 3,135,000 |
| | Total Amount | 34,555,000 | 16,425,000 | 22,791,000 |

Figure 10-1. Estimation of investment cost (in Thai Baht, THB 40.00 = 1 US$)

The total estimation of investment cost is 73,771,000 Baht that is very small portion comparing with the volume of electricity sale of Wang Noi Power Plant. Item 4 of Figure 10-1 shows the estimation of "Outsourcing" costs to handle the data processing activities, the expense for the outsourcer comes from a set fee per month with additional fee which depends on number of items are in the processing. The expense is made to this "Outsourcing" that is reasonable and it is easily stabilized rather than purchasing own hardware at bulk price and consequently causes development and maintenance costs.

The benefits of a management information system are summarized below:

1) Provide electricity within a tight cost structure by control operating.

2) Respond more quickly and communicate effectively with other managers of each individual unit in Wang Noi's organization.

3) Reduced plant downtime and extended equipment life

1) More systematic preventive and predictive maintenance resulting in increment of availability, reliability and performance of plants

2) Well planned shutdowns

3) Systematic and efficient response to breakdowns.

4) Improve overall efficiency

1) Improve work safety

2) Improve planning and management of operations, maintenance, finance, human resources, reducing labor costs

3) Tightly operation, maintenance and material planning

4) Consistent standards and procedures.

5) Improve procurement and controlled costs

1) Improve information for part and supplier selection

2) Quantity estimating

3) Procurement cycle management.

6) Reduce inventory levels

1) Through integrated part control

2) More systematic inventory management

7) Improve asset management

1) Decisions based on actual data

2) Management awareness of real maintenance costs.

## 10.7 Recommendations

The appropriate MIS to be applied to an organization shall be a system that is able to collect and proceed the data needed to produce the information for management who further utilize those information to make a plan, to control and to manage such organization.

To find out the appropriate, one shall start the following the proper procedure:

1) Surveying information requirement by asking
2) Deriving from an existing information system
3) Synthesizing from characteristics of the utilizing system
4) Discovering from experimentation with an evolving information system.

It is recommended that surveyors should realize the basic information of job description of each individual module in that organization prior to surveying. This will assist surveyors to receive clear picture communication between them and staff of that module and then can get efficient conclusion of the module's requirement.

In the process of MIS implementation, a selection of application software should consider to purchase application software rather than own developing by an organization. This will help an organization to avoid over budget and project delay, also and to reduce risk by test-driving software and talking to other users. However, general application software is not developed to serve all requirement of any individual organization. The recommendation of software selection criteria is as follows:

1) Software functionality: The suitable application software must at least support all basic business functions requirements.

2) Integration: The application software design should clearly support the MIS strategy.

3) Successful past history: The vendors must prove their past and present experience of their products within the local market, region and worldwide.

4) Service Support: The vendor must have office in Thailand, adequate management, technical and support personnel to enable adequate quality and quantity of service and timely support.

5) Financial strength: The higher vendor's revenue, the more they will be able to invest in research and development of their products and support capability.

6) Cost: The system development investment should provide significant strategic advantage with the reasonable cost.

The management and key users should involve in the process of software selection. In comparison, it should classify and weigh each selected criteria, then make each software functionality test to every selected software and give them marks according to given weight. Finally, the most effective software can be identified.

For Wang Noi Power Plant case, the MIS twelve months implementation plan, selected application software will be the same as the other EGAT's power plants since it has been already finalized the selection and proved by actual use.

An implementation team that is recruited from an organization's staff can effectively cooperate with outsourcer team by deeply studying working procedures of each module that will be implemented. Furthermore, the team has to know where in such module it can get data from. Therefore, to accomplish this effective team, it shall have a training course in order to let all members understand and create proper database of each module.

Wang Noi Power Plant should develop staffs to into having clear understanding of application functions. The power plant does not require any additional staff to support MIS since the decision is made by using outsourcing.

10.8 Conclusion

The case study shows that the management must commit themselves to making the full investment outlined in the MIS Plan. The purpose of this MIS Implementation Plan is to provide the strategic direction and defined course of action required for maximizing Wang Noi's Power Plant benefits. A successful implementation will improve the procedure of the power plant operation, by effectively managing the Asset Life Cycle, and thus will enable The power plant to be a world-class, profitable utility, an be ready for privatization.

The conclusion of Key Success Factor can be briefly itemized as follows:

1) Management vision/support
2) Willing to change, management drives change
3) Active user involvement
4) Small number of user representatives who have sufficient authority to make decisions
5) Experienced project team and project management
6) Proven methodology
7) Well-organized project
8) Effective communication

There are some risks that may occur in implementation the MIS, which are summarized below:

1) Cost overrun: The expenses of the implementation is probably higher than the expectation because the actual action cannot run according to the plan, which it is able to analyzed the reason from 'key success factor'.

2) Failure because of users: A risk of users lack of interest in and understanding of the advantage of MIS; this will cause system failure since the MIS

cannot receive the sincere cooperation from users of which the management possibly gets untimely data, unreal and inaccurate information from basic level.

3) Failure because of inadequate contractor: An implementation by contract out to contractors may get some trouble if such contractors have less experience and inadequate ability to implement.