THE MAINTENANCE MANAGEMENT OF MARINE PORT FACILITIES: 
CASE STUDY KUANTAN MARINE PORT

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ABSTRAK

ABSTRACT

Nowadays, facility management plays an important role in building industries in Malaysia. It become importance for many building owner especially building or facility involve in 24 hours everyday operation. For this reason, it should have a good maintenance services to sustain the function of all facilities in building whereby it will fulfil building users need. The effectiveness of the aspects of maintenance such as planning, supervision and organization management will maintain the building quality performance all the times. In order to determine the maintenance aspects in facility management, a case study was conducted on Kuantan Port, Pahang. The data was collected via interview with people who involved in maintenance management and also identify the system of maintenance works. Based on the case study, it found that the maintenance aspects in facilities management of Kuantan Port consist of planning, maintenance work system, scheduling of work and work record. The result from this study, the aspects of maintenance can influence the maintenance costs base on the annual maintenance cost. In this study, several improvements to existing building maintenance management have been identified. It is useful as a guideline for an effective facilities and maintenance management.
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<td>BMS</td>
<td>Building Management System</td>
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<td>BS 3811</td>
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<tr>
<td>CMS</td>
<td>Computer Management System</td>
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<tr>
<td>ECER</td>
<td>East Coast Economic Region</td>
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CHAPTER 1

INTRODUCTION

1.1 Background of The Study

Over recent years there have been many developments of a generic nature that have had a profound effect on the manner in which estates are managed and maintained. A significant driver has been the rapid growth of facilities management, and connected with this, directly and indirectly, have been initiatives in procurement strategies, contracting out, and performance monitoring and measurement.

This chapter examines a number of these developments but uses as a starting point the growth of facilities management. Many of the issues discussed have a relationship with facilities management, it is emphasized that in some cases they are of wider significance in relation to managing building maintenance. (Barrier Chanter and Peter Swallow, 2007)

In a place or building that make attraction to people look and coming that places are the facilities system. The facilities system must be operate and function by the organizer or contractor that made the building. With exist that facilities, people and the places be comfortable and easier to be operational. The facilities system will start operate when the building or places are in still or end of construction that with
installed the facilities until the end of operation of building or demolished. The growing of economic competes with the development in city. So, to develop the cities need the infrastructure such as building to manage the cities. The example management building like as government building, airport, harbor and many things include the building to develop economic.

The facilities that exist in operational of building include the use of new technologies in system such as integrate Building Management Systems (BMS) using networks locally, regionally or worldwide. As an essential basis, interconnecting devices in these “intelligent buildings” must support the interoperability between controllers or control stations and sensors and actuators. Internet or Intranet solutions provide a powerful, convenient and low cost means for intelligent building network integration following their popular use in business and daily life. It is also allow a better coordination of different building services systems and convenience of management. The uses of internet or intranet are very wide; it’s include the intelligent in security system, lift system and connecting people. It’s very commercial in office building and factory. (Shengwei Wang, 2002)

Other than that in facilities that present to people and the building management must have to building that are services. Services are including such as electric, piping, lift for high rise building, maintenance, worker that handle in cleaning, security and etc. Within this equipment, this will help the public want to come and come again in building and very satisfied with the services system. This also can increase the economic system in that city actually. Facilities Management involves services associated with real estate management and systems. Of course the motivations for outsourcing in any industry are driven by an ever-greater organizational pursuit to ensure cost discipline, whilst improving quality of service and delivery capability.

However, as the outsourcing has become a popular mechanism for differentiation by contracting out the non-core activities, the differences in the motivations for outsourcing have emerged. This has been ignited by the debate as to what is core and what is non-core function. For instance, noted that back office
functions are considered as key contributors to competitive advantage. In this respect, organizations can benefit by drawing learning from different types of outsourcing and the outsourcing practices in different geographic locations.

1.2 Problem Statement

The facilities commonly must have in such of many building in Malaysia. So now, what are the differences between the building in Malaysia like airport, port or shopping complex. The different between them are the facilities. What are their facilities in their building? How they manage their building? With the infrastructure building or management building such as airport, immigration complex and government builds office. The differences between them both two building facilities system are so many, it's based on the technologies using, services system or security system.

So, why the building need the facilities especially for management building? That because there are lots of people coming from other places not only to manage something but want to fell the comfortable of facilities and then to share the experience with the other people outside there. If there no facilities, that will cause of economic will down. Example like in Klang port, the facilities are almost very completed with the information system, lobby, the ship parking system, the cargo services and security system.

Now, people compete to build the building with full infrastructure and facilities. But now, the facilities must be maintenance to make sure the building can operate like usually as daily. Who are those manage in this facilities and maintenance to make it longer function? So, that must have the strategies how to manage and maintain the facilities.
So, the researching being progress to observe and evaluate how the effectiveness and importance of management facilities system in commercial area especially. Other that, it’s also to determine the strategies taken by the building management to against the weakness of management facilities system that have exist also the strategies to improve the system for the future.

Malaysia have about 105 of port it’s include the harbor and jetty. Ports in Malaysia are divided to two categories that it’s major port and minor port. There are about 17 main ports in Malaysia that is divided to federal ports and state ports. The ports are:

a) The Federal ports
1. Kelang Port
2. Tanjung Pelepas Port
3. Pulau Pinang Port
4. Johor Port
5. Kuantan Port
6. Kemaman Port
7. Bintulu Port

b) The State ports
1. Kuching Port
2. Rajang Port
3. Miri Port
4. Kota Kinabalu Port
5. Sandakan Port

Therefore, the port will be the place and continued my study to complete this study and included all studies and data that will be implemented in this thesis. Port will be selected for the studies are Kuantan Port in Pahang. In addition, there are also other ports will be visit such as Johor Port to compare in terms of facilities.
1.3 Objective Of Study

The objective that want to achieve is determine the effectiveness of management facilities system that have done can be maintain based on assets, workers and technologies also improving the quality to saving the cost for long term. Following that the list of objective that wants to achieve that related to this topic:

1. To determine the aspects taken of maintenance management building of port.
2. To determine the skill, knowledge of personal handling port facilities management

1.4 Scope of Study

Scopes for this research are to focus on the assets in building especially for port such as services, maintenance, security system and human resource. Other that, this researching will to focus how to apply and implementation the facilities system management for building in port and how it will be applied.

Beside that of the research, how can the currently of facilities system management by port can effective to the cost, time and quality. Aspect that will be focus are the organization of building maintenance system and the operation of the maintenance that provide to all facilities in port. The respondents involved in this study are the user of port like as the companies' do the maintenances, the worker and manager.
1.5 Importance of study

There are many importance of this study to relate in the new facilities system especially in Malaysia port. The importance are:

a) To help the maintenance management units to determine the problem that they have manner before and try to develop and apply the new procedure of effective maintenance.

b) To improve the facilities and maintenance management with the skills and to determine the weakness that have in system and try to improve the quality of system and make advice to create the effective maintenance system.

c) To make a guide for building management of port for being the great management system in port also to improve the service to make the good quality with the minimum cost for being the long term life cycle.

From these all importance, that will help the building management to evaluate the weakness and the problem and how to handle and try to solve the problem that they manner before. For the strength that they have now, they need to maintain and improve the skill related with the new technique and new technologies to being with the other developed countries.
1.6 Flow chart of methodology

Problem statement → Literature review → Collect data →

Case study: Maintenance, Building services, Security & fire → Interview: Maintenance worker, Manager, Supervisor →

Arrangement/analysis → Conclusion
CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

System management facilities is one of the system that integration of management of each assets by balancing the provisions and efficient for each assets. In this system, each asset will put into the checklist or inventory list for easier checking for the next time. The data will be record in systematic to database and then update by the time. Each assets will observe and checkup by periodically based on program provided and then implementation assets maintenance.

Facilities management involves the evaluation of building quality that measure commonly. Facilities management field is very broad and covers all matters. It needs the effective management system to be the systematic. Maintenance is the part of facilities management that needs to be focus. In construction, maintenance get less attention, while it's very important part for maintain the quality that can be function. Maintenance needs since when the construction is done. This because, maybe potential of facilities get broke is high when it not maintain. So, the maintenance system management needs for maintain and care the building.
With increasing automation and the reliance on large complex container cranes complete with substantial mechanized backup equipment, maintenance in modern port operations has assumed a very large impact on port economics. Unfortunately, the effectiveness of the maintenance performed at many ports has lagged behind that of operations. This has been due in large part because of the emphasis placed on cargo handling and the related technical advancements in cargo handling equipment. Cargo operations, by its very nature is amenable to monitoring and control as operating statistics, containers handled per berth hour are easily computed and can be compared to budgeted. Control parameters useful for managing the maintenance function, however, are more difficult to quantify which may explain its lack of development as compared to cargo operations.(Stephen R. Brown, 2001)

Following tend to characterize most port maintenance programs:

• Most of the maintenance work is unscheduled and is related to equipment breakdowns affecting cargo operations.
• Senior management personnel tend to view maintenance personnel primarily in a standby mode, to be called upon in the event of critical breakdowns.
• Maintenance organizational accountability tends to be centered around shift coverage, rather than on area or equipment groups.
• Direct and indirect (loss of loading/unloading time) maintenance costs are higher than they should, or could be.

The objective of port maintenance should be to ensure the operability of equipment as to maximize discounted cash flow for the port over its lifetime. Meeting this objective requires a substantial amount of planning and resource control on the part of maintenance management personnel. In our experience over the past decade in maintenance management consulting around the world in various industries, the objective can best be met through the implementation of an integrated management system, along with related training, containing the following elements:
- An organization structure emphasizing accountability and the means to measure performance.
- Planning and scheduling for the short term (each shift) as well as forecasting for the intermediate and longer terms.
- Short term performance monitoring based on scheduled milestone events during the course of daily work.
- Accurate documentation of work performed, and its entry into equipment history files.
- Effective preventive maintenance program.
- Reporting of performance indicators appropriate to the organizational level being monitored.
- The remainder of this paper deals with suggested approaches to implementing these elements in a port operation.

Ports contributed to the stable development of industries and improved the lives of people by securing links with trade partners around the globe. Historically, port developments and their evolution have begun, motivated by both economic and technological pressure resulting from the global industrial revolution. (Gregory P. Tsinker, 2004).

2.2 Definition of Facilities

Facilities can be translated as infrastructure that includes equipment, program, and worker. In typical, it refer to material or assets that completing the building and office. It’s the physical facilities and service that provide for the area places.
Refer to the act of city planning and rural 1976 (act 172), facilities means: The qualities or condition a places or area that can make the places be attraction and fun, harmony and feel the good include field, playground, theme park and garden house. It does explain the facilities can make easier and fun to human.

2.3 Facilities management

Refer to British Institute of Facilities Management (BIFM), facilities management is a activities in all discipline to be the effective environment and management to human and work places. The human refer to workers, users, customer from inside or outside and also visitor. Work places is include the physical element and not physical of a building.

Danny (1999) state, facilities management is the management field that mixed with human, wealth, and another process for making the good services to support the organization.

Facilities management is include about five elements that is space management, long term management, wealth and assets, landscape and space management and project management. For be care the life of building, the long term management are more needs. This is include the costing for being the management and services also the information system of facilities management.

For the building owner, they want the profit being the building income. Other that, the facilities or assets must be managed so kindly to attract the investor for get a place in the building. The security is the important for many high rise building. It’s include the fire protector, exist way, wealth fire protection and environment threat. For a building, the arrangement of cabinet inside must be consider also the space.
The purpose to do that, is to make the comfortable for users or workers being the work quality can be achieve.

2.3.1 Port facilities management in Malaysia

Ports in Malaysia have about 105 ports and the main ports are about 17 ports. Large ports need to deal with a number of disparate activities: the movement of ships, containers and other cargo, the loading and unloading of ships and containers, customs activities. As well as human resources, anchorages, channels, lighters, tugs, berths, warehouse and other storage spaces have to be allocated and released. The efficient management of a port involves managing these activities and resources, managing the flows of money involved between the agents providing and using these resources, and providing management information. (Port Klang, Wikipedia)

The priority ports that the ship will anchor their ship in harbor in Malaysia are port Klang. The Klang port is the famous and it is very strategic places and sheltered from the northeast monsoon wind. The Port Klang Authority administers three ports in the Port Klang area namely Northport, Southpoint and Westport. Prior to the establishment of the Port Klang Authority, South Port was the only existing port and was administered by the Malayan Railway Administration. Both Westport and Northport have been privatized and managed as separate entities. The total capacity of the port is 109,700,000 tons of cargo in 2005 compared to 550,000 tons in 1940.

Northport is owned and operated by Northport (Malaysia) Bhd and comprises dedicated multipurpose port facilities and services. The Northport entity was a merger of two companies; Kelang Container Terminal (KCT) and Kelang Port Management (KPM). Its operations also cover South Port, which was
renamed Southpoint for conventional cargo handling, and acquired Northport Distripark Sdn Bhd (NDSB) as part of its logistics division.

Westport is managed by Westports Malaysia Sdn Bhd (formerly known as Kelang Multi Terminal Sdn Bhd). A passenger port, The Star Cruises Terminal, opened in December 1995 at Pulau Indah which is located next to the cargo terminals of Westport. Cruise line ships drop anchor in any of the three berths at the Star Cruises Terminal.

Port Klang is served by several KTM Komuter stations (including the Port Klang Komuter station) which link it to Kuala Lumpur, Petaling Jaya, Shah Alam and other parts of the Klang Valley. A ferry terminal to Pulau Ketam and an International terminal to Tanjung Balai and Dumai in Indonesia are also located in the area. The old ferry terminal used to serve regular passenger boats to Pulau Lumut and Telok Gongjeng terminal until the completion of Northport Bridge link.

2.3.2 The Facilities and Services in Port

In port commonly there must have the great facilities to make the work easy and for comfortable users. In order to ensure safe and efficient shipping traffic to and from the port, ships entering or leaving can call on a number of services offered by the Port Authority and private companies. Commonly, the services used the human power or machine. Example like Ships’ masters can call on the advice of pilots for navigating and maneuvering their ships. Piloting of ships and coordinating the flow of traffic on the Scheldt is done by the Pilot age.

For navigation on the Scheldt, ships can call on the assistance of tugs from the human power and tug ship for make tugging the cargo ship near to the port. Maneuvering a seagoing ship within the dock complex is a critical task. Ships