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THE AWARENESS  
OF WASTE MANAGEMENT  
AT COMPANY ABC AND COMPANY XYZ

NOOR NASIRAH BT MT NASIR

Report Submitted In Fulfillment of  
The Requirements for  
The Bachelor of Technology Management (Technology Innovation)

Faculty of Technology Management and Technopreneurship  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

JUNE 2015

"I admit that this report is the result of my own work except summaries and excerpts  
that each of them I have explained the source"

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Date :.....

## DEDICATION

This Final Year Project is dedicated to my parents for their love, endless support, encouragement, and prayers.

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**Bismillahirrahmanirrahim**, Alhamdulillah. Thanks to Allah SWT, whom with His willing giving me the opportunity to complete this Final Year Project which is title The Awareness of Waste Management at company ABC and XYZ .This final year project report was prepared for Faculty of Technology Management and Technopreneurship, Universiti Teknikal Malaysia Melaka (UTeM), basically for student in final year to complete the undergraduate program that leads to the degree of Bachelor of Technology Management and Innovation. This report is based on the methods given by the university.

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## ABSTRACT

This study is about the awareness of waste management which focus on managing waste material, managing scheduled waste and presentable the Safety Data Sheet (SDS) of hazard communication of using respondent at company ABC and company XYZ as sample data. This study aim to (1) investigate the awareness of waste management at company ABC, (2) identify the knowledge towards employee's safety at company ABC, (3) investigate the awareness of waste management at company XYZ and (4) identify knowledge towards employee's safety at company XYZ. Questionnaire was distributed to the respondent and the data was analysed using correlation analysis, simple linear regression, multiple linear regression and independent sample t-test. Based on the result, there is a positive relationship between waste material, scheduled waste, safety data sheet and knowledge (independent variable) with the awareness of waste management (dependent variable). All the independent variables have significant one to one relationship with dependent variable. However, using multiple linear regressions shows that only scheduled waste and knowledge have significant relationship with dependent variable. Comparison between these two companies had been done and showed that the both company had understanding on scheduled waste only. These both company are recommends to (1) waste material, (2) safety data sheet and (3) knowledge, to increase their understanding on awareness of waste management in future.

## ABSTRAK

*Kajian ini adalah mengenai kesedaran pengurusan sisa yang memberi tumpuan kepada pengurusan bahan buangan, jadual bahan buangan dan helaian data keselamatan (SDS) dengan menggunakan responden di syarikat ABC dan syarikat XYZ sebagai data sampel. Tujuan kajian ini untuk (1) menyiasat kesedaran pengurusan sisa di syarikat ABC, (2) mengenal pasti pengetahuan terhadap keselamatan pekerja di syarikat ABC, (3) menyiasat kesedaran pengurusan sisa di syarikat XYZ dan (4) mengenal pasti pengetahuan terhadap pekerja keselamatan di syarikat XYZ. Soal selidik telah diedarkan kepada responden dan data dianalisis menggunakan analisis korelasi, regresi linear mudah, regresi linear dan sampel bebas ujian-t. Berdasarkan keputusan itu, terdapat hubungan yang positif antara bahan buangan, jadua bahan buangan , helaian data keselamatan dan pengetahuan (pembolehubah bebas) dengan kesedaran pengurusan sisa (pembolehubah bersandar). Semua pembolehubah bebas mempunyai signifikan kepada satu hubungan dengan pembolehubah bersandar. Walau bagaimanapun, dengan menggunakan model regresi linear berganda menunjukkan bahawa hanya jadua; bahan buangan dan pengetahuan mempunyai hubungan yang signifikan dengan pembolehubah bersandar. Perbandingan antara kedua-dua syarikat telah dilakukan dan menunjukkan bahawa kedua-dua syarikat itu mempunyai kefahaman mengenai jadual bahan buangan sahaja. Kedua-dua syarikat ini dicadangkan (1) jadual bahan buangan, (2) helaian data keselamatan dan (3) pengetahuan, untuk meningkatkan pemahaman mereka mengenai kesedaran pengurusan sisa pada masa akan datang.*

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 INTRODUCTION**

Sustainable waste management was introduced to maintain the balance between the environment, social and economic aspects through several ways such as acts implementation, and techniques in managing waste. Therefore, it is essential to identify current waste management system adopted by industry in order to make adjustment and improvement in moving towards sustainable waste management. The increasing number of municipal solid waste management has become the biggest environmental problem in Malaysia. Population growth has led to the increase in generation of solid wastes in Malaysia and it has become a crucial issue to be solved.

According to Zia and Devadas (2007), the waste generated are from sources like domestic, industrial and commercial and it shows an increasing trends throughout the world. Due to this reason, solid waste management plays an important role in maintaining a sustainable environment. In addition, construction waste is part of the waste generated and categorized under solid waste. It is supported where Malaysia construction waste forms a significant portion of wastes that is finally disposed in landfills.

According to K.Gyekum, et al (2012), construction waste materials can be defined as the comprising of unwanted materials generated during construction. Furthermore, pollution caused by construction waste has caused negative impacts towards the environment and leads to economic lose.

Therefore, to reduce the total amount of wastes generated, an optimal waste management system should be adopted in order to achieve sustainability.

In the process of achieving sustainability in waste management, it required the cooperation of every waste management practitioners involved with suitable method or technology used. In short, a practice in applying sustainable waste management system has to be integrated into all the industries thus building a promising future.

## **1.2 BACKGROUND OF STUDY**

Environmental policy statement is one of the responsibilities by industry especially in manufacturing sector to minimise the impacts of industry activities, products and services to the environment. The industry must committed to conserve the environment by reducing waste and consumption of natural resources and ensure any adverse impact to the environment from our activities, product and services is minimised or eliminated to prevent pollution.

For the purpose of the environmental management system, the terms and definitions shall follow the definitions defined in ISO 14001:2004. International Standard for Organization (ISO) 14001:2004 is a family of standards related to environmental management that exists to help organizations to minimize how their operations negatively affect the environment such cause adverse changes to air, water, or land, comply with applicable laws, regulations, and other environmentally oriented requirements, and continually improve.

ISO 14000 is similar to ISO 9000 quality management in that both pertain to the process of how a product is produced, rather than to the product itself. As with ISO 9000, certification was performed by third-party organizations rather than being awarded by ISO directly. The ISO 19011 audit standard applies when auditing for both 9000 and 14000 compliance at once.

Waste management is the generation, prevention, characterization, monitoring, treatment, handling, reuse and residual deposition of solid wastes. The waste management usually relates to materials produced by human activity and the process was generally undertaken to reduce their effect on health, the environment or aesthetics. Apart from that, there was a wide arrays of issues relating to waste management and those areas include environmental consideration, waste removal, storage, waste minimization, waste treatment, policy and regulations, education and training, waste removal and others.

According to Sin, T.J et al (2013) nowadays, the increasing quantity of municipal solid waste has causes serious environmental problem which requires a better solution in handling the wastes that generate. Construction waste is considered as part of the municipal solid waste. Construction wastes that produce in the construction process contributes a large amount to municipal solid waste. For that reason, a proper way of handling construction wastes is significance in reducing the negative impacts towards the environment, social, and economy.

### **1.2.1 Company ABC**

The first focus area of this research is company ABC. Located in Lorong Perusahaan 6B, Kawasan Perindustrian Prai,13600, Prai, Penang. Company ABC is an electronic company that produce management device product.



The product is Electro-Magnetic Control Device (EMCD) which are most compact and versatile electronically controlled driveline and axle coupling. The other product is Electronic Torque Manager (ETM) which ETM direct actuation method provided a most responsive and controllable electronically controlled driveline and axle coupling.

### **1.2.2 Company XYZ**

The second focus area of this research is company XYZ. Company XYZ was established on 1 December 1989. Located in Lorong Perusahaan Baru 2, Zon Perusahaan Prai, 13600, Prai, Penang. Company XYZ is the manufacturer's of four channels Auto Reverse magnetic heads for car stereos, magnetic heads for Advanced Photo System (APS) cameras, shutter units for cameras and iris galvanometers Video Tape Recorder (VTR) cameras, among the many products that were manufactured in Malaysia. These products are then shipped worldwide to its international customers.

## **1.3 PROBLEM STATEMENT**

Based on actual problem, company ABC and company XYZ, there are three of the lacking of waste management. The first problem is improper managing waste material, second problem is not up to date information on waste schedule and the third problem is not presentable Safety Data Sheet (SDS). This company were chosen because both of the company are electronic manufacturer. Furthermore, the similarities in term of products or others that lead to this three waste management are both of company had problem in managing waste material, the waste schedule information was not up to date properly at the end of every month and the Safety Data Sheet (SDS) was also not presentable which only some of employees know about the content of SDS.

### **1.3.1 Improper managing waste material**

The first problem is the employees at company ABC and XYZ did not emphasized the waste material using the right ways at their workplace. The waste materials are unused material or rejected unwanted. For example, the stack of rejected parts and pallet were placed anywhere. It is very dangerous situation to the employees and the implications of this condition will make it difficult for workers to exit in case of fire. Besides that, the stacking pallet is over the limit.

The implication of this situation it may cause an accident to employees. Apart from that, the labelling and packaging 4 drums in one pallet which one stack also did not have plastic, steel tape or brand to secure the drums. The drums needed plastic or steel tape to secure, if not chemical spillage will happen.

### **1.3.2 Information on Waste Schedule are not Updated**

The second problem is company ABC and XYZ did not update the information on waste schedule. Besides that, the schedule waste of inventory information such as the opening balance, input, output and balance per month always are always updated late while registered and fill-in the waste notification of e-consignment instead the information should be updated at the end of every month. The update of the information was done in one time only. This included the information from the last year till current year. However, the data were collected from maintenance department on current year.

This information could be collected from e-consignment whereby the company must register to log in and this is under Kualiti Alam Sdn Bhd. The important of scheduled waste is to ensure that waste is stored and removed by the rules of Jabatan Alam Sekitar.

### 1.3.3 Not presentable Safety Data Sheet (SDS)

Due to regulatory changes, on or before June 1, 2015, Material Safety Data Sheets (MSDS) will become Safety Data Sheets (SDS). SDS serves the same purpose as MSDS and SDS will be in a uniform format and is easier to read. The labels on hazardous chemicals will include, (1) Pictograms which visually identify the main hazards,(2) Signal words: “warning” (less serious risk) or “danger” (more serious risk),(3) Hazard statements and (4) Precautionary statements. In addition, SDS information may include instructions for the safe use and potential hazards associated with a particular material or product. These data sheets can be found anywhere where chemicals are being used.

Apart from that, many companies offered the service of collecting, or writing and revising, data sheets to ensure they are up to date and available for their subscribers or users. Some jurisdictions impose an explicit duty of care that each SDS be regularly updated, usually every three to five year. However, when new information are available, the SDS must be revised without delay. Safety Data Sheet (SDS) is an important component of product stewardship and occupational safety and health. SDS is a widely used system for cataloguing information on chemicals, chemical compounds, and chemical mixtures.

Company ABC and XYZ were also not presentable about Safety Data Sheet (SDS) to involved employees and around chemical store. SDS are a key component to proper hazard communication and provides information about the chemical, as well as other information used by many different individuals or groups who may use or come in contact with the product. The employees who use SDS as a resource to for detailed information about the chemicals they use daily. Apart from that, the healthcare professionals who used SDS when providing routine or emergency care. Furthermore, the emergency responders who also use SDS as a tool to ensure their safety as well as the safety of a community during an accident or other emergency.

## **1.4 RESEARCH QUESTIONS**

There are four research questions were asked on this research.

- i. What is the awareness of employees to managing waste management at company ABC?
- ii. What is the awareness of employees to managing waste management at company XYZ?
- iii. What is the knowledge of managing waste towards employee's safety at company ABC?
- iv. What is the knowledge of managing waste towards employee's safety at company XYZ?

## **1.5 RESEARCH OBJECTIVES**

There are four objectives of this research.

- i. To investigate the awareness of waste management at company ABC
- ii. To investigate the awareness of waste management at company XYZ
- iii. To identify the knowledge of managing waste towards employees safety at company ABC
- iv. To identify the knowledge of managing waste towards employees safety at company XYZ

## **1.6 SCOPES AND LIMITATION**

The scope in this research is the survey conducted at Prai, Penang. This location was chosen because it is known as Prai Industrial State. Besides that, the scope in this research that has been chosen is an electronic company in Prai. There are seven electronic companies in Prai. However, only two companies were involved in this survey which are company ABC and Company XYZ. These companies were chosen because of the similarities in term of product or others that lead to waste management. The survey was conducted at AKTY Technologies Sdn Bhd before. The researcher changed the company to company ABC and XYZ because the researcher could obtain and collect the data from those companies. These companies also have same characteristics whereby the companies are both producing electronic products.

The limitation of the research was, the research only focused at company ABC and company XYZ manufacturing. Apart from that, this research did not involve other place for this survey.

## **1.7 IMPORTANCE OF THE STUDY**

The awareness of waste management is important to industry especially manufacturing sector like company ABC and company XYZ because it involves the wastages that are related to environment.

The importance of this study was to investigate the awareness of waste management and the effects to employee's safety. The awareness can be seen from the employees attitude either they follow the Standard Operation Procedure (SOP) during their duty or not which can be seen from the first problem statement.

The second importance to this study is to identify the knowledge of managing waste towards employee's safety. If the condition of improper managing waste material is not prevented this can cause an accident, affect the cooperative quality, productivity and performance and business.

## **1.8 SUMMARY**

This chapter consists the background of study of waste management and the focus area of this research is company ABC and company XYZ. The awareness of waste management and the effects to employee safety such as managing waste material, managing scheduled waste and emphasizes SDS is important that can give the effect to employees safety.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

In this section, it consists of finding and thought on previous study about theory that related to waste management and knowledge. The theory of waste management that related which is the Waste Material Handling, Scheduled waste, Safety Data Sheet (SDS) and knowledge. Furthermore, framework and hypothesis of this study are shown in section 2.4 and section 2.5.

#### **2.2 WASTE MANAGEMENT THEORY**

The waste management and knowledge is related to investigate the awareness of waste management and the knowledge of managing waste. According to P, Eva et al (2004), Waste Management Theory (WMT) is a unified body of knowledge about waste and waste management. It is an effort to organise the diverse variables of the waste management system.

The waste material is an unused material or rejected unwanted. According to Vika Lutui (2001), waste management is defined as the process of dealing with or controlling solid waste. The waste management processes covered included waste generation, handling, storage, collection and transportation, minimisation and final disposal. Waste management also can categorized for handling the waste material.

The waste material is an unused material or rejected unwanted. According to Agwu,et al (2012), solid waste management as the process of collecting, storing, treatment and disposal of solid wastes in such a way that are nameless to human, plans, animals, the ecology and the environmental generally.

### **2.2.1 Waste Material Theory**

The waste material is an unused material or rejected unwanted. According to Adewole and Taiwo,A. (2009), waste management must mean the collection, keeping, treatment and disposal of wastes in such a way as to render it harmless to human and animal life, the ecology and the environment generally. Apart from that, the waste as the term implies is any solid, liquid or gaseous substances or materials which being a scrap or being super flows, refuse or reject, is disposal off or required to be disposal as unwanted, this is environmental law.

The labelling and packaging 4 drums in one pallet need to secure it with plastic or steel tape. According to Jabatan Alam Sekitar (2014), management of containers containing scheduled wastes of containers to be transported to other prescribed premises for recovery or disposal shall be the drums shall secured by appropriate plastic wrapping and or plastic or steel tape or band. Many properties were improperly stored, used and disposed of chemicals. These careless practices waste money, pose unnecessary hazards to employee, and threaten the long-term health of the local environment.