

# **CHAPTER 1**

# **INTRODUCTION**

## **1.1 Introduction**

Nowadays, works embrace changes in people's lives. Even though working environment has improved considerably during recent decades, but occupational accidents still occur. The prevention of work related injuries still remains as a major problem faced by all types of organization. In the industrialized nations of the world, accidents now cause more deaths than all infects diseases and more than any single illness except those related to heart disease and cancer (Biggs *et al.*, 2005).

Occupational Safety and Health (OSH) is an interdisciplinary field which encompasses among others, that includes the disciplines of industrial hygiene, occupational medicine, occupational nursing, engineering, epidemiology, and toxicology (Levitt and Samelson, 1993). Occupational Safety and Health Management System (OSHMS) is an integral part of the overall management system of the organization where the applications are based on relevant OSH criteria, standards and performance. It aims in providing a method to assess and improve performance to prevent from workplace incidents and accidents via effective management of hazards and risks at the workplace (OSHMS, 2011).

In Malaysia, there are two OHSMS: (1) OHSAS 18001: 2007; and (2) MS1722: 2005 that based on the ILO- OSH MS Standard 2001. The requirements of this standard are equivalent to OHSAS 18001. The conditional effectiveness of OHSMS is further supported by Gallagher (2000) who compares the effectiveness of different types of system, with innovative management structure and style, and principally reliant on a safe place control strategy, are found to be the most effective on several objective OHS and OHSMS performance measures.

In attaining full industrialization development by the Year 2020, the government awares that some issues of OSH should be addressed in a form of reasonable and pragmatic manner. The Occupational Safety and Health Act (OSHA) was gazette on 24th February 1994, cited as OSHA 1994 by the objective of providing legislative framework in securing the safety, health and welfare among all workforces in this country. According to Ratay (1997), regardless of strictly enforced safety and health regulations in most countries, high rates of injury and fatality do persist.

Marsh *et al.*, (1995) stated that management commitment has a high impact on all aspects of intervention. Both elements must combine well for effective OSH. Management commitment to safety indicates the extent to which top management demonstrates positive and supportive safety attitudes (Hsu *et al.*, 2007). Moreover, the participation of employees has been identified as one determinant of successful occupational safety and health management (Alli, 2001).

## 1.2 Problem Statement

Workplace accident becomes worst year by year, and known to be a major concern to the organization involved. Many occupational accidents and injuries are due to the breakdown, inadequate or non-existence in the existing OSHMS. Occupational accidents and disease remain the most appalling human tragedy of modern industry and one of its most serious forms of economic waste (Somavia, 2004).

It has been recorded that there are frequent numbers of accidents occurred each year at the workplace. Based on Figure 1.1 below, the Occupational Accidents Statistics by Sector in Malaysia (until May 2013), indicate that there are three types of occupational accidents in Malaysia which includes; (1) Death (D) (2) Non-permanent Disability (NPD) and Permanent Disability (PD). The manufacturing sectors were contribute as the highest occupational accident involved, compare to other industries, with the NPD is the main occupational accident injury in manufacturing industry.

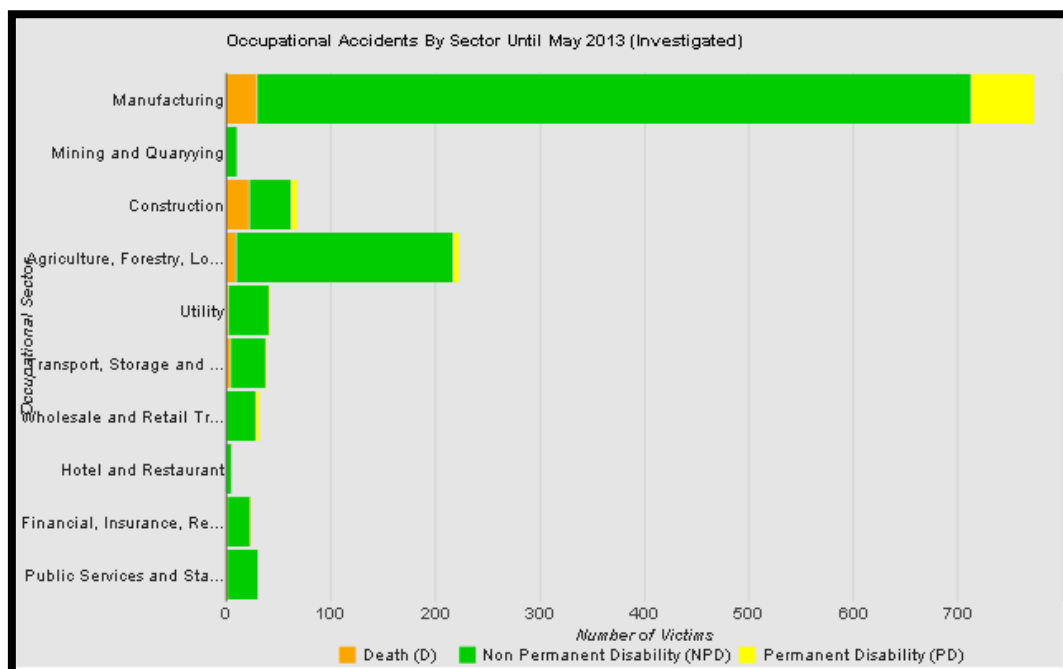


Figure 1.1: Occupational Accidents Statistics by Sector (until May 2013), (DOSH, 2013) (Source; DOSH Malaysia Website (2013): <http://www.dosh.gov.my>)

The manufacturing processes involved the transformation of raw material into a final product, which begins with the material's invention by design and become the required part. This manufacturing industry has earned the reputation of being a highly hazardous industry because of the high incidence of accidents and fatality rates. These accidents' frequencies and property losses create great impact to manufacturing company. Thus, the management should recognize the connection between safety and health, environment outside the workplace, emphasizing OSH and aiming to effectively prevent industrial accidents and health diseases.

In this study, a Steel Company (SF) Sdn. Bhd. (not the real name) located in Banting, Selangor was chosen, because it was the only excellent producer of hot-rolled and cold-rolled steel products in the country, as signifies the government's intention to ensure a ready supply for the development of manufacturing sectors and thus, removing its vulnerability to imports. An integrated approach to Environmental Safety and Health (ESH) management is now a necessity for steel industries as compared to focusing on safety issues alone. This Company has certification on OHSAS: 18000 in Year 2008.

Holistic approaches should exist in organization and common management system to minimize the accident rate amongst steel industry. In identifying potential hazard and practical method to minimize the accident, most of these companies need to incorporate OSH into a coherent OSHMS. In sum, to ensure the survival of organizations, improvement of performance through efficient management systems and well-structured performance evaluation are vital (Coelho & Moy, 2003). Carder and Ragan (2003) also supported this argument and highlighted that the management commitment and employee involvement, work site analysis, hazard prevention and control, and also the safety and health training are the major elements of an effective safety program.

Therefore, it is mandatory for all manufacturing companies to provide a safe working environment for their employees. Traditionally, the responsibility to provide safety in an undertaking for the prevention of accidents lies in the hands of the employer (Blair and Geller, 2000). Reese (2009) highlighted that participation from everyone in the workplace is vital to ensure effective implementation and emphasized that safety training and education is crucial to the avoidance of accidents. Although the employer is basically responsible for the safety of his employees in the undertaking, Walters (1998) and Versen (1983) asserted that the joint participation of employers and employees is said to be indispensable.

### **1.3 Objectives**

- 1.3.1 To review the implementation of ESH in the steel factory based on related recommended OSHMS models in the existing of OHSAS 18001 Standard and Guidelines
- 1.3.2 To evaluate the effectiveness on OSHMS by identify the potential hazards and practical methods, in minimizing the accident at steel factory
- 1.3.3 To develop the ESH Conceptual Model based on literature review and implementation of OSHMS at steel factory

#### **1.4 Scope of the Study**

In order to improve the organizations' perception of OSH performance and managing legal compliances in steel industry, the ESH Conceptual Model was proposed, by review the OSHMS implemented at steel factory based on company's data, documentation and information. A conceptual model is a model which made of the composition of concepts, that thus exists only in the mind, used to help us know, understand, or simulate the subject matter they represent (Duan and Cruz, 2011). Thus, the importance of conceptual modeling is evident when such systemic failures are mitigated by thorough system development and adherence to proven development objectives/ techniques.

In this study, the various methods were adopted, which includes; (1) Additional information based on Company's (SF Sdn. Bhd.) Data, Documentations and Literature Review; (2) Questionnaires that was distributed randomly to 100 selected employees which focusing on the implementation of OSHMS, employees' participation and awareness, that have been analyzed with Statistical Package for Social Sciences version 18 (SPSS v18); (3) Site Surveys and Observations was carried out to identify potential hazards, recommend controls in ensuring a safe working environment and also to access the management commitment towards the ESH management by identifying compliance of company's ESH to OSHA regulations; (4) Safety Inspection Checklist was prepared to study the company's OSHMS that compliance with the regulations were distributed and filled by the management during interviewing process; (5) Site Interviews were conducted with Manager, ESH Exacutive and Safety Health Officer to obtain some information on ESH implemented regarding the study; and (6) Understanding the Background of the Company.

To control the hazard, the Hazard Identification, Risk Assessment and Risk Control (HIRARC) method were implemented at steel company, based on Guideline of HIRARC by DOSH, (2008) (Appendix 4), by identify and also quantify possible ESH hazards occurred in obtaining some information related to OSH aspect. The purpose is to highlight the operation that critical in having significant risks to safety and health by identify the potential hazards at a work place. The process of HIRARC requires four (4) simple steps (HIRARC by DOSH, 2008); (1) Classify Work Activities (2) Hazard Identifications (3) Risk Assessments (4) Risk Controls. It concentrates on the production processes at SMR and CCR areas that focus mainly on the OSHMS implemented in controlled environment.

According to NOHSC (2002), it indicates that an evaluation of OHS performance enables an organization to discover OHS problems and take necessary preventive action. Since the 1990s, general approaches to ESH management that may fit to any type of organization can be found in international standards like ISO 14001 for environmental management and OHSAS 18001 for OSH management (Kavian and Hamid, 1990). Realizing the importance of OSH management in the organization, many organizations are adopting the internationally recognized safety system standards and guidelines (Nimi, 2002). OSHMS is a combination of the management organizational arrangements, including planning and review, the consultative arrangements, and the specific program elements that are combined to improve health and safety performance (Biggs *et al.*, 2005). Apart from fulfilling the general legal duties under the OSHA 1994 requirements, organizations that adopt the OSHMS will gain a lot of benefits such as preventing the accidents from happening, improving productivity, and reducing unnecessary losses and so on.