OCCUPATIONAL SAFETY AND HEALTH ASSESSMENT IN METAL INDUSTRY WITHIN SMALL AND MEDIUM ENTERPRISE

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Abstract

According to annual report from the Social Security Organization (SOCSO) between years 2009 and 2011, metal industry has the highest reported number of accidents compared to the other manufacturing industry in small and medium enterprises (SMEs). Therefore, the aim of this study is to investigate the actual causes of problems that lead to the accidents involving metal industries within SMEs. In this study, checklist through site visits has been used to collect the data. The overall result reveals that the main causes of accident are due to organization failure, human factor, machine failure and surrounding environment.

Keywords: Social Security Organization (SOCSO), Small and Medium enterprises (SMEs), Metal Industry, Site Visit, Organization Failure

1. Introduction

Occupational safety and health (OSH) is basically focusing on safety, health and welfare of people in a workforce. There are various issues regarding occupational safety and health management and implementation in small and medium enterprises (SMEs) in Malaysia. The issues faced by the SMEs especially those related to OSH compliance have always become a major subject of discussions among reserchers, employers, employees as well as the goverment. Among the typical problems faced by the SMEs related to OSH are lack of capital and qualified manpower which have always made as a reason for poor safety management system. Size of the company also becomes a problem in implementing occupational safety and health.

In order to counter such problems, goverment through agency for example Small and Medium Industries Development Corporation (SMIDEC) has provided many incentives to improved quality as well as productivity and also offered a grants for skill training. However, the same problems remain and are continuously being brought up by the SMEs when issues on OSH are discussed.

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Suprisingly in manufacturing sector, metal manufacturing industries showed the highest rate of accidents compared to the other manufacturing industries (SOCSO Annual Report, 2011).Therefore this research focuses on OSH in metal industries within SMEs in Malaysia. The outcomes of this study are hoped to be useful in improving the working condition in metal industries within SMEs. This will consequently enhance the productivities and competitiveness among the companies as well as contributing to the positive growth in the economy of the country.

2. Literature Review

2.1. SMEs Background

In Malaysia, SMEs are important contributors to the national economic growth and toward achieving the aim of becoming an industrial nation by the year 2020. In Malaysia, SMEs started to appear in the 1970s when multinational companies (MNCs) began to operate in this country. In general, SMEs serve to strengthen economic linkages with MNCs. They make up more than four-fifths of all the manufacturing establishments in the country and contribute considerably to the national economy (Omar et. al., 2009).

It was noted that SME sector is the main driving force behind job creation, export earnings, poverty reduction, wealth creation, income distribution and income disparities reduction. The positive growth and development of this sector have the potential to transform SMEs into the key of economic development and set them onto the path of sustained growth. There is no doubt that SMEs need to strengthen their linkages to large-scale enterprises as they are key players in supplying raw materials and distributing manufactured goods (Report of the Vision 2020; 2009). In the manufacturing sector, SMEs act as specialist suppliers of component, parts and sub-assemblies to larger companies (Gadenna and Sharma, 2009; Singh et. al., 2010) because these items can be produced at a cheaper price compared to the price larger companies must pay for in-house production of the same components (Singh et. al., 2010).

2.2. Structure of the SMEs Sector

There are a number of definitions that constitutes the SME (Jafari et. al., 2007: Fathien et al., 2008). The definitions vary between countries depending on the number of employees or business capital. (Thassanabanjong et. al., 2009; Mirbargkar, 2009; Ghanatabadai, 2005). In Malaysia, a new definition of SMEs has been endorsed by the National SME Development Council (NSDC) on 11 July 2013. The new definition is expected to result in more firms being classified as SMEs especially from the service sector. The newly detailed definition by the three categories namely micro, small and medium are as summarized in Table 1 below.

Table 1: New definition of SMEs in Malaysia proposed by SMIDEC (SME Annual Report, 2013)

SME Category	**Based on number of full-time employees**		**Based on annual sales turnover**	
	Manufacturing	**Service and other sectors**	**Manufacturing**	**Service and other sectors**
Micro	Less than 5 employees	Less than 5 employees	Less than RM 300,000	Less than RM 300,000
Small	5 to less than 75 employees	5 to less than 30 employees	RM 300,000 to less than RM 15 million	RM 300,000 to less than RM 3 million
Medium	75 to 200	30 to 75	RM 15 million	RM 3 million

	employees	employees	to RM 50 million	to RM 20 million

3. Methodology

The data was collected in a selected metal companies throughout Malaysia. A total of 66 companies were selected involving four different states in Malaysia which are Johor, Malacca, Selangor and Penang. During the site visits, data was collected through interview and close ended checklist. The checklist consisted of 48 questions which emphasizes on several parts of the assessment which are the regulation of OSHA 1994, FMA 1967, hazards in the factory as well as suggestion made by the assessors to the companies based on the observation during the visit. In addition, specifically designed questionnaire which focuses more on the company's practices were also distributed to the management personnel. The data was analyzed using the Minitab16 statistical software. It involves basic calculation of data mean, range, percentages of response in each category of the questionnaire. Anderson-Darling Normality Test (confident interval 95%) was used to analyze the data.

4. Results

Basically the actual condition of the visited companies was observed during the visits. The result of the site visits survey can be concluded based on several aspects of the company's commitment, employers' involvement and training given by the company's.

Based on the actual observation made during the visit, the commitment of the visited companies towards OSH was not satisfactory. Around 68% of the visited companies were not able to comply with the OSHA 1994 requirement. Whereas the commitment towards OSHA 1994 was poor among the metal companies since some of the regulations are not even applicable to them in the first place. For instance, 85% from 66 companies involved in the site visits programs did not have safety and health officer because of the small number of workers they have (excluded from the law requirement). Responds from the site visits showed that 37% of the companies are not complying with the FMA 1967 regulation since only 48% of them claimed that they conducted noise monitoring program, 60% of the companies did not have any emergency lamp and 54% of the companies did not provide proper sitting facility as required in the FMA 1967 regulation.

Majority of the visited companies showed inadequate and poor employers' involvement toward safety and health in a workplace. Based on the evidence observed during the site visits, most of the companies which is 69% from the total visited companies did not have SOP even for normal operation let alone for start-up, shut-down and emergency operations. Normally, the companies gave instruction to employees verbally without any documentation or SOP.

From the study, trainings provided for the employees were not satisfactory; 49% of the employers failed to show evidences of the training and information that have been given to the employees. It is because the trainings were mostly given verbally and informally without any documentation or record of them.

The frequency of OSH related hazards present in the companies was determined in this study. As shows in Figure 1, the most frequent hazard in majority of the companies is noise (55%), followed by physical hazard (50%), slip or fall (33%), ergonomic hazards (30%) and electrical hazards (23%).

The findings from the site visits also indicate that companies need to do the following (in the order of most significant) to improve the OSH in the workplace: development of SOP or work instruction (55%), hazards identification, assessment and control programs (50%), safety management system (33%) and safety culture (24%) (see Figure 2).

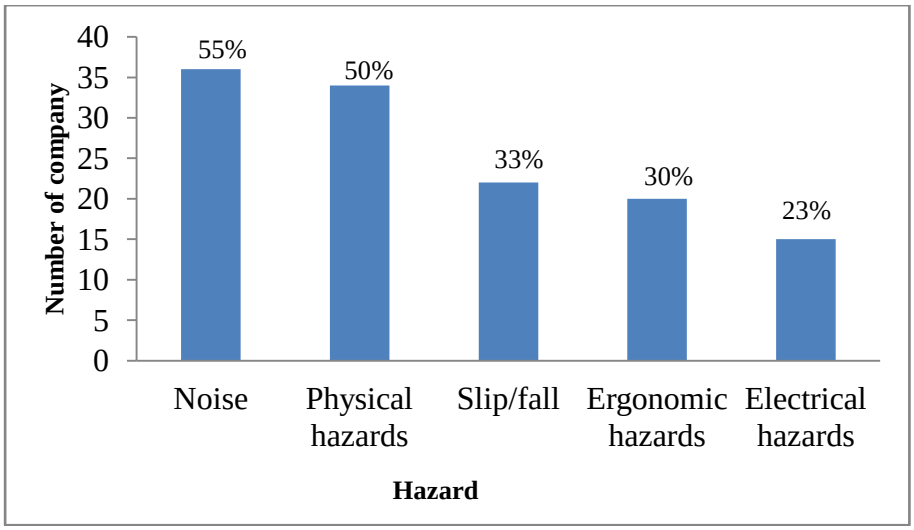

Figure 1: Frequencies of Hazards in the Visited Metal Companies

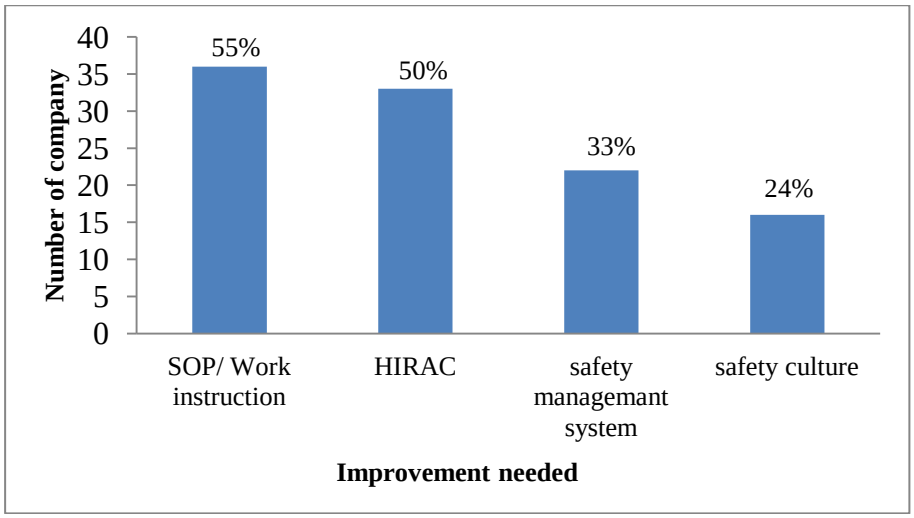

Figure 2: Improvement Suggestions for Metal Industry

5. Discussion

The findings of this study suggest that the causes of accidents in metal manufacturing industry are mainly due to organization failure (lack of commitment and involvement), human factor (lack of training), machine failure (no guarding and old machine) and surrounding environment (noise, physical hazards etc). Every company either small or medium needs to provide SOP and communicate the SOP to the employees. It is important to ensure employees understand properly the working procedure in order to avoid any mistake that can lead to accidents.

Moreover, metal working companies particularly in Malaysia need to improve a lot more in the hazards identification, assessment and control programs (HIRAC) since the hazards so far are poorly identified, evaluated and understood by the workers. The site visit shows that none of the companies has documented report on the hazards identification, assessment and control programs that have been conducted. Also, the companies need improve their safety management system as well as safety culture to ensure that employees are working in safe environment.

Most of the companies which is 56% showed poor commitment, involvement and training toward OSH in the workplace. By focusing in corrective action such as development of SOP, HIRAC, specific safety management system for micro, small and medium industry can increase the readiness of SMEs to counter accidents. It may also reduce 56% of problems that is currently faced by metal industry within SMEs. Significant decrease in the rate of problems will consequently reduce the number of accidents in metal industry within SMEs.

6. Conclusion

The result obtained from this study is hoped to be beneficial to all the relevant agencies including the DOSH in reducing the rate of accidents especially in metal industries within SMEs. Besides clear benefits on the reduction of the cost of compensation due to accidents, the productivities and qualities of the industries can be enhanced by implementing an excellent occupational safety and health system, hence contributing toward positive growth of economy of the company as well as the country. Further empirical work is highly needed in order to develop detailed action plan and better working procedures in order to reduce the accident rate in metal manufacturing industry within SMEs.

7. Acknowledgements

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