Analysis of safeguarding measures

CHAPTER 1

INTRODUCTION

1. BACKGROUND OF STUDY

Machines are very dangerous to workers and are commonplace in many industries. The safety, health and welfare of workers are of utmost importance, especially where machine and moving parts of machines are involved. The employers have a legal duty to take reasonable care of the safety of the workers at while they are at work. One important way to protect workers from machines and the hazards associated is by using machine safeguarding methods. Broadly speaking, machine safeguarding has been defined by (Banner Engineering Corp., n. d) as being the requirements, methods and equipment which are used to protect workers while they are operating or when they come into contact with dangerous machines. Even if machine safeguarding is the key component for maintaining the safety of workers from machines, many facilities have fallen behind due to failure in upgrading and maintaining safety systems (Balbaa, n. d). This happens when the employers are of opinion that their systems are up-to-date and sufficient, while they are actually not. Other reasons might be due to a lack of liquid capital to invest in the systems. In addition, the fear that embarking on a project of upgrading systems might affect work and productivity, prevent them from improving. Whatever be the reason, standards concerning machine safeguarding, and the legal duty of the employer provided in the law to ensure the safety of employees as is reasonably practicable cannot be ignored. In this era of heightened standards, there exist many innovative ways in which machine safeguarding methods can be updated without

affecting productivity. Safety standards usually come under the heading of regional, national and international standards and the application of one standard or a combination of standards depends on the goals of the employer and the size of the plant (Banner Engineering Corp., n. d). It has been provided by ILO (n. d) that more than 60 million of workers are employed in the textile, clothing and footwear TCF sectors worldwide, the TCF being one of the most globalised sectors. The textile industry is one where machines are involved at almost every stage of production and their safeguarding is necessary for the protection of workers. As stated by Max (2015), machines are used to execute functions at the different stages of production, which include yarn spinning, knitting, weaving, dyeing and sewing. Other machines are also used for special fabric effects, for instance embossing, bleaching, as well as mercerizing. Every machine that is used, its part, function or process that can cause harm to the worker should be safeguarded. Each machine can have different ways of being safeguarded depending on its construction and function. In Mauritius, the government recognizes workers as the most valuable assets and is concerned about their health and safety, being their fundamental rights. A national Occupational Safety and Health (OSH) policy has been therefore formulated in 2001 to encompass all the occupational safety and health issues of workers in all sectors of work (ILO, 2001). The policy is also periodically reviewed so as to respond according to alterations in work processes, machinery, new technologies, and new techniques of work.

2. PROBLEM STATEMENT

Improper machine safeguarding is a major problem that is prevalent worldwide as opined by (Soranno, 2012), considering reliable data and professional experiences. Employees are more and more vulnerable to injuries due to improper machine safeguarding. These injuries can range from a minor pain to severe injuries. Amputations are the most common, severe and crippling injuries that occur due to either improper machine safeguarding or violations of the guards. The Bureau of Labor Statistics has shown that during the year 2009 nearly 6000 occupational amputations occurred in the U. S. due to these reasons (Allen, 2011). Very often, employees do not understand the importance of the safeguards and the dangers lurking in the machine itself and they bypass the safeguards, failing to realize that the latter are meant for their own safety and that it takes only a second for an injury to occur. Soranno (2012) is also of opinion that there are five machine guarding problems, the first one being a lack of understanding on the requirements of machine guarding because people limit their evaluation of the requirements of machine guarding to only OSHA standards and do not consider the numerous other standards that exist. Secondly, the guards are improperly designed or installed due to lack of understanding and lack knowledge of the designers and installers who might be inexperienced. Next, there is a failure to consider all the risks. An adequate risk assessment is very important to consider the requirements about design and performance of the safeguarding devices. In addition, there are very often inadequate controls for proper adjustment, inspection and maintenance of the well-designed guards for them to perform effectively. Finally, the employers believe that the manufacturer is responsible for machine guarding, while it is their own responsibility. In

Mauritius, however, there are very few sections in the Occupational Safety and Health Act 2005 concerning machine safeguarding as compared to the numerous standards that exist for other countries globally. Therefore there is more risk to occupational accidents due to machines. As far as the OSH policy of 2001 is concerned, its application is dependent upon the availability of financial, human and technical resources.

3. AIM AND OBJECTIVES

The aim of this study is to find out how the workers in the textile industry perceive the use of the different methods of machine safeguarding that they deal with in their work. It is important to know the workers' perception to know how comfortable they are with the safeguarding methods and whether the methods of safeguarding are accepted by them.

The objectives set to achieve the aim are as follows:

- To analyse the machines that the workers are exposed to and the safeguarding methods that are present.
- Determine whether the safeguarding methods that exist are appropriate and without hazards.
- Find out the opinion of the workers towards the safeguards that are used, whether these safeguards affect the workers and their work.
- To recommend solutions to the problems of the workers concerning improper machine safeguarding.

4. RESEARCH QUESTIONS

To meet the research objectives the study will be centered on the following research questions:

- What are the methods of safeguarding that are used along with the machines in the textile industry?
- Are the safeguarding methods suitable for their purpose?
- Are the workers agreeable to the use of the machine safeguards?
- Do the machine safeguards affect the workers comfort and work?
- Do the workers violate/bypass the safeguards?
- What are the possible recommendations that can be formulated with regards to the problems that arise due to improper machine safeguarding?

5. HYPOTHESIS

- Is machine safeguarding important for the security of the workers at the workplace?
- What is the relationship between inadequate machine safeguarding and occurrence of accidents?
- Does machine safeguarding affect workers' comfort and work?

6. FLOW OF THE REMAINING REPORT

CHAPTER 1: INTRODUCTION

This chapter is an overview of machine safeguarding in general from a global perspective to a local perspective in the first section of background of study and then there is the problem statement, the aim of this study and the list of objective to achieve the aim, a list of research questions together with the hypothesis.

CHAPTER 2: LITERATURE REVIEW

The literature review will give an account of the studies that have been done on machine safeguarding, its importance, the different methods that exist, machine safeguarding in the textile industry and the various other ideas on this topic.

CHAPTER 3: METHODOLOGY

The methodology chapter describes the different methods and instruments that were used for collection of data, it also contains a description of the targeted population, the tools and statistical techniques used for analysis of the data, how reliable and valid was the study and the limitations of the study.

CHAPTER 4: RESULTS AND DATA ANALYSIS

In this chapter the data obtained from the previous chapter are analysed and results are drawn out and briefly described.

CHAPTER 5: DISCUSSION

This chapter is about discussing the results obtained, in such a way so as to relate the findings to the literature review critically. This is where it is confirmed whether the objectives of the study were met or not.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

It is a summary of the study, a number of recommendations are provided to the problems identified in the study and for future researches.