

OSHA AND ITS IMPLICATION ON EMPLOYEES SAFETY  
IN CONSTRUCTION INDUSTRY

NUR AQILAH ZOLKALFLI

This Report Is Submitted As a Partial Fulfillment for Bachelor of Technology  
Management (Technology Innovation)

FACULTY OF TECHNOLOGY MANAGEMENT AND TECHNOPRENEURSHIP  
(FPTT),

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

JUNE 2014

“ I hereby declare that the work of this exercise is mine except for the quotation and summaries that have been duly acknowledged”

Signature : .....

Name : NUR AQILAH ZOLKALFLI

Date : JUNE 2014

This Research Paper is lovingly dedicated to my respective parents who have been my constant source of inspiration. They have given me the drive and discipline to tackle any task with enthusiasm and determination. Without their love and support this project would not have been made possible.

## ACKNOWLEDGEMENT

First and foremost, I was really grateful to God for his permission that I manage to finish up my report. During the progress of this study, I received many helps and creative ideas from my supervisor, colleagues, and others. Therefore, I would like to show my gratitude for the valuable guidance, advises, confidences, help, and support from my beloved supervisor Pn.Edna bt Buyong. He inspired me greatly to work in this research proposal. An honourable mention goes to my families Zolkalfli bin dan, Zauyah bt Ibrahim and my colleagues, Nur Atikah Kamarudin and Nurul shuhada Husain for their knowledge sharing, understanding as well as supports on me in completing this project.

I am very grateful to my family members, especially my mother and father, for giving me countless support, opportunities, and encouragement to escalate my career development in University Technical Malaysia Malacca (UTeM). Without their advice and motivation, I would have not pursued this course completely. My heartfelt appreciation to Dr. Chew Boon Cheong for sharing his expertise and knowledge in the Research Methodology for Business course that really helped me through the writing of this research.

Thousand of thanks dedicated to all my friends, lecturers, and person who involve direct or indirect in my research. Without helps of the particular that mentioned above, I would face many difficulties while doing this report. Last but not least, I also thanked to the reader of my research proposal that would like to spend their time to read about my study.

## **Abstract**

The enforcement of Occupational Safety and Health Act 1994 (OSHA) is important in protecting employees safety, as it holds employers accountable for unsafe working conditions or practices in the construction industry. Employer in th construction industry are faced with potential occupational injuries and fatality risks, They are most vulnerable to accidents and hazards. Since being a high risk incidents construction industry has so the research examine the effectiveness of implementing OSHA to Construction industry. The quantitative method was chosen by distributing a questionnaires to groups of 100 respondents with 80 usable data in the construction industry, encompassing workers/labor, contractor, supervisor, project manager and executives in Melaka, Pahang, Kuala Lumpur and Selangor. The study examined the implementation of OSHA with in the constuction industry and how its enforcement increase employee safety or accidents can be minimizaed. The result from the research show how relates between training and supervision, work safety program and also management commitment of OSHA how relates to the requirements toward increasing employee safety in the construction industry. In conclusion, the researcher will be study about over all the responses of implementing of OSHA to the construction industry and this study will be shown how this factor can adapt and effectiveness to the construction industry by answering the research questions

## Abstrak

Penguatkuasaan Akta Kesihatan 1994 Keselamatan dan Kesihatan Pekerjaan ( OSHA) adalah penting dalam melindungi pekerja selamat , kerana ia memastikan majikan bertanggungjawab untuk keadaan kerja yang tidak selamat atau amalan dalam industri pembinaan. Industri pembinaan berhadapan dengan potensi kecederaan kerja dan risiko kemalangan maut , pekerja dalam sektor pembinaan adalah yang paling terdedah kepada kemalangan dan bahaya. Sejak Industri Pembinaan mempunyai risiko tinggi, penyelidikan telah dilaksanakan tentang keberkesanan OSHA untuk industri pembinaan. Namun, Perlaksanaan OSHA daripada kajian mendapati latihan dan penyeliaan , program keselamatan kerja dan juga komitmen pengurusan keperluan OSHA boleh membuktikan kesan ke arah meningkatkan pekerja dalam industri pembinaan. Kaedah kuantitatif telah dipilih dengan mengedarkan soal selidik kepada kumpulan 100 orang dengan 80 data yang boleh digunakan dalam industri pembinaan, yang merangkumi pekerja / buruh, kontraktor , penyelia , pengurus projek dan eksekutif di Melaka, Pahang , Kuala Lumpur dan Selangor. Kajian bagaimana OSHA dapat bertindak balas dengan Industri pembinaan ke arah meningkatkan keselamatan pekerja dan meminimumkan kemalangan. Supaya , hasilnya akan menerangkan terperinci antara latihan dan penyeliaan , program keselamatan kerja dan juga komitmen pengurusan keperluan OSHA ke arah meningkatkan keselamatan pekerja dalam industri pembinaan. Kesimpulannya , penyelidik akan mengkaji mengenaiesemua respons yang melaksanakan OSHA di dalam industri pembinaan dan kajian ini akan menunjukkan bagaimana faktor ini boleh bersesuaian dan berkesan dengan industri pembinaan dengan menjawab soalan-soalan penyelidikan.

## TABLE OF CONTENT

<b>TITLE PAGE</b>	<b>PAGE</b>
<b>DECLARATION PAGE</b>	i
<b>DEDICATION PAGE</b>	ii
<b>ACKNOWLEDGEMENT</b>	iii
<b>ABSTRACT (ENGLISH &amp; MALAY VERSION)</b>	Iv&v
<b>TABLE OF CONTENT</b>	vi
<b>LIST OF FIGURES AND TABLES</b>	viii
<b>LIST OF SYMBOLS</b>	ix
<b>APPENDICES</b>	x
<b>C1 INTRODUCTION</b>	
1.1 Background of Study	1
1.2 Problem Statement / Research Questions	3
1.3 Research Questions	5
1.4 Research Objectives	6
1.5 Scope, Limitation and Key Assumption	6
1.6 Significance of Study	7
<b>C 2 LITERATURE REVIEW</b>	
2.1 Introduction	8
2.2 Training and Supervision	10
2.3 Safety and Health Work Program	13
2.4 Management Commitment on OSHA Requirement	17
2.5 Theoretical Framework	22
<b>C 3 METHODOLOGY</b>	
3.1 Introduction	24

3.2	Research Design	25
3.3	Primary and Secondary data	26
3.4	Questionnaires	29
3.5	Validity	29
3.6	Reliability	30
3.7	Data Analysis	32
3.8	Summary	33
<b>C4</b>	<b>RESULT AND ANALYSIS</b>	
4.1	Introduction	34
4.2	Demographic	35
4.3	Descriptive Data	43
4.4	Correlation analysis	50
4.5	Reliability Analysis	54
4.6	Regression analysis	57
<b>C5</b>	<b>DISCUSSION AND CONCLUSION</b>	
5.1	Introduction	58
5.2	Discussion	59
5.3	Conclusion	64
5.4	Recommendation	65
5.5	Suggestion	66
	<b>REFERENCE</b>	<b>67</b>
	<b>APPENDICES</b>	<b>68</b>



## LIST OF TABLES

<b>TITLE</b>	<b>PAGE</b>
Table 1: Industrial Accident reported 1999-2003	4
Table 2: Gate Concrete products Company OSHA	13
Table 3: Accident and Incidents Recorded by DOSH	17
Table 4: Correlation measurement	33
Table 5: Analysis Training and supervision	44
Table 6: Analysis Safety and Health Work program	46
Table 7: Analysis Management Commitment of OSHA	48
Table 8: Correlation Training and Supervision	51
Table 9: Correlation Safety and Health Work Program	52
Table 10: Correlation Management Commitment of OSHA	53
Table 11: Regression Analysis (Model Summary)	54
Table 12: Regression Analysis (ANOVA)	55
Table 13: Regression Analysis (Coefficients <sup>a</sup> )	56
Table 14: Reliability	57
Table 15: Descriptive RO1	59
Table 16: Descriptive RO2	60
Table 17: regression RO3	62

## LIST OF SYMBOLS

<b>SYMBOL</b>	<b>DESCRIPTION</b>
OSHA	Occupational Safety and Health Act
TAS	Training and Supervision
SAWP	Safety and Work Program
MCOR	Management Commitment of OSHA Requirement
SD	Standard Deviation

## **LIST OF APPENDICES**

- 1 Sample of Questionnaire
- 2 Slide Presentation

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Background of the Study**

In Malaysia, the construction industry has been recognized as one of the driving factors of economic development. However, the industry in Malaysia itself is not without its negativity, this is due to its high rates of accidents and fatalities incidences that have occurred on the sites. According to the statistics reported by the Social Security Organization (SOCSO) the numbers of fatality cases in the construction industry are among the highest in the 10 categorized industries in Malaysia (SOCSO 2004).

In addition, industry professionals as well as academics have noted that regulations and legislation by themselves are not enough to bring about a desired goal of zero accidents and incidents on construction sites. Though regulations and legislation are not enough to ensure guaranteed safety, but by adhering to these regulations and policies, it does improve site safety. With regards to cost, it is minimal as this can improve construction safety at minimal or no extra cost. However, without proper codes and standard, the results can be the absolute reverse. Increased costs and disputes can arise from delays in construction progress, the penalties for these delays, financial losses,

personal injuries and fatalities. Regardless of the strictly enforced safety and health regulations in most countries, high rates of injury and fatality do persist (Center to Protect Workers' Rights 1993; Ratay 1997)

Occupational Safety and Health (OSHA) is the responsibility of management to provide a safe and conducive working environment where the employees will be able to contribute to the organization. In the construction industry, management should place emphasis on finding a management strategy and resolution to reducing the rate of accident occurrence as well as lifesaving at the construction site. As a result, there exists legislation to ensuring that the workplace is a safe place of work. In Malaysia, this legislation is called the Occupational Safety and Health Act of 1994. This important piece of legislation is to promote and encourage occupational safety and health awareness among workers and to create organizations along with effective safety and health measures.

This regulation would be carried out by self-regulation schemes that match the industry or related organization. This Act, which contains 15 sections, is a measure that supersedes any conflict in existing occupational safety and health laws such as the Factory and Machinery Act 1967. The Occupational Safety and Health Act 1994 complements any existing legislative provision and if there are any conflicts, the Occupational Safety and Health Act 1994 will overcome it (Laws of Malaysia 2000).

Occupational safety and health in Malaysia depends on the competency of the managers, supervisors and employees within the workplace. Managers and employees should receive training on safety management systems and required legal compliance in order to make the workplace a safe environment.

The formation of OSHA came to be upon three principles. The first was the need for employers to develop a good and orderly management system that starts with a safety and health policy. Secondly, employers, employees and the authorities must negotiate to settle issues and problems relating to occupational safety and health at the workplace. The first principle is self-regulation. To handle issues relating to occupational safety and health, employers must develop a good and orderly management system. Starting with

the formation of a safety and health policy and consequently employers have to make the proper arrangements to be carried out. The third and last principle is co-operation, where the success of the occupational safety and health programs will succeed with the co-operation between employers and employees. With the resulting co-operation, there will be an increase in quality of occupational safety and health at the workplace (Laws of Malaysia 2000).

The following sections of the project paper will provide more details on the implications for employee's safety on the construction industry.

## **1.2 Problem Statements/Research Questions**

Construction industry suffers high accident rate not only in Malaysia but also in other countries throughout the world. The statistics published by SOCSO (Table 1) indicated that the total number of reported accidents in the construction industry has increased from 4747 cases in 1999 to 5015 in the year 2002. The reported 'loss of working capability' has also increased from 610 cases in the year 1999 to 652 cases in 2002. The reported fatal accidents show some improvement that is from 146 in the year 1999; it has dropped to 88 in 2002. Nonetheless, the figures still alarm us to seek further improvement to curb the accident rate in the construction industry.

Table 1. Industrial Accident reported From Year 1999 to 2003

Industry	1999	2000	2001	2002	2003
	RA LWCA FA	RA LWCA FA	RA LWCA FA	RA LWCA FA	RA LWCA FA
Construction	4747 610 146	4873 642 159	4593 618 89	5015 652 88	1050 133 18

(Abstracted from SOCSO Reports: RA: Reported Accident; LWCA: Lost of Working Capability Accident; FA: Fatal Accident).

As noted in the introduction, the concept of OSHA is to provide a safe and conducive working environment because of its potential implication to both employees and the organizations. The problems faced it despite the regulatory policies and agencies being set up to meet the challenges of providing a safe and conducive working environment, results are still unsatisfactory. The safety regulations provided by OSHA 1994 is very comprehensive but the level of awareness and practicability of it is generally lower than expected over the last ten years.

There are many factors that influence injury rates outside of the regulatory activities of OSHA. These include employer's practices and investments in safety; worker training and activities at the work site; management of the work site as a whole; the role of unions on and off the site; the impact of technology and work practices. In addition, other government programs and regulations influence the benefits and costs of workplace safety. Workers compensation policies have an important impact on the costs faced by employers in terms of the workers compensation rates they pay and to workers in terms of the benefits they do not—receive (Burton and Chelius 1997). Other regulations like prevailing wage laws for public sector work, overtime standards, and environmental regulations have impacts on exposure to safety and health risks. Given the impact of these other factors, how much has OSHA contributed to the overall decline in injuries?

Lack of monitoring, safety audit and enforcement conducted by improper agencies hampers the protection of occupational safety and health. A lack of serious commitment, insufficient workforce and government budget allocations constraints can also be added to this matter. As required by the Occupational Safety and Health Act

(OSHA) 1994, companies must appoint a safety officer. Sadly, most companies simply do not comply due to lack of safety commitment and budget allocation by the management team

Most safety officers it is not properly trained and are not certified to provide and enforce safety guidelines on the site. Agencies such as CIDB and NIOSH cater to providing training for effective safety aspects at a construction site. Once the safety officers are certified they will be able to ensure that the organization would adhere to the guidelines set by OSHA 1994.

There is a lack of coordination between the employers, employees and enforcement agencies in promoting safety campaigns. Safety awareness campaigns are important so that people will avoid any accident and injury in the workplace.

### **1.3 Research Questions**

In order to achieve the aims of this study, the following research questions were addressed:

1. How far organizations in construction industry comply with OSHA Policy?
2. How Training and Supervision can increase employee's safety in the construction industry?
3. What are the most effective OSHA policy in minimizing risk and accident of the construction industry?



#### **1.4 Research Objective**

1. To evaluate the extent of OSHA compliance by the construction industry.
2. To determine the influence of training and supervision increasing employee safety in the Construction Industry.
3. To identify the main of OSHA policy in the construction industry that most effective toward increasing employee safety in the construction industry

#### **1.5 Scope, Limitation and Key Assumptions of the Study**

The scope of research will focuses on a construction industry in Melaka, Pahang, Kuala Lumpur and Selangor. The research will carry out with a careful study based on questionnaire survey. The questionnaires were distributed to labor/ worker, contractor, supervisors, Project Manager and also others such as clerk, accountant, Human Resource and etc.

## **1.6 Significance of Study**

The importance of this study is to serve guidelines for the best workplace safety system in the construction industry. With having an efficient occupational safety and health programs, workers would feel secure and comfortable working on the construction site. A safe and healthy environment at the workplace would mean the reduction in unnecessary costs in corrective procedures by focusing on preventive measures, thereby not only increasing productivity of work but also avoiding any injury or loss of life.

Employers and relevant parties therefore shall always give priority to ensure the safety and health of employees. The employee shall also understand the importance of safety and health and positively take part and cooperate with the safety and health activities.

OSHA does not only prescribes minimum standards that employers are obliged to observe, but also requires employers to positively take measures in ensuring employee safety and health, furthermore it also requires workers to observe necessary matters or to endeavor to cooperate with the measures taken by employers.

For preventing industrial accidents, it is necessary for the organization workers and all parties concerned collaborated with an integrated manner to comprehensively and systematically implement the preventive measure. For this, the study formulates the comprehensive plan for the industrial accident prevention with a long term perspective, which announces matters to be made by employers as responsible bodies of industrial accident prevention.

## CHAPTER 2

### LITELATURE REVIEW

#### 2.1 Introduction

According to the industrial accidents, report shows by different sector and type in Malaysia, construction site has very high total cases of accidents, which is about 50.5%. In terms of severity of accident, the bulk is in the construction industry (Inforeach, 2002). Refer to Malaysia Industrial Accidents Reported to the Labor Department and Social Security Organization by sector and Type of Accident (Socso Report, 2003)

The construction industry is a very unique industry and unlike fixed workplace like factory. There is little reason construction industry more dangerous than other industry. Firstly, the construction sites is constantly changing and temporary. Each construction site involves of many subcontractors and they perform different types of work in close proximity to each other. Further, several trades and concurrent tasks are present on a construction site at the same time, which can bring them the specific hazards of their trade. Certain tasks whereby one trade ends up doing all the tasks usually performed by another trade, the workers may not familiar with the hazards involved left by previous trade. The always changing construction site and regular being moved or modified can cause new hazards constantly emerging.

When we think of construction safety, our first thought is generally that is the responsibility of the contractor. This focus reflects the contractors who must be workplace and their work practices. There are many more characters who must be involved in establishing a safe job site than just the contractor. All the participants in the construction process, from the client commissioning the work to the constructor and to the men and women who perform the work, are integral to the process of establishing a safe workplace. Therefore, throughout the construction process, we must have a means in place by which hazards can be identified and effectively controlled, and safe work practices promoted (Richard D. Hislop, 1999).

The majority of contractors' works at construction sites are subcontractors who have been hired by the main contractor. Under the OSHA, the act tends to hold all parties responsible for citations and penalties, including for those who fail to exercise control of the construction site safety and health.

Reason given in the past by field supervision for poor safety performance on construction sites are no longer acceptable positions: "Construction is no place for sissies", "I don't have money for frills like safety", "I am forced to choose between production and safety". (Richard D. Hislop, 1999)

Once can easily blame lack of training of workers, poor equipment maintenance and no supervision for the accidents. However, these all go back to the same source and Ir. Abu Bakar Che Man commented that is lack of management commitments. He said the whole organization is not serious about safety and health, if the top management does not set aside funds to buy equipment, train staff and promote safety and health (Inforeach, 2002)

## 2.1 Training and Supervision

Many standards promulgated by the Occupational Safety and Health Administration (OSHA) explicitly require the employer to train employees in the safety and health aspects of their jobs. Other OSHA standards make it the employer's responsibility to limit certain job assignments to employees who are "certified," "competent," or "qualified" - meaning that they have had special previous training, in or out of the workplace.

The term "designated" personnel means selected or assigned by the employer or the employer's representative as being qualified to perform specific duties. These requirements reflect OSHA's belief that training is an essential part of every employer's safety and health program for protecting workers from injuries and illnesses. Many researchers conclude that those who are new on the job have a higher rate of accidents and injuries than more experienced workers. (OSHA, 2008).

- Management leadership and employee involvement—integrating the OSH program with the overall management system, clearly establishing policies with goals and objectives, responsibility/authority, and accountability for OSH activities, and involving workers in hazard recognition and control activities
- Work-site analysis—analyzing the workplace conditions and work practices to identify hazards, policies, and procedures for the purpose of anticipating harmful occurrences (i.e., inspections and job hazard analysis)
- Hazard prevention and control—eliminating or controlling hazards via engineering, administrative, work practices, or PPE
- Safety and health training—addressing the responsibilities of all personnel at all levels of the organization

According to these guidelines, training is necessary to reinforce and complement management's commitment to prevent exposure to hazards. The guidelines do not suggest that elaborate or formal training programs solely related to safety and health are always needed. In fact, integrating safety and health protection into all organizational

activities is the key to its effectiveness. Safety and health information and instruction is often most effective when incorporated into other training about performance requirements and job practices, such as management training on performance evaluation, problem solving, and employee training on the operation of a particular machine or the conduct of a specific task (OSHA 2009b).

According to Heberle, training is an important component of a good safety management system. The objective of safety training is to train employees at all levels with the knowledge, skills and attitude, which would enable them to perform their duties in a safe and efficient manner.

Safety training should include new or transferred employees and personnel at all levels include safety personnel, manager, supervisors, contractors and front line workers (Herbele, 1998)

Training in the proper performance of a job is time and money well spent, and the employer might regard it as an investment rather than an expense. An effective program of safety and health training for workers can result in fewer injuries and illnesses, better morale, and lower insurance premiums, among other benefits.

### **2.2.1 Policy and Regulations**

OSHA recognizes training as a critical action to take in further reducing workplace injuries and illnesses in the Malaysia. This is especially true when training is combined with other workplace interventions, such as safety programs and procedures. However, OSHA also has found the effectiveness of OSH training as a sole intervention is less certain and more limited (NIOSH, 2004).

As a result of the 1999 NIOSH, NIEHS, and the OSHA Training Conference, there were three major findings related to policy, regulation, and standards. The first was the need to prioritize training with a focus on directing OSH training at those conditions that represent the highest risk of work-related injury and illness. Three methods for prioritizing training were discussed earlier. OSHA has also been gathering empirical evidence on the benefits of training (lives saved, injuries avoided, and reduced costs to business) through OSHA Consultation Safety and Health Program Evaluations completed at sites requesting consultation services. Data from these program evaluations support the premise that companies demonstrating a strong emphasis on worker training had the most effective occupational safety and health programs (NIOSH, 2004).

The second major finding was the need to set at least voluntary standards for acceptable OSH training program practices. This also included establishing competencies of those delivering OSH trainings. It was believed that these standards would help provide a certain level of quality control (NIOSH, 2004). OSHA has, in fact, developed Voluntary Training Guidelines, which are discussed later in this chapter.

The third major finding was the need to provide OSH training to all levels of the workforce to promote total staff knowledge of the training goals and to reinforce its objectives. As mentioned earlier, this is also important as organizations become flatter and additional safety and health responsibilities are placed on workers at all levels. To address this issue, OSHA is providing support for direct training and education of workers through grants to various nonprofit organizations, offering courses at OSHA Training Institute Education Centers, and disseminating training products through distance learning technology, CD-ROMs, and the Internet (NIOSH, 2004).

## 2.2 Safety and Health Work Program

OSHA Reporting statistics from local companies have been compiled to show the effectiveness of implementing quality safety programs. Gate Concrete Company, a precast concrete company in Jacksonville, Florida, provided their OSHA recordable safety data for 2002 through 2008 (See Table 1).

*Maged Malek; Adel El-Safy; Amal El-Safy; James Sorce/Management Science and Engineering Vol.4 No.3, 2010*

**Table 1: Gate Concrete Products Company OSHA Reporting 2002-2008**

Year	OSHA Recordable Incidence Rates	OSHA Recordable Injuries	Lost Work Day Incident Rates	Days Away, Restricted or Transfer Rates
2002	23.65	67	2.47	16.94
2003	20.22	64	1.89	12.63
2004	15.31	41	0.74	12.97
2005	12.94	36	2.15	8.63
2006	6.71	15	0.89	3.58
2007	5.55	13	1.71	5.55
2008	2.84	7	0.00	2.84

Source: Gate Concrete Products Company, 2009

Gate focused their efforts on reducing OSHA recordable safety occurrences, and greatly reduced their incidence numbers in all categories of reporting. They are a successful example of how the implementation of safety programs can improve the safety of the workers. Gates has set a higher standard than reducing incidences, and focused on reducing OSHA recordable numbers. The reduction in all categories seen between 2002 and 2006 is a result of implementing a new safety program.

Comprehensive safety programs have yet to be fully developed and are far from being fully implemented by companies, yet this study shows that there are great benefits realized from these programs. Other examples with similar outcomes of safety programs are the Jacksonville-Port facility and Archer Western Contractors.

These examples of combined occupational safety and health programs are effective, but the main focus is still on short term prevention of incidences of injury and illness. An occupational health program with a focus on monitoring, surveillance, and