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**RELATIONSHIP BETWEEN SAFETY MANAGEMENT PRACTICES AND  
SAFETY COMPLIANCE AMONG CONSTRUCTION WORKERS IN  
KEDAH RUBBER CITY**



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**MASTER OF SCIENCE  
(OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT)  
UNIVERSITI UTARA MALAYSIA  
2024**

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**By**

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**UUM**  
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## ABSTRACT

Being the main contributor to the economic growth, construction sector has been known as a complicated industry that showed worldwide safety disparity and has received least attention on risk management with regard to human resource. Therefore, this study aims to examine how safety management practices (management commitment, safety training, employees' involvement, safety rules and regulations, safety communication and feedback, safety promotion policies) relates to the safety compliance among construction workers in Kedah Rubber City site. A quantitative research design was employed in this study. Self-administered questionnaires prepared in Bahasa Malaysia and English were used as a tool for data collection. Simple random sampling technique were used for respondents' selection so that individuals have equal chances of being selected. Workers were given a session with the presence of the researcher to assist them in answering the questionnaires. There are 126 respondents were involved in the study. Data analysis for the study were Pearson Correlation and Multiple Regression analysis to determine the relationship of safety management practices with safety compliances. The result showed that all six safety management practices have significant relationship with safety compliances. However, regression analysis demonstrates that only management commitment, safety communication and feedback, safety rules and procedure, and safety promotion policies have significant influenced on the safety compliance of workers at Kedah Rubber City. This study contributes to the organization to determine the current issue that hinder safety compliances of workers, so that they can plan for effective solution and promote safety practices effectively.

**Keywords:** Safety management practices; Safety compliance; Construction worker

## ABSTRAK

Sebagai penyumbang utama kepada pertumbuhan ekonomi, sektor pembinaan dikenali sebagai industri yang rumit yang menunjukkan ketidakseimbangan keselamatan di seluruh dunia dan tidak mendapat perhatian yang mencukupi dalam pengurusan risiko berkaitan dengan sumber manusia. Oleh itu, kajian ini bertujuan untuk mengkaji bagaimana amalan pengurusan keselamatan (komitmen pengurusan, latihan keselamatan, penglibatan pekerja, peraturan keselamatan, komunikasi keselamatan dan maklumbalas, dan dasar-dasar promosi keselamatan) berkaitan dengan pematuhan keselamatan di kalangan pekerja pembinaan di tapak *Kedah Rubber City*. Reka bentuk penyelidikan kuantitatif digunakan dalam kajian ini. Soal selidik digunakan sebagai alat untuk pengumpulan data serta disediakan dalam Bahasa Malaysia dan Bahasa Inggeris. Teknik persampelan rawak mudah digunakan untuk pemilihan responden supaya individu mempunyai peluang yang sama untuk dipilih. Pekerja diberi sesi dengan kehadiran penyelidik untuk membantu mereka menjawab soal selidik. Seramai 126 responden terlibat dalam kajian ini. Analisis data untuk kajian ini adalah ujian kolerasi (*Pearson Correlation*) dan ujian regresi berganda (*Multiple Regression Analysis*) untuk menentukan hubungan semua enam amalan pengurusan keselamatan dengan pematuhan keselamatan. Keputusan menunjukkan bahawa semua enam amalan pengurusan keselamatan mempunyai hubungan yang signifikan dengan pematuhan keselamatan. Walau bagaimanapun, ujian regresi berganda menunjukkan bahawa hanya komitmen pengurusan, komunikasi dan maklum balas keselamatan, peraturan keselamatan dan prosedur, dan dasar promosi keselamatan mempunyai pengaruh yang signifikan terhadap pematuhan keselamatan pekerja di *Kedah Rubber City*. Kajian ini menyumbang kepada organisasi untuk menentukan isu semasa yang menghalang pematuhan keselamatan pekerja, agar mereka dapat merancang penyelesaian yang berkesan dan mempromosikan amalan keselamatan dengan berkesan.

**Kata Kunci:** Amalan pengurusan keselamatan; Pematuhan keselamatan; Pekerja pembinaan

## **DECLARATION**

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; and any editorial work, paid or unpaid, carried out by a third party is acknowledged.





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## **TABLE OF CONTENTS**

<b>PERMISSION TO USE</b>	<b>ii</b>
<b>ABSTRACT</b>	<b>iii</b>
<b>ABSTRAK</b>	<b>iv</b>
<b>ACKNOWLEDGEMENT</b>	<b>v</b>
<b>TABLE OF CONTENT</b>	<b>vii</b>
<b>LIST OF TABLES</b>	<b>xii</b>
<b>LIST OF FIGURES</b>	<b>xiii</b>
<b>LIST OF ABBREVIATIONS</b>	<b>xiv</b>
<b>CHAPTER ONE INTRODUCTION</b>	<b>1</b>
1.1 Introduction	1
1.2 Background of the Study	1
1.2.1 Safety Compliance	1
1.3 Problem Statement	6
1.4 Research Questions	9
1.5 Research Objectives	10
1.6 Significance of the Study	11
1.7 Scope of the Study	12
1.8 Definition of Key Terms	13
1.8.1 Safety Management Practices	13
1.8.2 Management Commitment	13
1.8.3 Safety Training	14
1.8.4 Safety Communication and Feedback	14
1.8.5 Employee Involvement	14

1.8.6 Safety Rules and Procedures	15
1.8.7 Safety Promotion Policies	15
1.8.8 Safety Compliance	15
1.9 Conclusion	16
<b>CHAPTER TWO LITERATURE REVIEW</b>	17
2.1 Introduction	17
2.2 Safety Compliance as Dependent Variable	17
2.3 Safety Compliance	18
2.4 Safety Management Practices as Independent Variables	19
2.5 Literature Safety Management Practices and Safety Compliances	20
2.6 Underpinning Theory	22
2.7 Theoretical Framework	23
2.8 Statement of Hypotheses	24
2.9 Conclusion	25
<b>CHAPTER THREE METHODOLOGY</b>	26
3.1 Introduction	26
3.2 Conceptual Definition of Variables	26
3.3 Research Design	28
3.3.1 Unit of Analysis	28
3.4 Population, Sample and Sampling Technique	29
3.4.1 Population of the Study	29
3.4.2 Sample Size	29
3.4.3 Sampling Technique	30
3.5 Operationalisation and Measurement of Variables	30
3.6 Data Collection	32

3.6.1 Questionnaire Design	32
3.6.2 Translation of the Questionnaire	32
3.7 Ethical Consideration	33
3.8 Data Collection Procedure	34
3.9 Pilot Study	34
3.9.1 Reliability Coefficients of Questionnaire Items	35
3.10 Data Analysis Technique	35
3.11 Conclusion	37
<b>CHAPTER FOUR FINDINGS OF THE STUDY</b>	<b>38</b>
4.1 Introduction	38
4.2 Reliability Test	38
4.3 Rate of Response	39
4.4 Demographic Information	40
4.5 Correlation Analysis	42
4.5.1 Relationship Between Safety Management Practices and Safety Compliance	42
4.6 Multiple Regression Analysis	46
4.7 Hypotheses Testing	50
4.8 Conclusion	51
<b>CHAPTER FIVE DISCUSSION, RECOMMENDATION AND CONCLUSION</b>	<b>52</b>
5.1 Introduction	52
5.2 Discussion of the Findings	52
5.2.1 Relationship Management Commitment and Safety Compliance	53

5.2.2 Relationship Safety Training and Safety Compliance	54
5.2.3 Relationship Employee Involvement and Safety Compliance	54
5.2.4 Relationship Safety Communication and Feedback and Safety Compliance	55
5.2.5 Relationship Safety Rules and Procedure and Safety Compliance	56
5.2.6 Relationship Safety Promotion Policies and Safety Compliance	57
5.3 Research Implications to the Organization	58
5.4 Limitation of the Study	59
5.5 Recommendations for Future Research	60
5.6 Conclusion	61
<b>REFERENCES</b>	62
<b>APPENDIX A</b>	66



## LIST OF TABLES

Table 3.9.1	Reliability Coefficients of Questionnaire Items	35
Table 4.2	Reliability Test Result	39
Table 4.4	Summary of Demographic Information	41
Table 4.5.1	Relationship Between Safety Management Practices and Safety Compliance	42
Table 4.6.1	Model Summary for Multiple Regression Analysis	46
Table 4.6.2	Multiple Regression Analysis	47
Table 4.7	Summary of Hypotheses Testing	50



## LIST OF FIGURES

Figure 2.7      Research Framework

24



## LIST OF ABBREVIATIONS

DOSH	Department of Occupational Safety and Health
OSH	Occupational Safety and Health
OSHA 1994	Occupational Safety and Health Act 1994
SMEs	Small and Medium Enterprises
TPB	Theory of Planned Behaviour
PPE	Personal Protective Equipment
KRC	Kedah Rubber City
LTI	Loss Time Injury
H&S	Health and Safety





## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

This chapter introduced the basis of the research, problem statement, research questions, research objectives, significant of the study, scope of the research and definition of key terms used in the study.

#### **1.2 Background of the Study**

##### **1.2.1 Safety Compliance**

The phrase "safety behaviour" has two elements, according to Griffin and Neal (2000), which are more frequently used in studies on the safety performance approach: Safety participation and adherence. Safety compliance can be defined as doing tasks in a safe manner and adhering to security procedures (Neal et al., 2000). Workers' disregard for safety protocols and disinterest in taking part in actions that could increase the safety of others have been linked to occupational mishaps (Ajmal et al., 2022). Safety compliance is a crucial element that serves as an outline for adhering to workplace safety laws. A high level of compliance contributes to a positive reputation for the construction sector and a reduction in workplace accidents (Nik Him et al., 2023).

Literature by Jamalullah et al. (2018) on the antecedents of non-compliance on OSH regulations among Malaysian contractors were lack managerial commitment, expense, time, safety-related training, knowledge, and supervision. Employers' main justifications for the multiple instances of non-compliance with the act's provisions were ignorance of OSHA 1994; lack of time or resources dedicated to OSH; OSH's insignificance; and the conviction that "accidents would not occur to me." Numerous causes contributed to employee noncompliance, such as a lack of knowledge on safety and health standards, trouble following OSH rules and regulations, pain during compliance, and the conviction that "accidents would not occur to me" (Zin and Ismail, 2012).

Research indicates that the Occupational Safety and Health Act (OSHA) of 1994 is a useful regulatory framework that may be used to drive people to behave in a way that promotes safety compliance. Enacted in 1994, the Occupational Safety and Health Act (OSHA) aims to foster a safety culture via self-regulation. By implementing these components, employers and workers would be encouraged to modify their conduct in favour of improving occupational safety and health, which would shield workers from diseases, accidents, and injuries related to the workplace (Zin & Ismail, 2012).

The researcher intends to investigate safety management methods as independent variables in the study among construction workers in order to ascertain the factors of safety compliance. Numerous elements make up safety management practices, including employee involvement, safety guidelines and protocols,

dedication from management, training on safety, safety promotion programs, and safety feedback and communication.

Malaysia, like many other emerging nations, is experiencing tremendous economic growth, with the building sector playing a critical role in this process. The economic performance is often related to the growth of all sectors such as service, manufacturing and construction. This expansion also leads to the positive labour market record. According to Ministry of Economy, Department of Statistics Malaysia stated that in the second quarter of 2023, the construction industry grew by 8.1% to reach RM32.4 billion, continuing its upward trend. As a result of this economic expansion, the nation's rate of occupational accidents also increased.

Department of Occupational Safety and Health (DOSH) Malaysia stated in 2022 there was about 34,216 occupational injuries occurred with non-fatal injuries recorded around 33,899 cases and 317 fatal occupational injuries. The higher rate showed fatal occupational injuries was 2.06 per 100,000 workers in 2022 as compared to 2021 which was 2.00. Manufacturing was the industry with the highest rate of occupational injuries. However, it was revealed that construction industry placed as second highest sector on fatal occupational injuries after mining and quarrying. The rate was about 6.15 per 100,000 workers.

We can draw the conclusion that incidents in the construction sector were more likely to result in worker fatalities, which is consistent with the assertion made by Natalie and John (2016) that construction workers have a triple risk of dying and a

twice higher risk of getting wounded as compared to other industry. Despite several innovative and successful controls to lower the risk of injuries on the job site, the construction industry continues to experience high rates of injuries and fatalities.

Worldwide, statistics data on occupational accidents that occurred in 2022 was around 340 million as published by International Labor Statistics and the construction business reported abnormally high number of the accidents. The construction sector has a high fatality rate due to its unique nature, complex work environment, and varying work environments with distinct hazards. These factors make the business unique (Halim et. al, 2020). The construction sector is one of the most complex ones, with each action being unique and most operations not repeating until a new one occurs (Ahmad et al., 2018).

A review by Halim et. al (2020) on the causes of Malaysian construction fatalities found out that the main factors of the accidents come from the management, worksite and from human factors. They also revealed that number of accidents at construction site might be higher than the reported ones due to underreporting issue. Malaysia's building sector that has tendency for progress project and may jeopardise OSH. Due to this, small injuries that may be treated internally may not be reported.

Accidents in the construction sector would negatively impact the company and cause a project's completion date to be delayed. According to Nik Him et al. (2023), there is a significant incidence of occupational accidents at construction sites because of issues with illness or injury, equipment or property destruction, near misses, lower

productivity, and poor performance. The construction industry's safety standards have not advanced as much as those in other sectors, despite considerable efforts over the last few years.

The industry is widely recognized for its subpar performance in terms of health and safety. The country's economy as well as the financial health of construction companies are negatively impacted by this poor performance. Barriers that lead to poor performance include inadequate resources for safety, weak commitment to safety, poor safety accountability, low safety awareness especially from top management level, absence of a safety management program from governance, and the prioritization of finishing the projects in as little time and money as feasible (Buniya et al., 2020).



### 1.3 Problem Statement

As the major contributor to the country's economy, construction industry was highly known as accidents-prone sector due to the high work-related accidents and death. These incidents cost not only the family of the victims, but also involved the organization by losing their competent workers and experiencing project delays, increase insurance values and also need to disburse on the medical expenses (Halim et al., 2020). Uncontrolled work-related accidents rate can lead to major problem to the construction settings. As one of the complicated industry, lack of attention received might hamper the progression of the construction growth and eventually affect the country's growth.

Kedah Rubber City was one of high impact project in Kedah that has been ongoing as planned in Kedah Development Plan towards 2035. With the aims to create rubber-based industrial area with 1,244.88 acres, this location has been receiving attention from all investors and people outside of Kedah. Therefore, it is important for the client, contractors and other organization involved to ensure the project could be completed without having issues on safety and health matter that could give negative impression to other people. Apart from that, the occurrence of near-misses and accidents seems to increase over the years.

Safety performance is a comprehensive collection of policies, legislation, and actions aimed at increasing organisational safety and has been studied to have significant relationship with safety training, managerial commitment, workers involvement and safety management system (Ismail, 2020). Literature on finding the

factors affecting the safety also found out that training, safe work environment and safe plant and equipment were the contributing factors (Abas et al., 2020). Therefore, literature suggested further research that involve other sector with high occurrence of accidents and searching for other antecedents that affecting safety performance in the organization.

Petroleum and gas business are another high-risk industry where occupational accidents are directly impacted by safety adherence and safety management techniques. Studying safety compliance and safety management techniques will be prioritized in order to lower the likelihood of accidents in high-risk industries (Ajmal et al., 2022). Therefore, present study may fill the gap on the relationship of safety management technique and safety compliance among other high-risk of accidents sector; construction. As top three main contributing industries to the economy of the country and the unique nature of exposing the workers to the numerous hazard every day of work, the researcher made the decision to look into the relationship between construction workers' safety compliance and safety management strategies. since construction is a labour-intensive business that relies on the availability and well-being of its workers to fulfil current and future projects.

Several investigations have been carried out to determine the reasons behind accidents, worldwide. Previous research found that the most accidents occurred were due to the occasional occurrence of accidents, unsafe conditions and unsafe behaviour (Abdul Halim et al., 2020). Previous study conducted by Ajmal et al. (2022) stated that cost of workplace accidents can be lower when the organization enhance safety

management techniques and ensure compliance and the researcher agreed that safety compliance was important in creating behavioural safety among workers especially high-risk industry. However, in Malaysia there is very limited studies on behavioural safety especially in the construction settings and most of the studies being conducted were qualitative studies. Hong et al. (2011) recommended conducting additional research in these environments to examine safety management techniques and safe work practices as a way to lower the likelihood of accidents in Malaysia.

Although various initiatives have been done by management to maintain safety compliance, the frequency of near misses and accidents at work has nonetheless happened (Zulkeflee et al., 2020). Study by Ahmad et al. (2018) stated that there existed a worldwide safety disparity that occurred in construction sector and inadequately addressing the effect of danger in construction management. They revealed research on construction risk management with regard to human resource safety is still lacking.

OSH issues especially faced by construction sector need to be explored thoroughly to understand the unique problems faced by them. Although the implementation of OSHA 1994 provides the framework for regulating OSH management at the workplace, the principle on self-regulations has led the organization to take full responsibility on OSH matter. Given the current condition of the workplace accident, a study aimed at exploring ways to improve safety regulations and implementations at the workplace. Effective implementation of OSH was believed to be able to reduce the number of accidents and fatalities rate (Halim et al., 2018).



In order to properly recommend remedies, the researcher opted to start a study on the influenced of safety management technique (commitment from management, training on safety, safety dialogue, employee participation, safety standard and procedures and safety guidelines and protocols, safety-oriented promotion strategies) on safety compliance among construction workers.

#### **1.4 Research Questions**

The following research questions are intended to be addressed by this study:

1. Is there relationship commitment from management and safety compliance?
2. Is there relationship between safety training and safety compliance?
3. Is there relationship between safety communication and feedback and safety compliance?
4. Is there relationship between employee participation and safety compliance?
5. Is there relationship between safety standard and procedures and safety compliance?
6. Do safety promotion policies relate with safety compliance?

## **1.5 Research Objectives**

The current study's general goal is to ascertain how safety management techniques and worker compliance in the construction industry relate to one another.

Specifically, the objectives of the study are as follows:

1. To determine the relationship between management commitment and safety compliance
2. To determine the relationship between safety training and safety compliance
3. To determine the relationship between safety communication and feedback and safety compliance
4. To examine the relationship between employee involvement and safety compliance
5. To examine the relationship between safety rules and procedures and safety compliance
6. To examine the relationship between safety promotion policies and safety compliance

## **1.6 Significant of the Study**

The outcomes of this study should help the construction industry ensure that safety management procedures are followed at work. The study may contribute to the organization in determining the current issue that hinder the compliance on safety among workers. By that, the solution can be planned to ensure the effective safety practices among workers in order to minimize the number of accidents that occur in Malaysian construction sites.

Numerous previous literatures have been conducted on finding the connection between industry safety compliance and safety management techniques. In Malaysia, most of the studies were on the small and medium enterprise (SME) and limited studies were found in construction sector although it was one of the primary forces behind the nation's development. The studies showed different result that relates with the safety compliance in the same sector. For example, Fauzi et al. (2022) covered a study in SMEs manufacturing and stated that safety communication, training and management commitment related to the safety behaviour of workers while according to Subramaniam et al. (2016), safety behaviour is influenced by safety regulations and procedures, managerial commitment, and safety training. Since past studies mostly covered on manufacturing SMEs in Malaysia, the researcher suggested future study on other SMEs sector.

The result of this finding might be beneficial for future researcher, government and policy makers to emphasize on safety and health management in construction industry. It is also clear that providing sufficient resources for health and safety during

the procurement or bidding process has been a contentious issue, with some contractors concerned that including a provision for H&S will result in them losing the tender or bid to a competitor who fails to offer funding for H&S. This study may help the industry identify the elements that influenced safety compliance and offer solutions to improve the management of health and safety of the industry's construction workforce while minimizing the likelihood of accidents.

### **1.7 Scope of Study**

This study aims to find the relationship between safety management practices and safety compliance of workers at Kedah Rubber City project site. The primary focus of this research will be safety management practices, such as organizational commitment, safety education, safety communication and feedback, employee participation, safety rules and regulations, and safety promotion strategies, and their impact on construction workers' compliance to safety regulations.

This study involved all workers in the Kedah Rubber City site. The researcher chose the location was because Kedah Rubber City was one of the projects stated in Kedah Development Plan 2035 as the main initiative for the development of country's growth. With the area of 1,244.88 acre, located in Padang Terap, Kedah Rubber City was expected to offer about 15,000 job opportunities by 2035.

Method for data collection was by using self-administered questionnaires adapted from previous literature. Questionnaires were given to the respondents who

were available and willing to be involved. The questionnaires were prepared in two forms; Google form and hardcopy survey form.

## **1.8 Definition of Key Terms**

### **1.8.1 Safety Management Practices**

Safety management practices are the strategies, plans, policies, and actions that an organization's management implements or adheres to ensure the security of its workers (Vinodkumar & Bhasi, 2010). Numerous components connected to safety make up safety management practises. These include managerial support for safety, training on safety, safety policies and protocols, employee participation in safety, policies that promote, and safety feedback and communication (Subramaniam et al., 2016).

### **1.8.2 Management Commitment**

The executive's role is essential to creating a safe workplace and is a significant factor in motivating employees to adopt excellent work habits. The key to achieving high safety performance is management's commitment to utilise their full might in providing the necessary resources and assistance. Top management involvement in creating OSH policies, promoting safety and health awareness, and expressing interest in fostering safe and healthy working conditions (Fauzi et. al, 2020). The degree to which upper management or organizations are committed to enhancing workplace safety is referred to as management's dedication to safety. This devotion is typically

exhibited through the encouragement and help given to employees in terms of safety (Ismail, 2020).

### **1.8.3 Safety Training**

Training serves as one of the most effective strategies for influencing human behaviour and developing excellent and safe routines while at work. Safety training is essential for protecting personnel from risks, and good training on safety helps to prevent accidents and injuries (Fauzi et. al, 2022). Across all industries, safety training has been shown to be one of the most significant safety management strategies that can influence positive safety results.

### **1.8.4 Safety Communication and Feedback**

Communication is a crucial instrument for conveying safety objectives and facts, as well as promoting OSH growth proposals. Employees' concerns, suggestions, and comments about occupational safety and health are also received, considered, and reacted to through communication (Fauzi et. al, 2020).

### **1.8.5 Employee Involvement**

Employee participation is positively correlated with safety performance (Ismail, 2020). A behavioural-oriented approach, employee engagement involves people or teams participating in the organization's upstream communication process and decision-making processes. Employees closest to the job are the best suited to

provide ideas for changes, thus they should be considered before making final choices, especially those affecting employees (Vinodkumar & Bhasi, 2010).

#### **1.8.6 Safety Rules & Procedures**

The degree to which an organization establishes behavioural norms for staff members, regulates their tasks and objectives, and constructs a safety system to address unsafe worker behaviour is all related to safety rules and protocols. (Subramaniam et al., 2016).

#### **1.8.7 Safety Promotion Policies**

Recognition, incentives, and rewards for reporting hazards are some examples of safety promotion policies. Other examples include activities planned during safety week to raise awareness among employees, healthy rivalry between the employees to report dangerous circumstances or acts, and supervisors who support and encourage staff to communicate any safety concerns (Vinodkumar & Bhasi, 2010).

#### **1.8.8 Safety Compliance**

The act of following directions or requests from those in positions of power is known as compliance. There are two categories of compliance with safety standards: excellent compliance and insufficient compliance. Meeting safety requirements is considered great compliance, while not meeting safety laws is considered poor compliance. (Zin & Ismail, 2012).

## **1.9 Conclusion**

This chapter provides a summary of the current research. This chapter described the relationship between safety regulations and compliance management techniques. Numerous safety management strategies are covered by the research, such as management commitment, staff involvement, safety communication, safety training, safety regulations and procedures, and safety promotion policies. This chapter covers the study's background, the research statement of the problem, the research objectives, the significance of the work, its scope, and the definition of key terms. The following chapter contains an overview of the main variables considered in this investigation.





## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter elaborates literature on the safety compliance as dependent variables and safety management practices as independent variables and their relationship. It also stated on the underpinning theory, theoretical framework and statement of hypothesis.

#### **2.2 Safety Compliance as Dependent Variable**

"Safety compliance" refers to the fundamental safety protocols that workers must adhere to in order to ensure workplace safety. These actions include donning personal protective equipment and following tagout and lockout protocols (Neal and Griffin, 2000). Safety compliance refers to how workers behaving in a way that upgrades their own health and safety (Vinodkumar & Bhasi, 2010). Apart from that, safety adherence refers to action that has a major influence on the firm's safety record. In other words, it pertains to the extent to which employees follow the organization's rules, laws, and practices even when their boss is not watching (Kihoro, 2020). The primary reason why it is crucial for workers to follow safety protocols is to ensure their safety while performing their duties (Ajmal et al., 2022).

### **2.3 Safety Compliance**

Past study indicated that safety compliances have a critical role in minimizing occupational accidents, according to the literature. A past study by Ajmal et al. (2022) on safety compliance stated that occupational accidents and safety management practices are mediated by safety compliance. The highest safety issues in the construction industry include unsustainable building and planning, followed by project managers and experts not readily available, overuse of heavy machinery and untrained labour, insufficient skilled labour on building sites and also the absence of a health and safety board (Ahmad et al., 2018)

To increase the workers' adherence to the safety regulations, regular enforcement of inspection including sensible, forceful supervision such as reprimanding, scolding, or enforcing physical contact might be one of the ways to ensure that foreign workers follow safety protocols at work. Considering most of the general workers in the industry were foreign when emotions like fear or grief are present, foreign labourers will be more conscious of safety concerns (Zulkeflee, 2022). They also stated that the social and religious variety of workers might be the reason for non-compliance to safety. Therefore, it can be ruled out that noncompliance with safety requirements was known as a primary behavioural concern and complicated in a wide range of work.

## **2.4 Safety Management Practices as Independent Variables**

Safety management approach refers to a company's management's usage or compliance to policies, plans, processes, and other steps to ensure the safety of its employees. (Razali et al., 2018). Safety management procedures are frequently acknowledged as an initial system within a company that is connected to worker safety. Alternatively referred to as the elements of any implicit safety management system within the company, it is organized through the creation of efficient safety planning, just as it is for handling workplace risks that could jeopardize workers' health and wellbeing (Muhammad, 2022).

Effective use of safety-management techniques, which include safety-related methodologies, guidelines, plans, procedures, and activities, is essential, especially in high-risk industries, to achieve low rates of workplace injuries (Ajmal et al., 2022; Subramaniam et al., 2016). Besides, concentrating on these practices would eventually reduce the workers' compensation costs associated with workplace injuries (Ajmal et al., 2022).

For evaluating an organization's overall performance as well as the effectiveness of its safety and health at work initiatives, safety education has been found to be a crucial instrument. Enhancements in behavioural abilities and attitudes are shaped by different safety-related training programmes, which is one justification for the need of safety training (Ashour et al., 2018). While Nik Him et al. (2023) stated that managerial dedication influenced the safety culture practices from the managers firm dedication that creates a safe environment on construction sites and impacts

workers' commitment to being cautious at work. Organizations also may give an employee credit for their hard work and for acting in a safe manner may raise their awareness and inspire them to create a pleasant work atmosphere which called as safety marketing policy for their workers (Marzuki, 2019).

Other practices on safety-related were by ensuring the involvement of the employees in safety management in which effective communication between coworkers and management is essential to include employees in making suggestions on safety-related issues (Razali et al., 2018). Besides, reporting any issue, cause, concern, mishap, or non-compliance should be prioritized when it comes to safety communication and feedback. The management and staff need to communicate in both directions. It is recommended that employees provide feedback and opinions regarding safety-related changes (Razali et al., 2018). As part of the management guidelines for safety, organizations can enact rules and regulations pertaining to safety, which would specify the organization's mission, responsibilities, and goals. They can also set behavioural norms for employees and create a safety foundation to address harmful working conditions.

## **2.5 Literature Safety Management Practices and Safety Compliance**

Numerous academic works have been examined on safety compliance and management techniques in various industries. For instance, research by Ajmal et al. (2022) discovered that, in the oil and gas business, there were relationship between six safety management approach and safety compliance. While, the Indonesian industrial

sector's safety compliance is only related to worker participation and safety training (Rizki et al., 2020).

Literature by Aziz et al. (2019) found that among six management practices studied, only commitment from management, participation of employees in safety and safety rules and procedure directly impact the compliances of employees in the water production industry. Other items such as safety-related training, communication and feedback and promotion policies only affected the safety participation.

Studies among SMEs also resulted in having different management practices that relates to the safety compliance. For example, Subramaniam et al. (2016) found management dedication, safety education and safety standard and procedures had direct impact on both safety compliances as well as workers' involvement while other study found other antecedents that have impact on safety compliances which includes safety communication, management commitment, and safety training (Fauzi et al., 2022). Tawab et al. (2017) also revealed that communication, safety training, and work environments have influenced on safety compliance among SMEs.

Other literature from Saad et al. (2019) on management commitment to workplace and personal compliance in the university environment found the impact of dedication from managers to safety in reducing workplace accidents. When the manager becomes proactive in recognizing dangers, the workers tend to take safety concerns more seriously by establishing a trustworthy environment through regular safety procedures, lowering overall accident and injury rates.

## **2.6 Underpinning Theory**

The current study attempts to ascertain how safety management procedures and worker compliance in the construction industry relate to one another. Given that reasoned action is an extension of the theory of planned behaviour (TPB), it served as the foundation for this study which explained how people behaviour can change based on attitudes, peer support, personal efficacy, and intention (Ajzen, 1991). Both theories assume that individuals make rational choices to engage in certain actions by analysing the available information. The goal of the individual and their belief that they have control over the activity affect how that conduct is performed (Ryan & Carr, 2010).

The theory of planned behaviour (TPB) is developed in light of the worker's actions, societal beliefs—perceptions of the views of others, normative expectations—control beliefs—perceptions of the presence of elements that could aid or hinder the performance of the behaviour—and behavioural beliefs—perceptions of the possible outcomes of the behaviour.

Fugas et al. (2011) studied the theory to find the mechanism that mediate organizational safety climate with compliance safety behaviour. This theory identified that safety compliance behaviour is influenced by descriptive and injunctive norms. Compliance safety behaviour was related to support from the management, implementation of systems, the participation of workers, with the inclusion of safety-related training for the safety performance improvement in the organization.

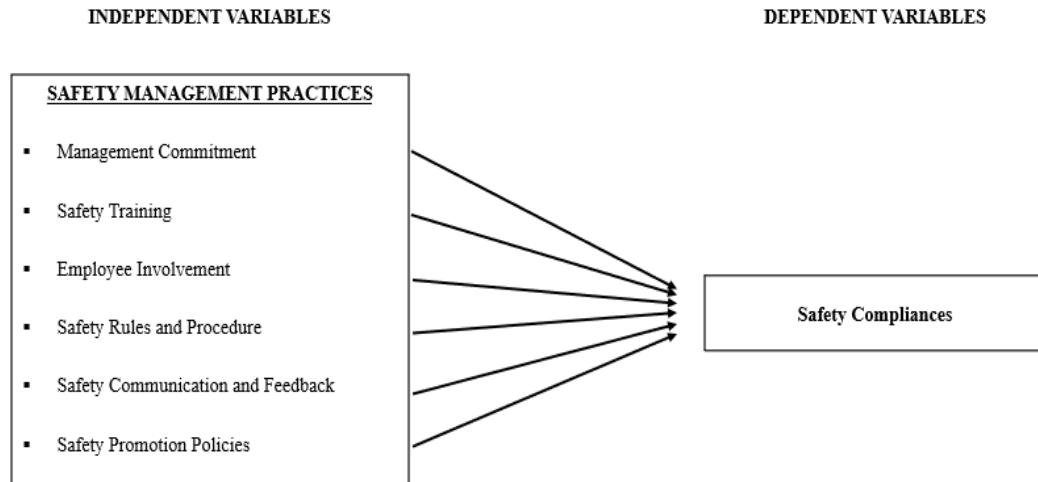
## **2.8 Theoretical Framework**

The study's research framework was adapted from Vinodkumar and Bhasi (2010). Management commitment, safety training, workers involvement, policies for safety promotion, safety communication and feedback, and safety rules and regulations are the six independent variables in this study. The dependent variable is safety compliances among construction workers.

This study focuses on safety compliance only as dependent variables instead of past literature from Vinodkumar and Bhasi (2010) that studied on safety performance which include safety compliance and safety participation. This is because safety compliance demonstrates how staff members can behave to improve their own health and safety (Vinodkumar & Bhasi, 2010). Safety compliance also concerns how well employees follow safety guidelines, such as wearing protective gear (PPE) and following safety instructions to the letter (Fauzi et al., 2022) while safety participation refers to employee activity that prioritises coworker safety and health while complying with an organization's aims and objectives (Vinodkumar & Bhasi, 2010).

**Figure 2.7**

*Research Framework*



## 2.8 Statements of the Hypotheses

The research questions and objectives were reviewed in the formation of the study's hypotheses. There are six (6) hypotheses developed;

H1: There is significant relationship between management commitment and safety compliance.

H2: There is significant relationship between safety training and safety compliance.

H3: There is significant relationship between workers' involvement and safety compliance.

H4: There is significant relationship between safety rules and procedures and safety compliance.

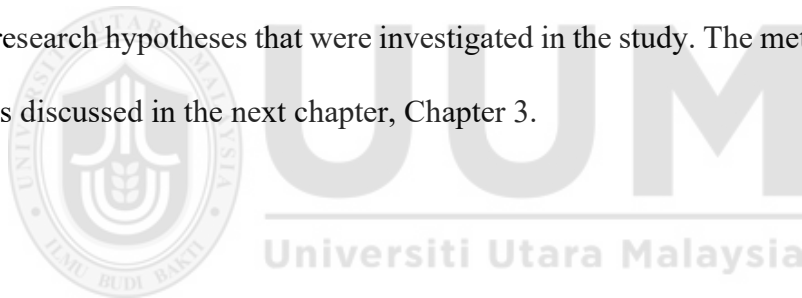
H5: There is significant relationship between safety communication and feedback and safety compliance.



H6: There is significant relationship between safety promotion policies and safety compliance.

## **2.9 Conclusion**

This chapter has covered past and present empirical investigations in the context of the safety management approach in the following areas: employee participation, safety standards and procedures, safety promotion policies, management commitment, safety education, safety communication and feedback, and safety adherence. This chapter included a description of the research framework in addition to the research hypotheses that were investigated in the study. The methodology of the study is discussed in the next chapter, Chapter 3.



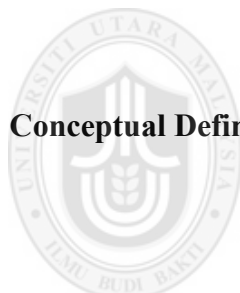
## CHAPTER 3

### RESEARCH METHODOLOGY

#### 3.1 Introduction

The research approach used to conduct this study is covered in this chapter. Additionally, it covers demographic, sampling, research design, operational and measurement definitions of variables, data collection methods, and data analysis techniques.

#### 3.2 Conceptual Definitions of Variables



##### *Variables*

##### *Conceptual Definition*

<i>Safety Compliance</i>	Concerns how well employees follow safety guidelines, such as wearing protective gear (PPE) and following safety instructions to the letter (Fauzi et al., 2022).
<i>Safety Management Practices</i>	Reduced workplace accidents and injuries are the aim of safety management practises, which are implemented by safety-related methodologies, policies, strategies, procedures, and activities inside the company (Subramaniam et al., 2016).

<b><i>Management Commitment</i></b>	The level of dedication shown by senior management to improving workplace safety is referred to as management commitment to safety, and it is typically shown by the support and encouragement given to staff members about safety (Ismail, 2020).
<b><i>Safety Training</i></b>	According to Ajmal et al. (2022) safety education is the dissemination of safety knowledge to enable employees to do their jobs safely and prevent workplace accidents.
<b><i>Workers' Involvement</i></b>	A behaviour-focused strategy, employee engagement involves individuals or groups in the organization's higher contact flow and process of decision-making (Vinodkumar and Bhasi, 2010).
<b><i>Safety Communication and Feedback</i></b>	Research indicates that safety feedback and communication may effectively improve organisational safety performance and facilitate the exchange of information through diverse communication channels (Subramaniam et al., 2016).
<b><i>Safety Rules and Procedures</i></b>	Organisations with a distinct mission, purpose, and set of responsibilities are subject to safety rules and regulations. Additionally, they provide safety measures to address risky worker activities and set norms for employee conduct (Razali et al., 2018).
<b><i>Safety Promotion Policies</i></b>	Ajmal et al. (2022) analyse policies that promote safety based on the following criteria: reporting risky circumstances, weekly celebrations, employee recognition, awards for safe conduct, and encouraging suggestions for safety upgrades.

### **3.3 Research Design**

Present study applied quantitative type of research design. This technique uses numbers and everything quantifiable in a structured way to examine events and their correlation. In order to calculate, explain, and regulate a phenomenon, these procedures are used to answer questions about the relationships between various variables (Kihoro, 2020). A cross-sectional study is selected in lieu of longitudinal research due to restricted timeframe for data collection. Although the latter certainly gives results that show a cause-and-effect link, the data gathering process takes a lot longer, therefore this research design is not appropriate.

Self-administered questionnaires will be used as the data collection technique for hypothesis testing. Safety management methods will be tested as independent variables, and their influence on safety compliance will be tested as a dependent variable. Testing will be done to determine how safety management approach—such as management dedication, safety education, employee participation, safety communication, safety standard and regulations, and safety promotion policies—affect construction workers' adherence to safety requirements.

#### **3.3.1 Unit of Analysis**

The unit of analysis for this survey was individual, which involving all employees that work at chosen construction site location, Kedah Rubber City (KRC). All employees at the KRC site that available and interested to join the survey are welcomed.

### **3.4 Population, Sample and Sampling Technique**

#### **3.4.1 Population of the Study**

Due to the limited time and the availability to reach the respondents for the study, the researcher chose target population were employees that have experiences working at chosen construction site location, Kedah Rubber City. All of the employees involved come from different company since the site activities were conducted by three main contractor and many sub-contractors with different types of work activities. This is because the goal of the study is to investigate how independent and dependent variables relate to one another among all employees that works at the specified site location.

#### **3.4.2 Sample Size**

The sample for this study was based on the total number of employees work at construction site of Kedah Rubber City. By referring to Krejcie and Morgan (1970), the total number of samples for the study was 123 from total population 180 employees. The sample included all workers of the KRC worksite.

#### **3.4.3 Sampling Technique**

Method of sampling methodology for the study was using simple random sampling in which each individual has an equal chance of being chosen. It involves

selecting individuals from population without using specific pattern or criteria. his approach is commonly used to generate a representative sample that may be applied to the complete population. Sampling technique also involved the interview session with some workers based on the questionnaires due to inability of some workers to understand the survey due to the variability origin of respondents.

### 3.5 Operationalisation and Measurement of Variables

Questionnaires will be used as a data gathering tool in this project. It is a self-administered questionnaire and was created to examine workers' safety management practices towards safety compliance at work.

<b>VARIABLE</b>	<b>OPERATIONAL DEFINITION</b>	<b>NUMBER OF ITEMS</b>	<b>ITEMS ADOPTED FROM</b>
<b>Safety</b>	The degree to which workers	7 items	Vinodkumar
<b>Compliance</b>	adhere to regulations, guidelines, legal requirements, and safety norms (Santi et al., 2020)		& Bhasi, 2010
<b>Management</b>	Level of management that	9 items	Vinodkumar
<b>Commitment</b>	involves deciding the safety of an organization through the degree of dedication and attention of the management (Aziz et al., 2019)		& Bhasi, 2010

<b>Safety Training</b>	Sharing of information about safety and how it may be used to help employees operate in a safe way (Ismail, 2020)	6 items	Vinodkumar & Bhasi, 2010
<b>Workers' Involvement</b>	Described as a behaviour-based approach that incorporates people or groups in a process of decision-making and upward communication flow (Subramaniam et al., 2016)	5 items	Vinodkumar & Bhasi, 2010
<b>Safety Communication and Feedback</b>	Employee problems, suggestions, and comments about OSH are also made possible through communication, and they are then taken into account and addressed (Fauzi et al., 2022)	5 items	Vinodkumar & Bhasi, 2010
<b>Safety Rules and Procedures</b>	Associated to appropriate safety departments, managers and supervisors implementing safety regulations, and frequent safety inspections in order to avoid accidents from happening (Vinodkumar & Bhasi, 2010)	5 items	Vinodkumar & Bhasi, 2010

<b>Safety</b>	Policies promoting safety are	5 items	Vinodkumar
<b>Promotion</b>	evaluated on the basis of employee		& Bhasi,
<b>Policies</b>	recognition, rewards for safe		2010
	behaviour, weekly celebrations,		
	reporting dangerous situations,		
	and encouragement to suggest		
	ways to enhance safety (Ajmal et		
	al., 2022)		

### 3.6 Data Collection

#### 3.6.1 Questionnaire Design

The self-administered surveys were derived from earlier research. A 5-point Likert scale will be used to score the answers to the questionnaire items. Every variable under test was measured using a 5-point Likert scale, with 1 denoting strongly disagree and 5 denoting strongly agree. Three sections will make up the questionnaires:

Part A – Demographic Information

Part B – Safety Management Practices

Part C – Safety Compliances



### **3.6.2 Translation of the Questionnaires**

The questionnaires were conducted in two language which are Malay and English. This is because some of the workers might find it difficult to answer the questions in English version. So that they have an option to choose which type of questionnaires would ease them in answering the questionnaires.

Generally, back-to-back translation methods were used to prepare the final version of the questionnaire. The questionnaire was distributed in two languages – English and Bahasa Malaysia or Malay. The original questionnaire (in English) was initially translated to the target language (Bahasa Malaysia) and later translated back to the English (Brislin,1970). After that, the translated material was reviewed by an OSH lecturer to ensure that the words and sentences were appropriate and suitable for the environment, subject, as well as culture under study. The questionnaire contained 42 items, was divided into seven sections, and employed a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) (Al-Rafaie, 2013).

### **3.7 Ethical Considerations**

In ensuring the ethical consideration of the study, every respondent was informed of the confidentiality of their response and their data would only be used for the purpose of the study. The researcher also obtained permission before communicating with the respondents and reassured them that their involvement was optional. All other ethical guidelines were adhered to during the duration of the study.

### **3.8 Data Collection Procedure**

Self-administered questionnaires will be distributed to all employees by using online platform and survey form. For the foreign workers, they will be given a session for answering the questionnaires with the presence of researcher. Each participant will have ample opportunity to complete the survey, and they have been informed that all information gathered will be kept completely private and used only to further the goals of the research. They were not required to identify themselves by putting their names on the form.

### **3.9 Pilot Study**

Prior to the respondents receiving their questionnaires, a pilot study was carried out. Pilot study was conducted in order to forecast the actual survey; thus, the researcher is able to assess the level of toughness in answering the questionnaires (Moore & Benbasat, 1991). For this study, pilot test was done to construction workers other than stated research population. 30 respondents were surveyed to assess the instrument's reliability and make sure the questionnaires were comprehensible, trustworthy, and useful for gathering data.

The researcher found that this study has to be in dual language due to the inability of some respondents to well-verse in English, therefore the instrument was translated into Malay Language by using back-to-back translation. The survey was pre-tested with 30 construction workers that work in other project outside of Kedah Rubber City project.

Cronbach's alpha reliability coefficients were calculated to determine the internal consistency of the dependent and independent variables. The details are reflected in Table 3.9.1.

**Table 3.9.1**

*Reliability Coefficients of Questionnaire Items*

<b>Variable</b>	<b>(r)</b>	<b>N of Item</b>
Management Commitment	0.801	9
Safety Training	0.697	6
Employee Involvement	0.676	5
Safety Communication and Feedback	0.831	5
Safety Rules and Procedure	0.674	5
Safety Promotion Policies	0.750	5
Safety Compliances	0.657	7

### **3.10 Data Analysis Technique**

In this study, SPSS (version 26) program for Windows was used to analyse the data collected. Data were examined for data entry accuracy, outliers, and distributional properties before primary analyses been conducted.

Descriptive analysis is a method to describe the basic features of the data in the research and these include the minimum, maximum, mean and standard deviation of a

sample (Sekaran, 2003). As for this study, these categories of data help the researcher to summarize the variables of interest and provide a quick summary of the demographic characteristics of respondents participated in this study. Among demographic characteristics asked in the questionnaire include age, gender, nationality, position, working experiences and number of occupational accidents occurred since started working in the company.

In order to explain the strength and direction of the linear relationship between two variables, correlation analysis was conducted (Pallant & Manual, 2001). The ideal correlation of 1 or -1 indicates that the value of one variable can be determined accurately by knowing the value of the other variable. Therefore, to determine the strength of the relationship between the variables in this study, the correlation technique was used to understand the direction of the relationship and amount of correlation between the independent variables (management commitment, safety training, safety communication and feedback, employees' involvement, safety rules and procedures, safety promotion), and dependent variable (safety compliance).

Multiple regression analysis is a statistical technique used to analyse the relationship between a single dependent (criterion) variable and several independent (predictor) variables. The objective of conducting multiple regression analysis is to use the independent variable whose values are known to predict the single dependent value selected by the researcher. Each independent variable is weighted by the regression analysis procedure to ensure maximal prediction from the set of independent variables. The purpose of performing a multiple regression in this study is to determine the predictive power of the independent toward the dependent variable.

### **3.11 Conclusion**

The study's methodologies are described in this chapter. It covered the demographic, sample size, sampling methodology, data gathering process, ethical considerations, pilot project, and data analysis approach.



## **CHAPTER 4**

### **RESULTS / FINDINGS**

#### **4.1 Introduction**

The study's findings are presented in Chapter 4. This chapter provided an explanation of the study's outcome and a review of the data gathered. The study's findings are reported in Chapter 4. The rate of response and participant demographics are reported at the beginning of the chapter. A discussion on the correlation, multiple regression and a description of the current study's hypothesis testing completes the chapter.

#### **4.2 Reliability Test**

##### **Preliminary Data Analysis**

Reliability is the test that is importance to measuring the devices for processing data. Reliability is referring to the degree that the research instrument is stable and consistent (Bernard, 2011). Cronbach Alpha research use a 5-point Likert scale to measure the item's accuracy and reliability in question. The reliability test, which is the Cronbach value, normally range from 0 to 1 if the score is very close to 1 is good. However, regarding to Gliem and Gliem (2003), the following thumb rules, which are ,0.9 and above, can be categorized as an excellent. Next,  $\geq 0.8$  is considered to be

good, and  $\alpha > 0.7$  is considered acceptable. For  $\alpha > 0.6$  is considered to be questionable. Lastly, the score  $\alpha > 0.5$  may be regarded as poor.

**Table 4.2**

*Reliability Test Result*

Variable	Cronbach's Alpha	N of Item
Management Commitment	0.801	9
Safety Training	0.741	6
Employee Involvement	0.630	5
Safety Communication and Feedback	0.825	5
Safety Rules and Procedure	0.779	5
Safety Promotion Policies	0.747	5
Safety Compliances	0.737	7

### 4.3 Rate of Response

The questions were delivered through Google Forms and self-administered survey forms. More questionnaires were delivered than the expected number of responders for the study. This is because the researcher wants to account for the chance that respondents would not return questionnaires. Following a two-week distribution period, approximately 126 surveys were returned. The calculated response rate was almost 84%.

#### **4.4 Demographic Information**

This section explains the information of the participating respondents based on demographic characteristics. Demographic information obtained from the study includes the gender, age, nationality, position, working experiences and on occupational accidents experiences during working in the company.

Among all respondents, only 18 respondents were female (14.3%) while about 108 were male (85.7%). For the demographic information on age category, the researcher divided into five categories comprise of below 25 years, 25 to 30 years, 31 to 35 years, 36 to 40 years and more than 40 years old. Participants mostly involved in the study comes from category of 25 to 30 years (39.7%), followed by 31 to 35 years (22.2%), below 25 years (19.8%), 36 to 40 years (11.1%) and more than 40 years old which were around 9 participants (7.1%). The respondents were also categorized by their nationality in which about 68 were Malaysian (54.0%) and the rest were non-Malaysian (46.0%). However, the researcher did not specify their country of origin.

Among all participants, it was recorded that most of the them were general workers about 94 people (74.6%), only 32 of them were skilled workers in which they have skilled in many types of work (25.4%). Besides, the workers working experiences also were obtained from the questionnaires. Among all 126 respondents, there were 72 of them have 1 to 5 years of working experiences which contribute to 57.1%, 44 participants have 6 to 10 years (34.9%), followed by 11 to 15 years (4.8%) and 16 to 20 years (3.2%). Last demographic information obtained from the respondents were



about their experiences on occupational accidents since their started working in the company. More than half of them never experienced any occupational accidents (52.4%), 38 people ever had 1 to 2 times of occupational accidents (30.2%), and the rest had 3 to 4 times of accidents (9.5%) and also more than 4 times which comprise of (7.9%).

**Table 4.4**

*Summary of Demographic Information*

<b>Demographic Information</b>	<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Gender	Male	108	85.7
	Female	18	14.3
Age	Below 25 years	25	19.8
	25 – 30 years	50	39.7
	31 – 35 years	28	22.2
	36 – 40 years	14	11.1
	More than 40 years	9	7.1
Nationality	Malaysian	68	54.0
	Non-Malaysian	58	46.0
Position	Skilled Worker	32	25.4
	General Workers	94	74.6
Working Experiences	1 – 5 years	72	57.1
	6 – 10 years	44	34.9

	11 – 15 years	6	4.8
	16 – 20 years	4	3.2
Occupational accidents	Never	66	52.4
	1 – 2 times	38	30.2
	3 – 4 times	12	9.5
	More than 4 times	10	7.9

#### 4.5 Correlation Analysis

Pearson Correlation Coefficient analysis is a measure the strength and direction of the linear relationship between six variables, describing the direction and degree to which one variable is linearly related to one another

**Table 4.5.1**

*Relationship between Safety Management Practices and Safety Compliance*

Correlations		
		Safety Compliance
Management Commitment	Pearson Correlation	0.423**
	Sig. (2-tailed)	0.000
	N	126
Safety Training	Pearson Correlation	0.322**
	Sig. (2-tailed)	0.000
	N	126
Employee Involvement	Pearson Correlation	0.429**
	Sig. (2-tailed)	0.000
	N	126

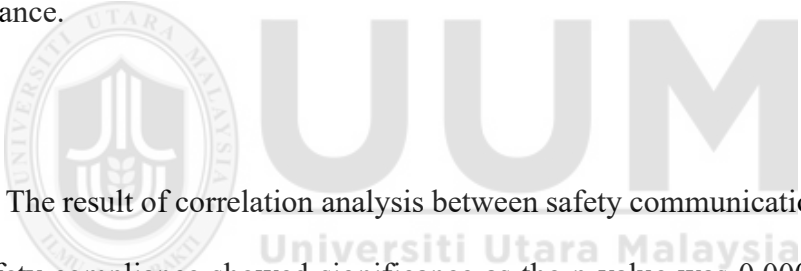
	Sig. (2-tailed)	0.000
	N	126
Safety Communication and Feedback	Pearson Correlation	0.461**
	Sig. (2-tailed)	0.000
	N	126
Safety Rules and Procedure	Pearson Correlation	0.558**
	Sig. (2-tailed)	0.000
	N	126
**. Correlation is significant at the 0.01 level (2-tailed).		

Based on table 4.5.1, the result of correlation analysis between management commitment and safety compliance showed significance as the p-value was 0.000 that is smaller than the significant value ( $p\text{-value} = 0.000 \leq 0.01$ ). There was a positive relationship between management commitment and safety compliance with  $r = 0.423$  significantly. As the summary, there are a positive and significantly correlation between management commitment and safety compliance as higher management commitment correlated to higher safety compliance and lower management commitment correlated to lower safety compliance.

The result of correlation analysis between safety training and safety compliance showed significance as the p-value was 0.000 that is smaller than the significant value ( $p\text{-value} = 0.000 \leq 0.01$ ). There was a positive relationship between safety training and safety compliance with  $r = 0.322$  significantly. As the summary, there are a positive and significantly correlation between safety training and safety

compliance as higher safety training correlated to higher safety compliance and lower safety training correlated to lower safety compliance.

The result of correlation analysis between employee involvement and safety compliance showed significance as the p-value was 0.000 that is smaller than the significant value ( $p\text{-value} = 0.000 \leq 0.01$ ). There was a positive relationship between employee involvement and safety compliance with  $r = 0.429$  significantly. As the summary, there are a positive and significantly correlation between employee involvement and safety compliance as higher employee involvement correlated to higher safety compliance and lower employee involvement correlated to lower safety compliance.



The result of correlation analysis between safety communication and feedback and safety compliance showed significance as the p-value was 0.000 that is smaller than the significant value ( $p\text{-value} = 0.000 \leq 0.01$ ). There was a positive relationship between safety communication and feedback and safety compliance with  $r = 0.429$  significantly. As the summary, there are a positive and significantly correlation between safety communication and feedback and safety compliance as higher safety communication and feedback correlated to higher safety compliance and lower safety communication and feedback correlated to lower safety compliance.

The result of correlation analysis between safety rules and procedure and safety compliance showed significance as the p-value was 0.000 that is smaller than the significant value ( $p\text{-value} = 0.000 \leq 0.01$ ). There was a positive relationship between

management commitment and safety compliance with  $r = 0.558$  significantly. As the summary, there are a positive and significantly correlation between safety rules and procedure and safety compliance as higher safety rules and procedure corelated to higher safety compliance and lower safety rules and procedure corelated to lower safety compliance.

The result of correlation analysis between safety promotion policies and safety compliance showed significance as the p-value was 0.000 that is smaller than the significant value ( $p\text{-value} = 0.000 \leq 0.01$ ). There was a positive relationship between safety promotion policies and safety compliance with  $r = 0.556$  significantly. As the summary, there are a positive and significantly correlation between safety promotion policies and safety compliance as higher safety promotion policies corelated to higher safety compliance and lower safety promotion policies corelated to lower safety compliance.

#### 4.6 Multiple Regression Analysis

**Table 4.6.1**

*Model Summary for Multiple Regression Analysis*

Model	R	R square	Adjusted R square	Std Error of the Estimate
1	0.672	0.452	0.424	3.01809
a. Predictors: (Constant): Safety promotion policy, Safety communication and feedback, safety training, safety rules ad procedure, management, employee involvement.				
b. Dependent Variable: Safety compliance				

Table Model Summary show the size of coefficient of determination to understand variability dependent variable to independent variable. On this case, safety compliance can be explain using independent variables which are safety promotion policies, safety communication and feedback, safety training, safety rules and procedure, management commitment, and employee involvement. Coefficient of Determination also used to calculate size of effect independent variable to dependent variable. Coefficient of Determination can be calculated by adjusted R square multiple by 100%. In this case adjusted R square is 0.424 multiple by 100% is 42.4%. So, the size of those independent variables is influencing safety compliance by 42.4%. The rest of that ( $100\% - 42.4\% = 57.6\%$ ), 57.6% must be explained by another factor.

**Table 4.6.2***Coefficients for Multiple Regression Analysis*

	Unstandardized Coefficients		Standardized Coefficients		
	B	Standard Error	Beta	t	Sig
(Constant)	-4.601	2.92		-1.553	0.123
Management commitment (bX1)	0.061	0.092	0.060	0.662	0.509
Safety training (bX2)	-0.049	0.116	-0.036	-0.421	0.674
Employee involvement (bX3)	-0.027	0.159	-0.016	-0.167	0.868
Safety communication and feedback (bX4)	0.442	0.168	0.219	2.634	0.010
Safety rules and procedure (bX5)	0.528	0.162	0.281	3.266	0.001
Safety promotion policies (bX6)	0.544	0.149	0.336	3.641	0.000

a. Dependent Variable: Safety Compliance

This regression model looks at the associations between a dependent variable, probably indicating safety compliance, and independent factors, such as management commitment, safety training, employee involvement, safety communication and feedback, safety rules and procedure and safety promotion policies. The unstandardized coefficients (B) show how the dependent variable is likely to change when each independent variable changes by one unit. The standardised coefficients (Beta) give standardised estimates of the strength and direction of these correlations.

The t-value of management commitment is 0.662 and the significant value is 0.509. As significant value is above the significant level, then management commitment does not significantly impact safety compliance. The unstandardized coefficient (B) of 0.061 implies that a one-unit increase in safety compliance is associated with a 0.061 unit increase in the management commitment.

The t-value of safety training is -0.421 and the significant value is 0.674. As significant value is above the significant level, then safety training does not significantly impact safety compliance. The unstandardized coefficient (B) of -0.049 implies that a one-unit increase in safety compliance is associated with negative 0.049 unit decrease in the safety training.

The t-value of employee involvement is -0.016 and the significant value is 0.868. As significant value is above the significant level, then employee involvement does not significantly impact safety compliance. The unstandardized coefficient (B) of -0.027 implies that a one-unit increase in safety compliance is associated with a 0.027 unit decrease in the employee involvement.

The t-value of safety communication and feedback is 2.634 and the significant value is 0.01. As significant value is under the significant level, then safety communication and feedback does significantly impact safety compliance. The unstandardized coefficient (B) of 0.442 implies that a one-unit increase in safety compliance is associated with a 0.442 unit increase in the safety communication and feedback.



The t-value of safety rules and procedure is 3.266 and the significant value is 0.001. As the significant value is under the significant level, then safety rules and procedure do significantly influence safety compliance. The unstandardized coefficient (B) of 0.528 implies that a one unit increase in safety compliance is associated with a 0.528 unit increase in the safety rules and procedure.

The t-value of safety promotion policies is 3.641 and the significant value is 0.000. As the significant value is under the significant level, then safety promotion policies do significantly influence safety compliance. The unstandardized coefficient (B) of 0.544 implies that a one unit increase in safety compliance is associated with a 0.544 unit increase in the safety promotion policies.

As the regression equation to this result is  $Y$  (safety compliance) =-  
 $4.601+0.061(bX1)-0.049(bX2)-0.027(bX3)+0.442(bX4)+0.528(bX5)+0.544(bX6)$

#### 4.7 Hypotheses Testing

**Table 4.7**

*Summary of Hypothesis Testing*

No	Hypothesis	Accept/Reject
1	There is significant relationship of management commitment and safety compliance	Rejected
2	There is significant relationship of safety training and safety compliance	Rejected
3	There is significant relationship of employee involvement and safety compliance	Rejected
4	There is significant relationship of safety communication and feedback and safety compliance	Accepted
5	There is significant relationship of safety rules and procedure and safety compliance	Accepted
6	There is significant relationship of safety promotion policies and safety compliance	Accepted

Based on the correlation analysis result, it can be summarized that all six safety management practices have correlation with safety compliances among Kedah Rubber City workers. However, Multiple Regression analysis showed that only safety communication and feedback, safety rules and procedure and safety promotion policies have significant impacted on safety compliance of workers.

#### **4.8 Conclusion**

This chapter discussed the result of analysis on data collection through questionnaires. The analysis involved the reliability test, response rate, demographic background, descriptive analysis, correlation analysis through Pearson Correlation, Multiple Regression Analysis and hypotheses testing of present study.



## **CHAPTER 5**

### **DISCUSSION AND CONCLUSION**

#### **5.1 Introduction**

This chapter discussed the key findings based on the result of data analysis. The findings discussed were based on the research objectives to find the relationship of safety management technique and safety compliance among construction workers. The implications on theoretical and practical also being addressed. Besides, limitation of the study, suggestion for future studies and recommendation were also discussed in this chapter. Lastly, it ends with the conclusion.

#### **5.2 Discussion of the Findings**

The primary goal of this study is to determine how safety management practices gives impact on the worker compliance in the construction industry. It has particular goals for aspects of safety management approaches, including staff involvement in safety standard and procedures, safety promotion policies, management responsibility, safety training, safety interaction and feedback, and safety standard and procedures with their dependent factors on safety compliances. Each goal is covered in more detail in the section that follows.

### **5.2.1 Relationship Management Commitment and Safety Compliance**

The action from the upper management to workplace safety to the efficiency and efficacy of the organization entails assisting and motivating staff members to practices safe behaviour at work (Aziz et al., 2019). Supervisors might indirectly encourage their subordinates to practise safety by setting a good example. Employees can model their managers' safety attitudes and behaviours while they also can encourage subordinates to follow safety standards and avoid risk-taking behaviours (Hong et al, 2011). Effective safety interventions need commitment from management to prevent accidents and injuries (Subramaniam, 2016).

Literature conducted among contractors in Klang Valley revealed that the commitment from the top organization as the most vital factors in improving the safety-related attitude among employees (Zin and Ismail, 2012). Other study showed significant relationship of the commitment from management with safety compliance among workers (Aziz et al., 2019; Subramaniam, 2016).

However, this study showed that elements of management commitment did not correlate with safety compliance of workers. This means that the variables are independent of each other in terms of their relationship within the data set. Other study that showed similar result was conducted among SMEs manufacturing in Kedah, in which the management commitment did not have positive relationship with safety compliance.

### **5.2.2 Relationship Safety Training and Safety Compliance**

Safety training also was found to be closely related to the dedication of the management in order to encourage the compliance of worker towards safety (Subramaniam, 2016). It is suggested by Ahmad et al. (2018) that proper safety training shall be conducted to all level of employees and by doing so, the accident rate can be lower and improve the safety performance among the Malaysian construction industry (Albarkani, 2021). When the management invests in safety education, workers can expand their knowledge about safety, which in turn allows them to work safely. Effective safety training happens when individuals use their newly acquired knowledge and abilities in the workplace (Subramaniam, 2016).

This study did not have significant correlation of safety training with safety compliance among workers. Study by Vinodkumar and Bhasi (2010) also proved that safety training did not have significant relationship with safety compliance. Unlike other study conducted among production workers of PT Powerindo Prima Perkasa found that safety training increased the level of safety compliance (Santi et al., 2020)

### **5.2.3 Relationship Employee Involvement and Safety Compliance**

The greatest predictor of "Safety Compliance" in direct connection hypotheses was shown to be "Employee Involvement" (Aziz et al., 2019). According to study by Rizki et al. (2020), worker participation increases safety compliance behaviours, meaning that worker involvement should be prioritised when creating safety programmes. This is because they are more involved in the day-to-day operations of their firm, therefore employees are better equipped to learn about the organisation they

worked for. As a result, management may benefit from employee expertise by advising them on safety-related concerns that arise during regular business operations (Hong et al., 2011).

Hong et al. (2011) confirmed positive relationship of employee involvement and safety behaviour among construction workers and SMEs in Northern area. While this study did not showed correlation between employee involvement in safety measures and their compliances on safety matter. This means that their participation in the implementation of safety at the workplace, does not necessarily have impact on safety compliance.

Safety and health committees were one of the strategies to ensure the participation of employees in safety-related issues and Ahmad et al. (2018) stated that the absence of health and safety committees in building sites has been linked to increased risk and accidents that arise from Malaysian construction industry.

#### **5.2.4 Relationship Safety Communication and Feedback and Safety Compliance**

Understanding the target and goals for safety performance within the company, having a system in place to report hazards, and maintaining open lines of communication about safety matters are all means of comprehending the parameters of safety feedback and communication. Effectively addressing safety issues requires employers to intervene and influence employee behaviour patterns.

Study by Zin and Ismail (2012) discovered that one of the key elements influencing businesses' compliance with safety regulations is safety communication. This study also discovered a link between safe communication and feedback and participant safety compliance. Therefore, safety communication is an important factor that for the employees and employers to showed their adherence to the safety matters.

#### **5.2.5 Relationship Safety Rules and Procedure and Safety Compliance**

In our investigation, we found a clear correlation between safety compliance behaviour and safety regulations and procedures which resulted in the same finding in previous research by Aziz et al. (2019) & Subramaniam et al. (2016) as they also stated a positive association between safety rules and safety compliance for their study area.

Hong et al. (2011) stated that direct method that could enhance the employees' behaviour on safety is through safety regulations. Safety regulations outline the actions that each employee is expected to behave and the number of accidents could be reduced when organizations have a clear, comprehensive safety policies that are simple for staff to follow from the management. Workers have an obligation to work responsibly when the company's rules and procedures are successfully implemented., as evidenced by regular safety inspections and the application of strong safety measures (Aziz et al., 2019).



### **5.2.6 Relationship Safety Promotion Policies and Safety Compliance**

This study demonstrated the strong correlation between safety promotion policies and construction workers' adherence to safety procedures. This means that exhibiting safe behaviour at work is beneficial for job promotions, offering rewards for reporting hazards, celebrating safety week and other events to raise awareness of safety, and encouraging employees to report harmful conditions or behaviours through a healthy sense of competitiveness can all contribute to a higher rate of adherence to safety laws.

However, study by Aziz et al. (2019) on safety strategies and safety behaviour in the industrial industry. revealed that safety promotion policies do not correlate with safety compliance as they only have effect on safety participation. Safety involvement refers to acts conducted within the framework of duties that indirectly improve workplace safety, such as attending safety meetings and participating in safety-related activities. Therefore, previous study explained their findings that have safety promotion policies does not ensure employees to follow the organization's safety regulations by using the appropriate safety measures.

### **5.3 Research Implications to the Organization**

This study may help the organization to determine the current issue and plan effective safety practices to increase the compliances of the workers at the workplace while minimizing the accident rates of accidents at the site. The organization can use the study to find the issue that related to safety and health on the safety management practices on management commitment, safety training, employee involvement, safety communication and feedback, safety rules and procedure, and safety promotion policies.

By identifying lacking on safety practices, the organization may determine the planning method to solve the issue. After finding the safety issue, they may plan the solution that they can do to improve safety practices at the workplace. Improving safety practices can increase safety compliances of workers. The organization may involve the client and workers to implement effective safety practices at the workplace.

Apart from that, this study can inform the development of comprehensive safety policies and procedures including on policies related to risk assessment, incident reporting, and safety audits to ensure ongoing compliances with safety standards. Organization can stay compliant with legal and regulatory requirements related to workplace safety by stay up-to-date on industry standards and best practices. Effective resource allocation on safety issue also can be done such as investing in safety equipment, technology that could improve safety outcomes. Demonstrating a commitment to safety could provide competitive advantages include attracting top talent and enhancing reputation with clients and stakeholders.

Safety compliance behaviour should be the culture that must be promoted in the workplace especially among construction site as one of the high-risk industries. Organizations can use research findings to cultivate a stronger safety culture. This involves promoting safety as a core value, encouraging open communication about safety concerns, and actively involving employees in safety initiatives. Safety compliances may contribute to lower rate of accidents at the project site, while ensuring the successful completion of project on time.

#### **5.4 Limitation of the Study**

There are few limitations present in the study. The study was limited to construction workers in specified location only which might potentially limit the findings. Specified location also did not have many workers; which were less than 300 workers, therefore the number of samples is small. Relatively limited sample size might cause the present study cannot be extrapolated to other population. As a result, the study's conclusions did not apply to the other construction site region.

Besides, present study might be limited due to the various background of the workers involved. Although they were given a session with the researcher to answer the survey form, some of them might find it difficult and fill it out just to the satisfied the researcher and hide some information or not being honest in order to protect their self or the company. With the limited time and resources, the researcher finds it difficult to ensure all of the respondents answer the survey wholeheartedly.

## **5.5 Recommendation for Future Research**

The researcher would suggest future studies to include other antecedents such as safety climate, safety culture, and safety behaviour, knowledge, attitude, leadership, motivation and etc that might have an effect on the compliance of the workers. Other than that, future research also might want to consider to relate the variables with the rate of occupational accidents occurred in research area.

The purpose of the study was to determine how safety compliance behaviour issues among construction workers were influenced by commitment from management, training on safety, safety interaction and feedback, staff participation, safety standard and strategy, and safety promotion policies. However, the study was limited to a single research location. This is a great chance for future studies to broaden the investigation into the impact of safety management techniques by incorporating diverse sample and larger-scale study in order to improve statistical power and enable generalization of the findings.

## **5.6 Conclusion**

In conclusion, this study revealed findings that safety management practices have significant correlation with safety compliances among construction workers in Kedah Rubber City. However, through regression analysis, it was found that only safety communication and feedback, safety rules and regulations and safety promotion policies could give an impact on the safety compliance among workers in the research project area. It is thought that this study will be useful to all parties involved in the construction business in identifying the factors that can improve worker safety.



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## APPENDIX A: QUESTIONNAIRES

### PART 1 / BAHAGIAN 1 : DEMOGRAPHIC CHARACTERISTICS / CIRI - CIRI DEMOGRAFIK

Please fill in blank and tick ( / ) in the appropriate boxes that corresponds to the questions below.

Sila isi tempat kosong dan tandakan ( / ) pada petak yang berkenaan yang sepadan dengan soalan di bawah.

1. Gender / Jantina

☐

Male / Lelaki

☐

Female / Perempuan

2. Age / Umur

years old / tahun

3. Nationality / Kewarganegaraan

☐

Malaysian / Malaysia

☐

Non - malaysia / Bukan Warganegara;  
Country of origin / Negara Asal:

4. Position / Jawatan

☐

Skilled workers / Pekerja mahir

☐

General workers / Pekerja umum

5. Working experiences / Tahun Bekerja

☐

1 - 5 years / 1 - 5 tahun

☐

6 - 10 years / 6 - 10 tahun

☐

11 - 15 years / 11 - 15 tahun

☐

15 - 20 years / 15 - 20 tahun

Have you ever had any occupational accident ever since you started working in the company? /

6. Adakah anda pernah mengalami sebarang kemalangan pekerjaan sejak anda mula bekerja di syarikat tersebut?

☐

Never / Tidak pernah

☐

1 - 2 times / 1 - 2 kali

☐

3 - 4 times / 3 - 4 kali

☐

More than 4 times / Lebih dari 4 kali

INSTRUCTION : Please read each of the following items and indicate whether you agree or disagree with each of the statement. Please indicate your choice by circling the number in the range given.

ARAHAN : Sila baca setiap item berikut dan nyatakan sama ada anda bersetuju atau tidak dengan setiap pernyataan. Sila nyatakan pilihan anda dengan membulatkan nombor dalam julat yang diberikan.

## PART 2 / BAHAGIAN 2 : SAFETY MANAGEMENT PRACTICES / AMALAN PENGURUSAN KESELAMATAN

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Sangat Tidak Setuju	Tidak Setuju	Neutral	Setuju	Sangat Setuju

### MANAGEMENT COMMITMENT / KOMITMEN PENGURUSAN

1	Safety is given high priority by the management <i>Keselamatan diberi keutamaan tinggi oleh pihak pengurusan</i>					
2	Safety rules and procedures are strictly followed by the management <i>Peraturan dan prosedur keselamatan dipatuhi dengan ketat oleh pihak pengurusan</i>					
3	Corrective action is always taken when the management is told about unsafe practices <i>Tindakan pembetulan sentiasa diambil apabila pihak pengurusan diberitahu tentang amalan tidak selamat</i>					
4	My manager/supervisor do show interest in the safety of workers <i>Pengurus/penyelia saya menunjukkan minat terhadap keselamatan pekerja</i>					
5	Management considers safety to be equally important as project progression <i>Pengurusan menganggap keselamatan adalah sama penting dengan kemajuan projek</i>					
6	All members of management attend safety meetings <i>Semua ahli pengurusan menghadiri mesyuarat keselamatan</i>					
7	I feel that management is willing to compromise on safety for increasing production <i>Saya merasakan pihak pengurusan bersedia untuk berkompromi dengan keselamatan untuk meningkatkan pengeluaran</i>					
8	When near-miss accidents are reported, my management acts quickly to solve the problems <i>Apabila kemalangan nyaris dilaporkan, pengurusan saya bertindak cepat untuk menyelesaikan masalah tersebut</i>					
9	My company provides sufficient personal protective equipments (PPE) for the workers <i>Syarikat saya menyediakan peralatan perlindungan diri (PPE) yang mencukupi untuk pekerja</i>					

### SAFETY TRAINING / LATIHAN KESELAMATAN

1	My company gives comprehensive training to the employees in workplace health and safety issues. <i>Syarikat saya memberi latihan menyeluruh kepada pekerja dalam isu kesihatan dan keselamatan di tempat kerja.</i>					
2	Newly recruits are trained adequately to learn safety rules and procedures. <i>Baru direkrut dilatih secara menyeluruh untuk mempelajari peraturan dan prosedur keselamatan.</i>					
3	Safety issues are given high priority in training programmes. <i>Isu keselamatan diberi keutamaan tinggi dalam program latihan.</i>					
4	I am adequately trained to respond to emergency situations in my workplace. <i>Saya dilatih dengan secukupnya untuk bertindak balas terhadap situasi kecemasan di tempat kerja saya.</i>					
5	Management encourages the workers to attend safety training programmes. <i>Pengurusan menggalakkan pekerja menghadiri program latihan keselamatan.</i>					
6	Safety training given to me is adequate to enable to me to assess hazards in workplace. <i>Latihan keselamatan yang diberikan kepada saya adalah memadai untuk membolehkan saya menilai bahaya di tempat kerja.</i>					

### EMPLOYEE INVOLVEMENT / PENGLIBATAN PEKERJA

1	Management always welcome opinion from employees before making final decisions on safety related matters. <i>Pihak pengurusan sentiasa mengalu-alukan pendapat daripada pekerja sebelum membuat keputusan muktamad mengenai perkara berkaitan keselamatan.</i>					
2	My company has safety committees consisting of representatives of management and employees <i>Syarikat saya mempunyai jawatankuasa keselamatan yang terdiri daripada wakil pengurusan dan pekerja</i>					
3	Management promotes employees involvement in safety related matters <i>Pengurusan menggalakkan penglibatan pekerja dalam hal berkaitan keselamatan</i>					
4	Management consults with employees regularly about workplace health and safety issues <i>Pihak pengurusan kerap berunding dengan pekerja tentang isu kesihatan dan keselamatan tempat kerja</i>					

5	Employees sincerely participate in identifying safety problems <i>Pekerja dengan ikhlas mengambil bahagian dalam mengenal pasti masalah keselamatan</i>					
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#### **SAFETY COMMUNICATION AND FEEDBACK / KOMUNIKASI DAN MAKLUM BALAS KESELAMATAN**

1	My company does have a hazard reporting system where employees can communicate hazard information before incidents occur. <i>Syarikat saya mempunyai sistem pelaporan bahaya di mana pekerja boleh menyampaikan maklumat bahaya sebelum insiden berlaku.</i>					
2	Management operates an open door policy on safety issues. <i>Pengurusan mengendalikan dasar pintu terbuka mengenai isu keselamatan.</i>					
3	There is sufficient opportunity to discuss and deal with safety issues in meetings. <i>Terdapat peluang yang mencukupi untuk membincangkan dan menangani isu keselamatan dalam mesyuarat.</i>					
4	Workers clearly understand the target and goals for safety performance of the organization <i>Pekerja memahami dengan jelas sasaran dan matlamat untuk prestasi keselamatan organisasi</i>					
5	There is open communications about safety issues in this workplace. <i>Terdapat komunikasi terbuka tentang isu keselamatan di tempat kerja ini.</i>					

#### **SAFETY RULES AND PROCEDURE / PERATURAN DAN PROSEDUR KESELAMATAN**

1	The safety rules and procedures followed in the company are sufficient to prevent incidents from occurring <i>Peraturan dan prosedur keselamatan yang dipatuhi di syarikat adalah mencukupi untuk mengelakkan insiden daripada berlaku</i>					
2	The facilities in the safety department are adequate to meet the needs of my organization <i>Kemudahan di bahagian keselamatan mencukupi untuk memenuhi keperluan organisasi saya</i>					
3	The management always try to enforce safe working procedures <i>Pihak pengurusan sentiasa cuba menguatkuasakan prosedur kerja yang selamat</i>					
4	Safety inspections are carried out regularly <i>Pemeriksaan keselamatan dijalankan secara berkala</i>					

5	The safety procedures and practices in this company are useful and effective <i>Prosedur dan amalan keselamatan di syarikat ini berguna dan berkesan</i>					
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**SAFETY PROMOTION POLICIES / DASAR PROMOSI KESELAMATAN**

1	In my company safe conduct is considered as a positive factor for job promotions. <i>Di syarikat saya, kelakuan selamat dianggap sebagai faktor positif untuk kenaikan pangkat.</i>					
2	In my company employees are rewarded for reporting safety hazards (thanked, cash or other rewards, recognition in news letter, etc.) <i>Di syarikat saya, pekerja diberi ganjaran kerana melaporkan bahaya keselamatan (terima kasih, wang tunai atau ganjaran lain, pengiktirafan dalam surat berita, dsb.)</i>					
3	In my company safety week celebration and other safety promotional activities arranged by the management are very effective in creating safety awareness among the workers <i>Dalam sambutan minggu keselamatan syarikat saya dan aktiviti promosi keselamatan lain yang diatur oleh pihak pengurusan sangat berkesan dalam mewujudkan kesedaran keselamatan di kalangan pekerja.</i>					
4	There exists very healthy competition among the employees to find out and report unsafe condition and acts. <i>Terdapat persaingan yang sangat sehat di antara para karyawan untuk mencari tahu dan melaporkan kondisi dan tindakan yang tidak aman.</i>					
5	Supervisor becomes very pleased when employees report unsafe conditions and acts <i>Penyelia menjadi sangat gembira apabila pekerja melaporkan keadaan dan tindakan yang tidak selamat</i>					

### PART 3 / BAHAGIAN 3 : SAFETY COMPLIANCES / PEMATUHAN KESELAMATAN

Strongly Disagree Neutral Agree Strongly  
Sangat Tidak Tidak Neutral Setuju Sangat

1	I use all necessary safety equipments to do my job. <i>Saya menggunakan semua peralatan keselamatan yang diperlukan untuk melakukan pekerjaan saya.</i>					
2	I carry out my work in a safe manner. <i>Saya melaksanakan pekerjaan saya dengan aman.</i>					
3	I follow correct safety rules and procedures while carrying out my job. <i>Saya ikuti aturan dan prosedur keselamatan yang benar saat menjalankan pekerjaan saya.</i>					
4	I ensure the highest levels of safety when I carry out my job. <i>Saya memastikan tingkat keselamatan tertinggi ketika saya melaksanakan pekerjaan saya.</i>					
5	Occasionally due to lack of time, I deviate form correct and safe work procedures. <i>Kadang-kadang karena kurangnya waktu, saya menyimpang dari prosedur kerja yang benar dan aman.</i>					
6	Occasionally due to over familiarity with the job, I deviate from correct and safe work procedures. <i>Kadang-kadang karena terlalu familiar dengan pekerjaan, saya menyimpang dari prosedur kerja yang benar dan aman.</i>					
7	It is practical to follow all safety rules and procedures while doing job <i>Adalah praktikal untuk mematuhi semua peraturan dan prosedur keselamatan semasa melakukan kerja</i>					

--THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY--

--TERIMA KASIH KERANA MELUANGKAN MASA UNTUK MENYELESAIKAN KAJIAN INI--