

Safety Practices of Foreign Workers at Construction Site: Challenges and Strategies for Improvement



Noor Hikmal Noor Eing, Izyan Yahaya

Abstract: Construction sector is always associated with 3Ds industry (dangerous, dirty and difficult). Despite the significant contribution of the sector on Malaysia economic development, the statistics have shown that the sector has enormous impact on the increase number of fatality and accident rates at construction site. The employment of foreign workers with low construction skill into Malaysia has further deteriorated the site safety performance. To find improvement for this phenomenon, this research begin with investigating the current site safety approaches implemented by the foreign workers, the challenges faced by them and the strategies taken by the company to improve safety practices at construction site. In order to obtain a conclusive finding, in-depth interviews with foreign workers working with construction companies Grade 7 and their managers were carried out. Overall the findings reported that, first, although there are safety measures taken during construction operation (e.g. wearing Personal Protective Equipment (PPE), following safety signs and housekeeping), the measures were only be implemented occasionally. Second, language barrier, lack of safety awareness, lack of safety training and do-not-care attitude of foreign workers are found to be the major challenge led to poor site safety practices. Third, proficient in local language, develop safety awareness and supportive site condition and monitoring effort by the Site Managers are reported as important aspect to improve site safety performance. These findings enhance the understanding about site safety practices of the foreign worker who work in Malaysia. It also provides valuable improvement measures that can be carried out by top management and other construction bodies to improve site safety condition in Malaysia.

Keywords: foreign workers, construction industry, safety practices, Malaysia.

I. INTRODUCTION

Construction industry in Malaysia plays important role in the economic development of the country. Nevertheless, the sector always remains as one of the high risk industry as it is always being associated with the 3D issues (dangerous, dirty and difficult) [1]. In recent years, accident rate in Malaysia construction industry is reported to increase at alarming rate [2].

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Although the industry has significant contribution to Malaysia development, the site safety aspects still need huge improvement [3],[4]. The sector involves many hazardous activities and has resulted in many accidents that include fatal injuries, disabilities and others. Based on statistic reported by the Department of Occupational Safety and Health (DOSH), the accidents rate in Malaysia construction site has increased by years [4]. In 2016, there were 88 numbers of construction workers has involved in death cases and the fatality cases has increased to 106 cases in 2017. Similar trend was also reported in Social Security Organization (SSO). Within 5 years, from 2011 to 2016, it is recorded that the accident rate has increased by 69.47%. However, these are not just the cases. According to the Chairman of the National Institute of Occupational Safety and Health, there are also many accidents that have not been reported to DOSH [2]. Having review the accidents cases in Malaysia and the current statistics, there is a need to study the cause of this prevailing issues.

According to Chong and Low [5], accidents at construction site happen due to fragmented construction process that involves multi numbers of construction parties. Although each construction parties have their own role to ensure zero-accidents risk at construction site, what is happening now is just the opposite. These construction personnel keep playing blaming-game to avoid penalty. Based on Occupational Safety and Health (OSH) Act 1994, contractor is the main party liable for any accidents happen at site. Besides the main contractor, [3] and [7] also highlighted the important role of foreign workers, as they are the person who physically involve in the execution of construction work at sites. As construction project developments in Malaysia are also highly depending on foreign construction workers, there is a need to examine their current site safety approaches at construction site, challenges face by them to maintain good safety practices and strategies that can be implemented to improve safety practices of the foreign workers at the construction site. The findings are expected to benefit the construction company to enhance site safety practices of the foreign workers and to reduce the rate of accidents at construction site.

II. LITERATURE REVIEW

A. Construction Site Safety issues in Malaysia

Malaysia construction industry has a huge impact on the nation economic growth. Unfortunately, it has also contributed to large numbers of accidents and fatality of the construction players and public [8]. Statistic of accident shown by Department of Safety and Health (DOSH) reported that construction sector is the fourth highest industry with high rate of occupational accidents cases. In October 2018 alone, as shown in Table I there were nine death cases reported.

Table- I: Accidents cases at Malaysia construction site

No.	Date	Case	Location
1.	29/10/18	Crushed by object (Died)	Johor
2.	22/10/18	Crushed by sewerage pipe (Died)	Sarawak
3.	21/10/18	Crushed by brick wall (Died)	Selangor
4.	19/10/18	Electric shock (Died)	Sarawak
5.	11/10/18	Crushed by excavator (Died)	Selangor
6.	09/10/18	Road accident (Died)	Kedah
7.	08/10/18	Crushed by container (Died)	Selangor
8.	05/10/18	Caught by bracket conveyor (Died)	Johor
9.	23/9/18	Caught in Goods Hoist (Died)	Penang

Source: Department of Occupational safety and health (2018)

Most of the accidents happened due to failure to comply standard operation procedures (SOP) [4]. Based on previous literature, there are many other factors that can lead to risk of injury and death at construction site. According to [10], accidents at construction site can happen due to false act, inadequate safety performance, improper cleaning and supervisory fault. Abdel Hamid and Everett [11] classified causes of accident into two (2) main factors which are human factor and physical factors. Example of human factors are failure to wear Personal Protective Equipment (PPE), operating equipment without authority, unsafe posture during performing work and removal of any safety equipment during construction operation. Meanwhile for the physical factor, the cause of hazards can be due to site arrangement and improper housekeeping. Based on Pertulla et. al [12], the highest causes of accidents are over exertion, collapsing object or falling, falling from height, injury caused by equipment and etc. From the analysis of previous literatures, the causes of accidents at construction site can be further grouped into five, i.e. manual handling, fall accidents, fire and explosion, moving machinery and electrocution. For accidents related to manual handling, Michael [13] reported that as workers have to deal with equipment and machineries, there are high risk of them to get hand-arm vibration syndrome and back injury. For fall accidents, according to Copeland [14], if safety measures are not taken to avoid falls and slips at construction site, victim could face serious injuries such as broken bones, sprains and pulled muscle and head injuries. It is one of the top causes that could result in death and injury. For fire and explosions, construction workers at site could also be exposed to incident of fire when there are flammable material at site. Fire and explosions could result in injuries of respiratory system and varying degrees of burns. At site, there are many moving objects that include overhead lifting equipment, supply vehicles, and excavators which all of this traverse on uneven

terrain [15]. All of these could lead to moving machinery hazards such as crushed hands, blindness and etc. [14]. Electrocution is also a serious injury or cause of death mentioned in the previous literature. The Health and Safety Executive (HSE) reported that there were 1,000 number of victims died every year, which caused by electrocution. When there is electric current of high voltage pass through the body of a person, it can lead to sudden death. This situation happened when the person involves in work that require direct contact with power cables [19]. Based on these literatures, it can be deduced that almost all construction activities pose hazards to construction site workers.

B. Construction site safety practices

Safe work practices at construction site involve practices that controlling, preventing and managing hazard at construction site [16]. As discussed in previous subsection, there are five important safety issues related to construction operation, i.e. fall accidents, manual handling, fire and explosion, moving machinery and electrocution. According to OSHA [9], the preventive approach should tailor with the requirement of the construction site and workers are expected to perform construction activities in consistent with safety measures demand (i.e. OSH Act, OSHA standards, OSHA enforcement policy and procedures). Table II summarized some of the safety practices required for controlling hazards of the five issues.

Table- II: Safety Practices based on safety issues at site

Aspect	Safety Practices	Sources
Moving Machinery	Participate in safety training	[14]
	Pay attention during safety training	[15]
	Always wearing PPE	[17]
Electrocution	Participate in safety training	[14]
	Follow safety rules and regulations	[14],[17]
	Raise awareness	[13]
Manual handling	Obey to safety protocol	[13]
Falls Accident	Always wearing proper PPE	[15], [20]
	Participate in safety training	[13]
	Always wearing PPE	[20]
	Wearing proper footwear	[17], [20]
	Responsible to avoid any of debris on walking surface	
	Responsible to ensure storage always in tidy condition	
	Responsible to keep floors clean and dry	
	Obey warning signs	[15]
	Obey to safety protocols	
Participate safety training	[17]	
Fire and Explosions	Participate in hazard communication standard	[14]
	Regular safety communication with site manager or site supervisor	
	Participate in safety training on the fire hazards	[17]
	Responsible to ensure site always in clean and tidy condition	[9]

Workers performing their work at construction sites must considers these various practices to reduce the rate of accidents happens at sites. These practices need to be properly implemented by workers in order to improve their safety on sites. In general, there are 21 safety practices as listed in Table II and can further be grouped into three, i.e. wearing Personal Protective Equipment (PPE), following safety rules and regulation at site and housekeeping.

Safety practices are essential to be considered in every single project to ensure the project progress and can be completed successfully with less safety risk. There are so many benefits when workers obey safety guidelines. First it primarily protects them from injury, illness or other form of harm. It reduces the risk of the workers to get involved in any accidents, such as, falling from height, injuries from slips and trip. Safety practices also indirectly reduce worker absences caused by work-related illnesses and injuries. On the other perspectives, practicing safe construction measures will also improve their morale and working motivation. As the workers work in more comfortable environment in a safe construction site, Teo and Loosemore [18] highlight that this will improve their overall work productivity. Last but not least, the company will indirectly gain benefits from safety site condition as they could save expenditure spend for medication or penalty of non-compliance of safety aspects. Having known the benefits of site safety practices, hence, it is a very important for every worker to be highly aware of the measures especially foreign workers who are new to the construction profession.

C. The role of foreign workers in site safety

Every construction parties involves in any of project have their own commitment to ensure that construction site is always in a safe condition. They are the regulatory bodies, client, consultant, the main contractor including the construction workers, who work closely with the physical activities at construction site. This paper focuses on the role of the foreign workers who are the main generator of construction process. Construction industry in Malaysia begins to hire foreign workers since early of 1980 [7]. The main factor that caused Malaysian construction industry was left with high demand of construction workers because most of peoples including non-Malaysian citizens started to seek for new jobs in other country such as Singapore which they can earn better income and good working condition.

Although the presence of foreign workers are very significant to the growth of the industry, however it is not reflected in the safety performance within construction site. Previous research agreed that construction industry still struggle to maintain high safety performance at site due to various challenges. As majority of construction workers in Malaysia are from neighboring countries such as Bangladesh, Myanmar, Philippines, Thailand and Indonesia, most of these worker’s behavior are influenced by their culture which are mainly from agriculture based. Thus, most of these workers are high possibility never exposed on mega projects in construction industry [21]. A study by Teo and Phang [22] found that this employee’s attitude played a crucial role in practicing safe work practices in the workplace. Another main barrier highlighted in previous research is the language. Most

of these foreign workers are not able to speak and understand the local language appropriately which could give other negative impacts such as difficult in understanding their supervisor orders, safety rules and warning signs. These are among of the factors that can contribute to accidents in the construction site [7]. Having reviewed the huge impact of foreign workers on site safety performance and the safety challenges associated with high dependency on the foreign workers, it led to the need of in-depth investigation of the issues based on the foreign workers perspective that is still under research. Currently, many of studies that aim in finding measurers for improving of safety practices focus on the role of higher authority such as policy makers, project team and construction companies (see examples in [25],[6]).

III. METHODOLOGY

This research adopts qualitative approach. According to Cresswell [23], this approach provides comprehensive understanding on the phenomenon under investigation. Thus, in-depth interviews were conducted with 8 respondents to maximize the understanding about safety issues of the foreign workers. These 8 respondents consist of 6 foreign workers from Bangladesh and Indonesia and 2 Site Managers who have more than 8 years working experience in their respective work specialization. The 6 foreign workers were chosen as they are sufficiently proficient in conversing in local language (Malay Language). All of them are currently working with construction company Grade 7. Data gathered from the interview were analyzed qualitatively, using Thematic Analysis as the information provided were in the form of statements. The respondents label can be referred in Table III.

Table- III: Respondents Labels

<i>Labels</i>	<i>Position/Trade</i>	<i>Country of Origin</i>
SM1	Site Manager	Malaysia
SM2	Site Manager	Malaysia
FW1	Carpenter	Indonesia
FW2	General Worker	Bangladesh
FW3	Roofer	Indonesia
FW4	General Worker	Bangladesh
FW5	General Worker	Bangladesh
FW6	Roofer	Indonesia

IV. RESULTS AND DISCUSSION

The findings of the interviews are discussed based on three components, i.e. 1) the current safety practices at construction site, 2) the challenges faced by the foreign workers in implementing safety practices at site and 3) key aspect for improving safety practices of the foreign workers at construction site.

A. Safety practices of construction workers at construction site.

Safety practices refer to action of preventing, controlling and managing hazards at construction site. The interview findings show that there are several safety measures taken by the contractors at construction site which include wearing PPE, following safety signs and proper housekeeping.

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The findings show that all the respondents are aware of the requirement of safety at construction site. During the interview, they explained that PPE are important safety equipment that can prevent them from hazards.

Respondent FW2 gave examples of the requirement of safety that generally being practiced at their site which include wearing helmet, safety reflective jacket, boots, gloves and so on. In terms of following the safety signs, the workers admit that obeying to safety rules at sites is a must and there will be penalty charge if they disobey the rules.

In terms of housekeeping, majority of the respondents reveal that it is part of safety measures at site. For example, SM2 emphasized that poor site tidiness could lead to unwanted accidents like slips and falls.

Although the findings of the interview indicate the respondents do aware about site safety measures and the impact if do not practice in their job activities, based on Fig. 1, the findings of the safety implementation show the opposite.

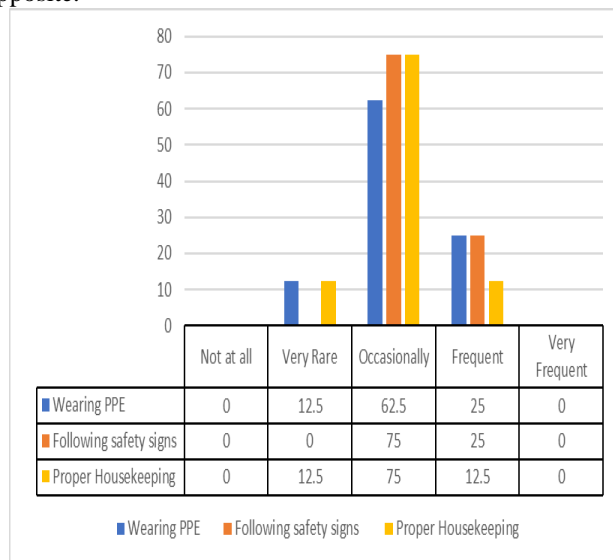


Fig. 1. Implementation of safety practices by the foreign workers

The data shows that the workers are still taking site safety lightly. Majority of the foreign workers admit that they occasionally follow safety rules and measures imposed at the construction site.

The respondents further explain that, they seldom wear PPE because they are not comfortable and always struggle to complete their job with wearing the PPE equipment especially during the hot weather. These is confirmed by the 2 site managers (SM1 and SM2). The workers are stubborn and chose to refuse the safety advices given by their respective site managers.

The moderate level of safety measures implementation at site explain why construction industry in general struggles to keep high safety performance of the industry as stated in previous studies.

B. Challenges of Safety Practices at construction site

Based on the interview, respondents highlighted four challenges that impede proper site safety practices at construction site.

The first challenge highlighted by all of the respondents is

language barrier. Although all the respondents have sufficient proficient in conversing in Malay language, it is not always the case. Respondent FW2 highlighted that language is the main barrier that lead to hazardous site condition. He added that this is a common issue faced by foreign worker who came from Bangladesh and Nepal. The issues were also supported by respondents FW1 and FW3 who both are from different country of origin. Respondent FW4 added that non-local workers could not just speak in local language, but they also have problem in reading it especially the warning sign or notice posted at the construction site. Respondent SM1 and SM2, the site managers, echoed the similar. They agreed that language barrier is one of the important factors that have led to many accidents at construction site. This is also evident in many of previous research works (see [7] and [24]).

The second challenge faced by the workers is *lack of awareness*. All of the respondents (FW1-FW6) admit that although they themselves are aware of the safety requirement and its impact, yet, it is not the cases of all the foreign workers who works in Malaysia especially those who are still new with job and construction site environment. Due to their inadequacy in understanding the safety sign, the foreign workers subject themselves to hazardous activities. This is also agreed by the 2 managers (SM1 and SM2). They exclaimed that, sometimes they have to use hand language to ensure the workers understand the instruction.

The third challenge is *lack of safety training*. According to the respondents, many foreign construction workers are only aware the basic safety measures at construction site and not to the extend of operating complex safety equipment. One of the respondents (FW6) admit that he picks up knowledge about safety from his own experience at the job site and no formal training about safety equipment and its operation given by the main contractors. This is agreed by few other respondents (FW4, FW5). They exclaimed that, training on safety is really important for all construction workers at site.

The fourth challenge is raised by the site managers, that is on the *do-not care attitude of the foreign workers* at construction site. Respondent SM1 lamented that the foreign workers usually disregard the safety guidelines due to the do-not-care attitude despite of frequent reminder about the safety standards.

The attitude issues are also agreed by many (FW1-FW6) of the respondents, i.e. the site workers. Respondent FW6 added that although the workers know about the impact of not wearing PPE, they still ignore it as they only think more on getting the job done rather on their own safety. Respondent FW1 and FW3 inform that they will only wear PPE equipment as instructed by their managers for the first two hour and will remove them after that as they feel uncomfortable.

From the research findings, it can be deduced that the challenge of the safety practices implementation can be categorized into two; i.e. foreign worker related challenge (language barrier, lack of awareness, and do-not-care attitude) and high management related challenge (lack of training).

C. Aspect for improving site safety performance

Improving safety practices at construction site of the foreign workers can be done through effective safety communication, close monitoring, sufficient training and right attitude towards safety.

Proficient in local language. As language is one of the main barriers that impede safe construction site environment, all of the respondents agreed that improving communication on safety can be enhanced through verbal and non-verbal medium. Site managers opined that (SM1 and SM2) it is important to impose a mandatory requirement on Malay language proficiency so that the workers are able to comprehend sign and rules written in Malay language. Thus, SM2 suggested that the foreign worker need to develop passion in learning Malay language. Being able to converse in local language could reduce the safety risk at construction site. Respondent FW1 agreed with recommendation given by SM1 and SM2. As the most senior respondents with many years of experience working in Malaysia, he added that foreign worker can improve the Malay language proficiency by not just communicating using the language with their local managers but also among their other foreigner friends. Respondent SM2 added that everyone at the site need to be more expressive especially when it comes to safety aspect, to the extend using alternative way (like hand signal, body gesture) to make the workers understand and alert on the danger.

Safety Awareness. Besides verbal communication, the respondents (FW1, FW2, SM1 and SM2) agreed that there is a need to enhance awareness on safety aspects among foreign workers especially those who are new to the country and construction profession. Clear safety signs, safety induction and safety training at site are important to educate the workers about site hazard and method to control them.

Site Monitoring. Respondent SM1 highlighted that site monitoring is another important aspect that can reduce safety issues at site. Although there is safety instruction, guideline and sign at the construction site, respondent SM1 highlighted that monitoring is important to be regularly executed at site. Both SM1 and SM2 stated that they usually monitor the construction site twice a day.

Supportive site condition is important to form a good safety culture and attitude at construction site. Site safety culture and attitude are very important for all the workers at site. The work culture often takes time to be nurtured in an organization or workplace before they are fully ingrained and become a norm. It is to admit that the only effective measure of ensuring the safety practices implementation is in a form of reward and penalty to curb any safety misconduct by the on-site workers. In describing the scenario, respondent SM1 said that every worker who fail to follow safety rules and regulation will be fined.

V. CONCLUSION

This paper provides a comprehensive insight on the current approach of safety practices by the foreign workers, the challenges faced by them and the aspect of improvement that can be done to improve such practices. These findings will serve as an important information for construction companies to initiate a safer work culture at site among the construction workers and improve the company's site safety plan. Future

research can further investigate safety practices of foreign workers in other states of Malaysia and compare such practices between large and small practices in order to make conclusive findings on ways to improve safety performance at site.

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