

OCCUPATIONAL SAFETY AND HEALTH (OSH) MANAGEMENT PRACTICES OF BUILDING CONTRACTORS IN JOHOR, MALAYSIA

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Abstract: It is believed that some building construction contractors are less aware of the safety and health aspects and are more likely to pursue profits over the safety and health of workers and people living near the construction site. Therefore, this study aims to investigate the implementation of safety and health practices by building contractors in Johor, Malaysia. This study employs a survey method distributing survey instruments to G6 and G7 contractors in Johor. Through this method, respondents need to choose which practices they had implemented at their company, give opinions on the factors that hinder the implementation such practices, and propose solutions to overcome those problems. Through this survey, the level of implementation of safety and health management practices among contractors was obtained. This study has also helped provide a better understanding of the current safety and health management practices implemented by contractors in the state and will provide information on the barriers to the implementation of safety and health management practices as well as solutions to problems faced by contractors in implementing those best practices.

Keywords: Occupational safety and health, safety practices, contractors, construction.

Abbreviations: [S&H – safety and health, SHO – Safety and Health Officer, SSS –Site Safety Supervisor].

Introduction

The construction industry is considered a very dangerous industry and usually contributes to the most occupational deaths in developing countries, including Malaysia (Nguyen *et al.* 2015). In some countries, it is a common occurrence to hear about an accident or tragic event that causes injury, illness, or death of an employee or site worker (Manu *et al.*, 2018). The construction industry is perceived as dangerous and difficult to control (Goh *et al.*, 2015). Accidents occur unexpectedly, which result in many negative consequences such loss time injury to personnel, damage to plants and equipment, loss of production, and ultimately a disruption of production flow. However, in order to ensure the profitability and continuous development of the construction sector, the issue of safety and health management practices should be emphasised to ensure that the safety

and well-being of the workers and people living near the construction site are prioritised.

The lack of proper health and safety practices can cause project delays, cost extensions, and loss of life due to accidents, safety and health (S&H) management performance might be the most crucial factor in construction management (Phung *et al.*, 2015). It is a component that makes a substantial contribution to the construction sector among the various elements impacting the performance of safety and health management.

In Malaysia, most employers in the construction industry are still not concerned with the safety and health of their workers. Most employers especially contractors lack knowledge and safety awareness (Lim & Al-Rejal, 2016). Previous research has shown that employers gave little consideration and some of them did not pay any attention to employees' safety and

health (Adebiyi *et al.*, 2009; Shamsuddin *et al.*, 2015). Accidents at work will have a negative impact on the organisation and the country such as loss or damage to property and life. Occupational safety and health practices in the construction industry are very important to eliminate and prevent accidents or workplace injuries (Shamsuddin *et al.*, 2015).

The implementation of S&H management practices has been shown to significantly reduce the incidence of fatalities, injuries, illness, and accidents (Hassan and Jha, 2013). Additionally, safety and health management practices help businesses to show all stakeholders that their business is socially responsible, ensure image enhancement, increase brand value, and broaden the organisational reputation of the firm (Abas *et al.*, 2020). It also helps maintain or increase investor confidence and helps develop positive stakeholder engagement at all levels that allows the company to meet customer expectations and encourage employees to stay on for longer (Manu *et al.*, 2018). Moreover, another benefit of safety and health management practices is to increase competitiveness between organisations. Safety and health management practices can also provide additional income to businesses, as well as reduce the cost of compensation for damage and losses caused by improper safety and health management practices (Abas *et al.*, 2020).

However, organisations nowadays face many challenges when it comes to organisational safety and health policies and implementation plans, for example the written S&H policy in the organisation maybe not well-formulated. It is the responsibility of the owners of each organisation to maintain higher S&H standards in their workplace (Nguyen *et al.*, 2015). Despite the fact that the importance of S&H policies and programmes has been emphasised, some owners and even individual managers in the organisation have always underestimated this issue. This scenario is a challenge to the effective OSH implementation programs.

The contractors' awareness of occupational safety and health management is also one of the important points to consider so that all

projects can be undertaken and completed without any problems, injuries and accidents at the construction site. Lack of awareness of occupational safety and health management systems in construction by builders would lead to accidents at construction sites (Mohd Kamar *et al.*, 2014). Most contractors have at least one troublesome, accident-prone employee. Some employees find it difficult to deal with, or do not work properly and have difficulty in obeying and accepting other people's instructions.

This study was conducted to review the safety and health management practices implemented by building contractors in Johor, Malaysia to identify areas that need to be improved. Two objectives were highlighted in the study, as follows:

- i) Investigate safety and health management practices implemented by contractors in Johor; and
- ii) Determine the problems faced by contractors in Johor to implement safety and health management practices.

Materials and Methods

This study involved collecting information on the research scope from existing resources such as conference proceedings, journal papers, websites, and others. Next, the survey form was developed, which consisted of 3 parts:

- Section A - Background of the participating company.
- Section B - Implementation of safety and health management practices by the contractors; and
- Section C - Open-ended questions in which the participants needed to give their opinion on the factors that prevented some contractors from implementing the proposed practices and solutions.

Before distributing the survey to the construction organisation's representative, a pilot study was conducted. The purpose of this pilot study was to ensure that the collection of

data obtained from these survey instruments was valid. The survey design was distributed to five experienced Safety and Health Officer (SHO) in the construction industry. They provided comments and suggested improvements to the survey.

After all the corrections were made based on the pilot study, the survey instruments were distributed to contractors around Johor. The questionnaire was transferred into a google survey form, then distributed with a link that could be shared with all representatives via an online platform. Sixty (60) responses were received that represented the number of

contractors responding to the survey. The data was analysed using the percentage method to identify the frequency of contractors implementing safety and health management practices at their construction sites.

Results and Discussion

Implementation of Safety and Health Management Practices Status

Table 1 shows the status of safety and health management practices implemented by building contractors at construction sites in Johor. In general, it can be seen that most of the safety

Table 1: Status of safety and health management practices implemented by contractors at Johor construction site

	Implementation of Safety and Health Management Practices in Construction Site	Number of project site implemented	Number of project site implemented	Implementation percentage (%)
<i>Policy</i>				
1	Formal company statement of S&H policy	59	1	98.3
2	A company stakeholder with full responsibility for safety and health	60	0	100
3	Display safety and health policy at the site area (e.g., site office)	57	3	95
<i>Organizing for safety and health</i>				
4	Provide OSH personnel (SHO & Site Safety Supervisor, SSS)	58	2	96.7
5	Employees were informed about OSH rules and regulation (e.g., posters)	60	0	100
6	Engaging employers and employees on safety and health issues (e.g., safety and health meetings)	59	1	98.3
7	Propagating safety and health practices to external stakeholders (e.g., clients)	57	3	95
8	A designated safety and health department	55	5	91.7
9	Providing OSH training for safety personnel	58	2	96.7
10	Provision of safety and health monthly and annual reports	57	3	95
11	Safety and health committee was formed at every site with 40 or more workers	56	4	93.3
<i>Risk assessment</i>				
12	Risk assessments such as HIRARC or JSA was conducted prior to the commencement of the project	58	2	96.7

13	Creating site rules and strategies to mitigate identified hazards or reduce assessed risks	59	1	98.3
14	Reviewing and updating risk assessments during construction from time to times	56	4	93.3
15	Before work begins, personnel were informed about potential risks and control mechanisms on the job site. (e.g., toolbox talk or short briefing)	58	2	96.7
<i>Planning and implementation</i>				
16	Preparing safety and health plans for every construction project	59	1	98.3
17	Putting in place site safety and health policies and procedures	59	1	98.3
18	Changing and modifying construction safety and health plans	59	1	98.3
19	Safety and health insurance cover for sites	58	2	96.7
20	Providing Occupational Safety and Health training for site workers	60	0	100
21	Carrying out site Occupational Safety and Health inspections audit regularly	54	6	90
22	On-site sanitation and welfare amenities are provided (e.g., toilets, canteens, drinking water)	53	7	88.3
23	Provision of personal protective equipment	59	1	98.3
24	Provision of first aid equipment on sites	59	1	98.3
25	Setting safety and health performance targets	55	5	91.7
26	Disciplining employees for dangerous workplace behaviour	59	1	98.3
<i>Measuring and reviewing performance</i>				
27	Measuring safety and health performance against set targets	54	6	90
28	Reviewing and updating safety and health plans after the completion of the project	50	10	83.3
29	Maintaining incident records on every project	58	2	96.7
30	Investigating the causes of incidents, accidents and near-misses	58	2	96.7
<i>Auditing</i>				
31	Undertaking the Occupational Safety and Health management system audit periodically	52	8	86.7
32	Use of external consultant for undertaking OSH management auditing (e.g., client)	39	21	65
33	Use of in-house personnel for undertaking OSH management auditing	58	2	96.7

and health management practices had been implemented by participating contractors at their construction sites. For example, 30 of the 33 safety and health management practices were implemented by more than 90% of participating contractors. From the table above, there were three S&H management practices that had been implemented by all contractors, which were a company stakeholder with full responsibility for safety and health, employees were informed about occupational safety and health rules and regulation (such as posters), and provided occupational safety and health training for on-site workers. In total, 2 of the 33 S&H practices were implemented by 80% of participating contractors. Meanwhile, the least implemented S&H management strategy was the use of external consultants for undertaking Occupational Safety and Health management auditing (e.g., client). Only 65% of participating contractors implemented it in their projects.

The purpose of the OSH policy is to create a systematic occupational safety and health environment at the construction project sites based on the demand of the construction site. An effective policy sets a definite direction for the organisation to adhere to. The management system will not be effective if there is no clear policy that demonstrates the dedication of the senior management to safeguard the welfare of employees and all those affected by their business. Most of the construction project sites in the survey (98.3%) had a formal company statement for safety and health policy meanwhile 100% of the companies that took part in this survey had a company stakeholder that was wholly responsible for safety and health. In addition, 95% of construction project sites had exhibited safety and health policies in the site area. It was a good result of safety and health management practices at the construction site according to the policy aspects.

The S&H management practice group continues to support safety and health, which emphasizes the strong commitment and participation of management. Without the support of the top management, safety and health

practices will not be managed even though there are numerous laws and directives from the government. The analysis has shown that more than 90% of the practices in this element had been implemented by the construction project site. All construction project sites had informed their employees of the Occupational Safety and Health rules and regulations. However, there was only 1 construction project site that reported their company did not engage the employers and employees on safety and health issues. In addition, there were 96.7% construction project sites that provided Occupational Safety and Health personnel in their companies such as SHO or SSS, and trained them on Occupational Safety and Health. Moreover, the construction projects that had propagated safety and health practices for external stakeholders and prepared the safety and health monthly and annual reports accounted for 95% of the total. Some of the construction project sites did not implement proper safety and health practices at the site where no safety and health committee was formed. They should have been one at every site with 40 or more workers and there was also no designated safety and health department in their company. These results show that the data was impressive because almost all construction project sites implemented safety and health management practices with organized safety and health elements. This was able to reduce the accident rates at the construction site.

Next, risk assessment is another important element at the core of safety and health management that allows for identifying risks and hazards at the construction site. 96.7% of the sites had conducted a Hazard Identification, Risk Assessment and Risk Control (HIRARC), or a Job Safety Analysis (JSA) before the project commenced and informed employees of the hazards including on-site control measures before work began such as during toolbox discussions or briefings. Most construction project sites had planned site regulations and measures to reduce the risks associated with the workplace except for one. In addition, other practices to be implemented by contractors had been reviewed and updated risk assessment

during construction was conducted from time to time and 93.9% of the construction sites had implemented such practices. This suggests that there were still a small number of contractors who have not yet taken an initiative-taking approach to address hazards when starting a project.

Planning is the act of determining how to do something and implementation is the act of putting a plan into action. This aspect focuses on how to organise and realise safety and health management practices at the construction site. The results stipulate that there was a high level of implementation in this element with most practices being implemented by more than 90% of construction project sites. All construction project sites stated that their company provided training for site workers. However, among all these practices, there was only one construction project site that stated its company did not implement training, including providing safety and health plans for each construction project, site regulations, safety, and health measures, amending and correcting safety and health plans during construction, providing personal protective equipment (PPE). Moreover, 96.7% of the construction project sites stated that their company had safety and health insurance. Other results still set a high level of implementation for this category with some practices implemented by more than 85% of construction project sites. These practices had been set as safety and health performance targets (91.7%), there were regular Occupational Safety and Health inspection audits (90%) conducted and there was a provision of sanitation and welfare facilities on site such as toilets, canteens, and drinking water (88.3%). During a site visit at the government's project site, the company's SHO said they needed to prepare a Safety and Health Management Plan (SHMP) as evidence when there was an accident at the construction site.

Performance measurement and review should be carried out to assess the effectiveness of the system at construction companies. This practice would prove the efficiency of the safety and health management of the company

and note its strengths and weaknesses. It is an important element of the management system, including safety and health management. Data has shown that 96.7% of construction project sites kept records of incidents on each project and investigate the cause of incidents, accidents, and near misses. In addition, this was followed by 90% of construction project sites that measured safety and health performance against the set targets. In addition, 50 people said their company reviews and updates the safety and health plan upon the completion of a project. Contractors need to review and improve their safety and health management systems regularly so that the company's safety and health performance can be improved.

Some 86.7% of respondents said their company conducted regular audits on the Occupational Safety and Health management system while 58 construction project sites had employed internal staff to conduct Occupational Safety and Health management audits.

In comparison with the previous study by Phung *et al.* (2015) in Vietnam, the implementation of safety and health management practices at construction project sites by contractors in Johor was better, than the implementation by contractors in South Vietnam. The average number of contractors that implemented some safety and health management practices was 66.2%, while 94.4% of contractors in Johor implemented every safety and health management practice. In addition, the study shows that the least implemented safety and health management strategy was the use of external consultants to conduct Occupational Safety and Health Management audits, only 12% of South Vietnamese contractors used external consultants and 65% of contractors in Johor used external consultants.

According to Manu *et al.* (2018), the implementation of safety and health management practices at construction sites in Malaysia was better than in Vietnam and Cambodia, from a policy practices standpoint. However, in Malaysia, the implementation of safety and health management practices involving

planning, risk assessment, organising, planning and implementation, measuring and reviewing, and auditing was lower than that of Vietnam and Cambodia.

Problems for Implementing Safety and Health Management Practices

Table 2 shows the frequency of contractors with regards to the problems in implementing safety and health management practices. Half of the participants argued that this issue was due to budget limitations for the safety and health activities for employees. Some of them said about 10% of the contract value of the awarded projects were made available for safety issues. For example, for the contract value of a project awarded 20 million, 10% of 20 million i.e., 2 million would be allocated for use to address safety issues. Some of the contractors thought, the allocation was a little high and they could have used that budget for something else. Therefore, they must bear that cost because safety is the most important element at construction sites as it is a high risk environment. This is in line with previous studies by Dorji and Hadikasumo (2006) that financial or budgetary constraints were among the factors influencing safety management issues.

A total of 10 respondents agreed that a lack of awareness and knowledge led to this problem. It was difficult to control and manage employers and employees according to safety and health issues because they thought that accidents could be avoided on their own and they took it easy on this issue because contractors often ignore safety

measures during the design and procurement stages. All levels of management should demonstrate and provide their support to safety and health programs to make the management of safety and health programmes effective. Effective safety and health management practices cannot be achieved without a high level of awareness of the problem.

Moreover, there were 10% representatives who agreed that communication problems with foreign workers led to problems with the implementation of safety and health management practices at construction sites. Poor communication leads to the failure of the project. Most of the foreign construction workers did not get preparatory classes before they came to work in Malaysia unlike foreigners studying in Malaysia. They had to learn Bahasa Malaysia on their own. Some of them cannot speak or understand English. This would make it more difficult for them to gain access to any information.

Apart from this, the other problems were stubborn workers (8.3%), stubborn foreigner contractors (6.7%), lax enforcement from the government (5%), and contractors who wanted to speed up the progress (3.3%). There were some representatives who said that most of the contractors experiencing this problem were foreign contractors, who usually did not know and did not want to learn or understand the Occupational Safety and Health Act and related regulations. Some representatives argued that government enforcement was still not strict enough because many contractors did not

Table 2: Problem faced by contractors to implement safety and health practices

Problems	Frequency	Percentage (%)
Issue of budget	30	50
Lack of awareness and knowledge	10	16.7
Communication problem with foreigner workers	6	10
Stubborn workers	5	8.3
Stubborn foreigner contractors	4	6.7
Less enforcement from government	3	5
Want to speed up the progress	2	3.3

implement some safety and health management practices. In addition, this problem was related to contractors who wanted the project to be completed on time and on budget. They considered the issue of security as excessive.

Solutions to Overcome the Problem

As for the solution to the above problems, 5 recommendations were mentioned by the representatives (Table 3) through open-ended answer. Most representatives suggested that companies should provide safety and health training in all aspects such as budget allocation and training for safety and health practices at construction sites (28.3%). Similarly, they suggested that the top management should revise the project contract. For example, if the contract does not specify the amount of OSH resources, the client would have to revise the contract or make the safety and health of the employee a valuable variance order (VO), so SHO and SSS can perform on-site.

20% of representatives who suggested that the government should revise OSHA and tighten it. Stricter requirements should be implemented starting from the design stage where it must be registered with the Department of Occupational Safety and Health (DOSH) or other relevant bodies. The government could also conduct periodic site visits or inspections by those related to checking the necessary Safety and Health practices on site.

13.3% of the representatives said that in their company, needed to advise and communicate about their safety policy to all workers and relevant parties, including contractors, sub-contractor, staff workers, temporary workers,

and suppliers. Safety personnel also need to play a role. They should advise top management levels and give them penalties when they do not implement on-site safety and health management practices.

Since 10% of representatives mentioned communication problems at the construction site, the same representative also suggested that the contractor should appoint a translator. This would make it easier for foreign workers to understand all the information provided. Appointing an external translator may incur additional costs, so the contractor can pick a translator from a pool of employees who can speak and understand in both languages.

Conclusion

In conclusion, the frequency of Safety and Health Management practices implemented by contractors in Johor by element were policy (97.8%), organising for safety and health (95.8%), risk assessment (96.3%), planning and implementation (96.1%), measuring performance (92%), and auditing (82.8%). In conclusion , critical elements were audited as 35% of construction project sites did not use external consultants to conduct Occupational Safety and Health management audits. Most likely there was a bias when the contractor only uses an internal consultant to conduct an Occupational Safety and Health management audit., only 5.6% of them did not implement some Safety and Health management practices.

This study analysed whether contractors in Johor implemented proper Safety and Health Management practices. From the data, most contractors implemented proper Safety and

Table 3: Solutions to overcome the problems

Solution	Frequency	Percentage (%)
Safety and health training	17	28.3
The top management should revise the contract of project	17	28.3
The government should revise OSHA and tighten it	12	20
Advise each other (employers and employees)	8	13.3
Appoints a translator among the workers	6	10

Health Management practices at construction sites. This data was acceptable because the accident case data showed 61.7% reported zero accidents at the project sites, Twenty-two construction sites reported between one and five cases, and only one respondent said there were between six and 10 accident cases at his site.

In comparison, a study by Phung *et al.* (2015) in Vietnam, the implementation of safety and health management practices by contractors in Johor was better than the implementation by contractors in South Vietnam. Limitations in this research study were due to time constraints and this led to not being able to collect even more samples. Other limitations included the movement control order, so there were no physical site visits which could have been conducted when data was being collected.

Another limitation of this study was that the collection of data focused only on contractors in Johor. Thus, the data could not be used to represent the local construction sector. However, it still could be used as reference for the proper safety and health management practices in Malaysia.

As for the recommendation, the government must continue to provide and promote initiatives to improve safety and health management practices in Malaysia although there are still some contractors who do not comply with proper safety and health management.

They need to provide clear direction on the aspects and components of safety and health management as unclear information will lead to failure. Indeed, practices in various aspects of safety and health management should be targeted for improvement. By sharing which practices were commonly implemented at construction sites around Johor, and which were not, the results of the study can inform relevant state authorities of what need to pay more attention to in order to reduce the risk of accidents on construction sites. The same goes for the problems faced by contractors in Johor; so that they too can implement safety and health management practices that need to be overcome

with proposed solutions as mentioned earlier so that it can help boost investor confidence from other countries.

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