JOURNAL OF STRUCTURAL MONITORING AND BUILT ENVIRONMENT
e-ISSN: 2821-3432

JSMBE

Vol. 5 No. 1 (2025) 20-29
https://publisher.uthm.edu.my/ojs/index.php/jsmbe

# A Study on The Current Practices of Safety and Health by Contractor in The Construction Industry at Sarawak

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DOI: https://doi.org/10.30880/jsmbe.2025.05.01.003

**Article Info**

Received: 16 January 2025
Accepted: 9 June 2025
Available online: 30 June 2025

**Keywords**

Safety practices, management commitment aspects, social aspects, risk controls aspect, questionnaire, observation

**Abstract**

The Occupational Safety and Health (Amendment) Act 2022 expanded the scope of Malaysia's Occupational Safety and Health Act 1994 to include all workplaces, emphasizing stricter safety regulations and penalties. Despite this, the construction sector, particularly in rapidly urbanizing Sarawak, remains high-risk, significantly contributing to occupational fatalities. This study aims to assess current safety and health practices among contractors in Sarawak's construction industry and propose improvements. Focusing on Sri Aman, Sibu, and Bintulu, data were collected through questionnaires and observations, analyzing management, social, and risk control aspects. Findings reveal that while safety practices are implemented, further improvements are essential to enhance worker well-being and safety stewardship in the region.

## 1. Introduction

Safety and health management in Malaysia's construction industry have undergone significant advancements to enhance worker protection and align with international standards. A pivotal development is the Occupational Safety and Health (Amendment) Act 2022, effective from 1 June 2024, which broadens the Occupational Safety and Health Act 1994 (OSHA) to encompass all workplaces, including construction sites. This amendment introduces new safety obligations and increases penalties for non-compliance, underscoring the government's commitment to improving workplace safety across all sectors. Malaysia is on the track of moving forward to develop a country with a rapid development process. Although there are many challenges and risks, the construction industry in Malaysia is experiencing steady growth and is supported by ongoing construction projects.

Many sectors and contractors are continuing to drive construction activities in the country. The construction industry is considered as a very dangerous industry and usually the most contributor to industrial death in several developing countries including Malaysia (Nguyen et al., 2015). Furthermore, the development of the construction sector is also affected by the population of humans in that country. In some countries, it is a common occurrence when heard about a tragic accident or incident that causes injury, illness or death to employees or other people (Manu et al., 2018). Nevertheless, to pursue profitability and development of the construction sector, the issue of safety and health management practices must be emphasized to ensure the safety and well-being of the workers and the people around that construction site.

Safety and health practices in construction projects vary widely, directly affecting worker performance and increasing the risk of accidents. While the Occupational Safety and Health Act 1994 reduced accident rates, the growing demand in Malaysia's construction industry has highlighted persistent risks. Construction workers face higher rates of fatalities and injuries compared to other sectors. In 2017, the Department of Occupational Safety and Health (DOSH) reported 110 cases of non-permanent disabilities (62.15%), 63 fatalities (35.59%), and 4

permanent disabilities (2.26%) in the construction sector. Studies suggest safety and health practices are more critical in large-scale projects, but injuries remain prevalent (Kim et al., 2016; Chi & Han, 2013).

## 2. Literature Review

### 2.1 Definition of Safety and Health

In Malaysia, the definition of safety and health at construction sites is principally regulated by the Occupational Safety and Health Act 1994 (OSHA 1994) and other regulations, including the Factories and Machinery Act 1967 (FMA 1967). In this context, safety and health refer to policies, procedures, and regulations to prevent accidents, injuries, and occupational illnesses at construction sites, while enhancing worker well-being. The Department of Occupational Safety and Health (DOSH) characterises occupational safety and health as the "discipline focused on safeguarding the safety, health, and welfare of individuals involved in work or employment" (DOSH, 1994). It encompasses hazard identification, risk assessment, and the execution of appropriate control measures to guarantee a safe working environment. OSHA 1994 delineates the obligations of employers to safeguard the safety, health, and welfare of employees through the provision of adequate training, equipment, and supervision. Furthermore, employees must collaborate with employers by complying with safety protocols and utilizing personal protective equipment (PPE) when required.

### 2.2 Occupational Safety and Health in Malaysia

The Department of Occupational Safety and Health (DOSH) in Malaysia, which is under the Ministry of Human Resources, is responsible for overseeing and regulating occupational safety and health within various industries. In addition, the Department of Occupational Safety and Health (DOSH) considers the safety, health, and well-being of individuals in the workplace as a means of safeguarding them from potential safety and health risks that may arise in their work environment.

Additionally, the Department of Occupational Safety and Health (DOSH) also safeguards activity from several sectors of industry. For instance, industries such as production, quarrying and mining, development, hotel and restaurant, and utilities, among others. Put simply, the occupational safety and health concerns in all industry sectors were automatically safeguarded. In addition, the Department of Occupational Safety and Health (DOSH) was a government organisation tasked with safeguarding individuals in the workplace by overseeing and implementing regulations. An environment that promotes safety and well-being in the workplace can enhance the overall quality of work life.

The role of workplace safety and health has existed for 120 years, from the end of the 19th century. The evolution of the Department of Occupational Safety and Health (DOSH) in Malaysia can be categorised into six distinct periods (DOSH, 2016). The different eras of safety can be categorised as follows: the steam boiler safety era (prior to 1914), the machinery safety era (1914-1952), the industrial safety era (1953-1967), the industrial safety and hygiene era (1970-1994), the occupational safety and health era (post-1994), and the occupational safety and health master plan 2015 time (OSHMP 15).

### 2.3 Construction Industry Malaysia

Developing nations comprehend and acknowledge the importance of Malaysia's construction industry to the nation's socioeconomic growth and sustainability. A nation's progress is greatly influenced by its construction activities, which are linked to different stages of its economic development. Construction projects have been associated with urban and industrial growth processes since the start of the Industrial Revolution. Approximately half of gross rigid capital formation investment was controlled by the building industry in most developing nations. The construction sector's primary function is to create employment opportunities and new revenue streams for skilled and unskilled workers.

The construction industry's safety and health issues are the main emphasis of CIDB. In general, the construction sector is seen as a high-risk one. According to CIDB, it is not only humane but also wise business practice to protect the health and safety of all workers and visitors both within and outside the site. The project's cost to compensate and heal the victims will increase in the event of an accident. High levels of dedication and self-control are necessary for safety and wellness. The main forces behind maintaining health and safety on building sites are managing directors, boards and CEOs. Initiatives and efforts will be taken appropriately and benefit the workers when senior management determines that the number of fatalities during construction at the site is too high (CIDB)

### 2.3.1 Construction Accident Statistics in Malaysia

According to DOSH (2018), the number of people affected by non-permanent disability was much higher at 2,907 cases compared to the total of 133 cases for permanent impairment. In addition, the construction sector in Malaysia had the fourth greatest number of occupational accidents, totaling 177 instances, compared to other sectors. Perak had the largest number of occupational accidents with 465 instances, followed by Sarawak with 354 incidents, Kedah with 327 cases, and Johor with 324 cases. Labuan, on the other hand, has the lowest documented number of occupational accidents, with a total of 5 instances

### 2.3.2 Construction Accident Statistic in Sarawak

Construction accidents in Sarawak have been a significant concern, as the construction sector consistently reports elevated rates of occupational fatalities and injuries. In the building business of Sarawak, these figures shed light on the ongoing difficulties associated with safety. Particularly noteworthy is the fact that Sarawak had the second-highest number of fatalities due to the construction sector in Malaysia in 2018, with 24 deaths being documented. In 2018, the department documented 47 fatal accident instances across multiple industries. Falls from great heights and improper handling of heavy gear are the key factors that lead to these fatalities (The Borneo Post, 2021). Because of that, the Department of Occupational Safety and Health (DOSH) in Sarawak has increased its efforts to enforce safety laws and to foster a culture of safety at building sites as a response to the situation.

Nor Halim (2021) estimated that approximately 116 workplace accidents occurred daily, totaling 42,513 instances for the entire year of 2017 countrywide, while around two occurrences per day, or 711 cases that year, resulted in fatalities. According to the statistics produced by DOSH for 2017, the construction industry exhibited the highest incidence of fatal accidents, with 14.57 workers per 100,000 dying while at work. According to Section 15(1) of the Occupational Safety and Health Act 1994, he emphasized that it is the employer's duty to protect the safety, health, and welfare of their employees.

## 2.4 Contractor Practices Regarding OSHA

Contractors are essential for maintaining adherence to OSHA requirements, especially within the construction sector. Their procedures encompass the implementation of extensive safety training, the enforcement of personal protective equipment (PPE) usage, the execution of regular site inspections, and the cultivation of a safety-focused workplace culture. According to Hallowel and Hansen (2018), contractors routinely deliver OSHA-compliant safety training to employees, emphasising hazard identification, fall prevention, and emergency response protocols. This training significantly decreases the probability of accidents and enhances safety awareness. Meanwhile, consistent utilisation of personal protective equipment, including helmets, gloves, and safety harnesses, is a fundamental practice. Contractors must guarantee the availability of PPE and ensure that workers are trained in its proper utilisation. (Sacks *et al*., 2020)

Regular site inspections facilitate the identification of potential hazards and confirm the implementation of safety measures. Contractors utilise inspection checklists in accordance with OSHA requirements to ensure compliance. (Guo *et al*., 2021). According to Kines *et al,* (2021), establishing a constructive safety culture necessitates transparent communication, danger reporting devoid of fear of retribution, and evident managerial dedication to safety. Adopting safety management software and wearable technology has increased, allowing contractors to efficiently monitor and enhance safety performance. (AlizadehSalehi *et al.*, 2021). Recent research has highlighted the following facets of contractor practices:

### 2.4.1 Factor of Contractor Non-Compliance with OSHA

Management's overall dedication to the company's Occupational Safety and Health program links the message that safety is valued as a top priority, even at the expense of productivity, and guarantees that workers won't face consequences for making mistakes related to safety (Crumbley, 2014). Besides, people will not follow the law if the justice system is weak. Many employers follow the health and safety rules, but do they do so in the right way? People said that the law shouldn't get tighter, but should get stronger (Idubor and Oisamoje, 2013). If there aren't any realistic and strict rules about health and safety in the workplace, it could be bad for health and safety (Diugwu *et al*., 2012).

The lack of knowledge is a primary contributor to non-compliance with occupational safety and health legislation requirements by employers and employees at construction sites, often resulting in accidents or fatalities. Windapo and Oladapo (2012) demonstrated that insufficient training can lead to a deficiency in knowledge, resulting in an unsafe work environment. Employees typically lack enough information regarding the impact of working in hazardous environments on their health (Idubor and Oisamoje, 2013). If employees lack comprehension of all facets of safety and health regulations, they will be unaware of any infringement upon their rights (Puplampu & Quartey, 2012).

Insufficient training is a significant factor contributing to workers' non-compliance with OSH requirements. Inadequately trained workers will lack the necessary competencies and awareness. Effective training is essential for workers to execute any connected tasks inside the firm, ensuring they can apply what they have learned. Idubor et al. (2013) asserted that it is essential to provide personnel with training to address the escalating issues of global workplace hazards. Section 15(2)(b) of OSHA 1994 stipulates that employers must offer information, teaching, training, and supervision to guarantee safety as far as practical.

Diverse organizations, varying in size, profitability, and demographics, possess distinct funding for their operations. Many contractors fail to adhere to workplace safety and health rules owing to financial considerations. Some contractors fail to allocate a budget for safety and health rules (Windapo and Oladapo, 2012).

## 3. Research Methodology

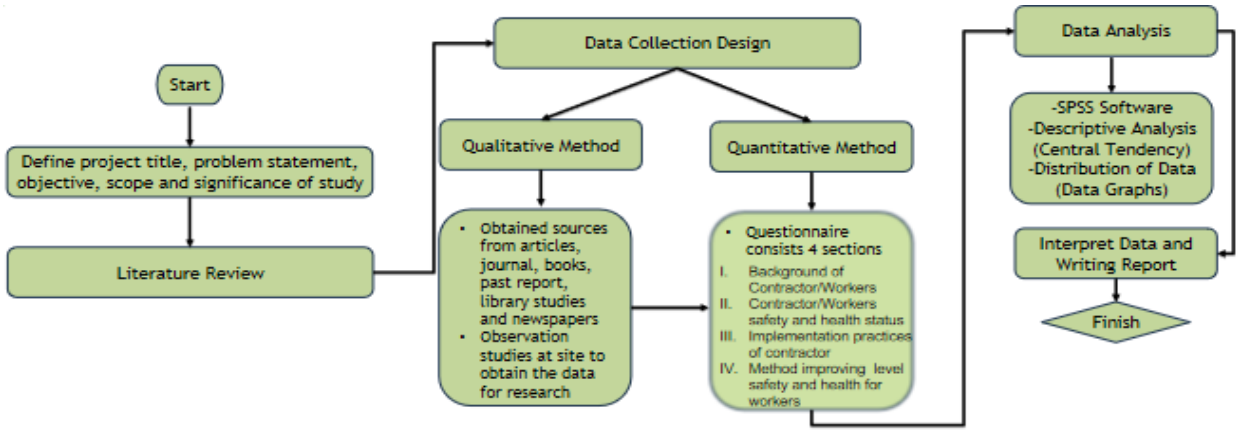


**Fig. 1** *Research methodology*

Based on the flowchart of the research framework as shown in Fig. 1, two types of input or data were used, which are primary and secondary data or qualitative and quantitative methods. The primary data was collected from the research questionnaire survey, while the secondary data was obtained from published paper such as previous articles, journal, books etc. Both data collected was assessed through online medium, firstly questionnaire-based survey through social media such google form while secondary data are obtained from different website and published articles that help in research

In this research study, a questionnaire survey was used as a quantitative method to assess and explore more about contractors in safety and health. In the questionnaire survey, the four section are demographic respondents, respondent safety and health status. Practices of contractor and method to improving level safety and health among workers. This survey was distributed through an online medium.

The research study population refers to the type of respondents to be focused on in this research topic. This study focused on the contractors and workers in Sarawak, especially at Sri Aman, Sibu and Bintulu. Population as contractors and workers working or have experienced were encouraged to be involved in this study.

The sample size of the research study was 110 respondents, which consisted of 55 contractors and 55 workers. For analysis data, Statistical Package for Social Science (SPSS) was used in this research to analyze data such descriptive analysis and distribution of data.

## 4. Results and Findings

### 4.1 Data of Questionnaire Survey Form

Table 1 analyzes management's commitment to safety and health practices, revealing higher implementation rates among contractors (87.26%) compared to workers (76.36%). While key aspects, such as establishing safety objectives and encouraging hazard reporting, were universally implemented, gaps were evident in worker training, participation in safety meetings, and emergency preparedness. For example, contractors reported 100% implementation for site inspections and management's involvement in safety events, whereas workers lagged at 78.18% and 63.63%, respectively. Support for continuous training was also lower, with 69.01% for contractors and 58.18% for workers. These findings suggest that while management generally adheres to OSH regulations, enhanced efforts are needed to bridge worker gaps. This aligns with Metin Bayram (2019), emphasizing that maintaining health and safety involves robust management systems, compliance with legal requirements, and fostering safe work environments.

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**Table 1** *Analysis of management commitment aspect*

| Management commitment aspect | | | | | |
|---|---|---|---|---|---|
| **No** | **Statements** | **Implemented (%)** | | **Not implemented (%)** | |
| | | **Contractor** | **Workers** | **Contractor** | **Workers** |
| 1 | Regular safety and health training sessions provided to update employees on new policies and procedures. | 100 % | 81.81% | 0 | 18.19% |
| 2 | Workers encouraged and given the opportunity to participate in safety meetings | 100 % | 92.73% | 0 | 7.27% |
| 3 | Supervisors trained to manage safety and health issues in a socially respectful manner | 100 % | 83.63% | 0 | 16.37% |
| 4 | Regular site inspections conducted by management to monitor safety and health compliance. | 100 % | 78.18% | 0 | 21.82% |
| 5 | Management participates in safety and health or events to show visible commitment. | 87.27 % | 63.63% | 12.73% | 36.37% |
| 6 | Management set clear safety and health objectives for the construction site | 100 % | 100% | 0 | 0 |
| 7 | Management support continuous training and development related to safety and health for employees | 69.01 % | 58.18% | 30.99% | 41.82% |
| 8 | Management actively involved in emergency preparedness planning and drills | 56.36 % | 58.18% | 43.64% | 41.82% |
| 9 | Employees encouraged by management report hazards and potential risks without fear of repercussions. | 100 % | 100% | 0 | 100% |
| 10 | Regular reviews by management of safety performance such incident rates, near-misses accident | 60 | 47.28 | 40 | 52.72 |
| | **Total Average Percentage** | **87.26%** | **76.36%** | **12.74%** | **23.64%** |

Table 2 evaluates the implementation of social aspects of workplace safety and well-being, revealing disparities between contractors and workers and highlighting critical deficiencies. While the provision of protective equipment and anti-discrimination policies showed relatively high implementation rates (87.27% and 92.72% for contractors; 72.72% and 85.45% for workers), significant gaps exist in access to basic facilities, with only 41.82% of contractors and 29% of workers having access to clean drinking water and rest areas. Training initiatives, such as mandatory Green Card training, remain insufficiently implemented (43.64% for contractors and 34.54% for workers), and mental health support is notably lacking, with just 50.91% of contractors and 32.72% of workers having access. Recognition systems for safety practices and comprehensive safety orientation programs are moderately implemented but require improvement. These findings underscore the need for enhanced efforts to address mental health, basic facility access, and worker training to promote a safer and more supportive workplace.

**Table 2** *Analysis of social aspects*

| Social Aspect | | | | | |
|---|---|---|---|---|---|
| **No** | **Statements** | **Implemented (%)** | | **Not Implemented (%)** | |
| | | **Contractors** | **Workers** | **Contractors** | **Workers** |
| 1 | Protective equipment and safety gear are provided to all workers free of charge | 87.27% | 72.72% | 12.73% | 27.28% |
| 2 | Workers have access to basic facilities such as clean drinking water and rest areas | 41.82% | 29% | 58.18% | 71% |
| 3 | Management mandatory to take Green Card for all workers who perform them on at the construction site | 43.64% | 34.54% | 56.36% | 65.46% |
| 4 | Management allowed workers to take a 1-3 days break within a month which is subject to company terms and conditions. | 47.27% | 27.27% | 52.73% | 72.73% |
| 5 | Anti-discrimination policies in place to protect workers from bias in health and safety treatment | 92.72% | 85.45% | 7.28% | 14.55% |
| 6 | Have a comprehensive orientation program that covers safety and health topics for all new employees | 85.45% | 74.54% | 14.55% | 25.46% |
| 7 | Have a system in place to recognize and reward workers for following safety practices | 87.27% | 69.1% | 12.73% | 30.9% |
| 8 | Mental health support, such as counseling or stress management resources, available for workers | 50.91% | 32.72% | 49.09% | 67.28% |
| 9 | There are regular assessments of worker satisfaction and comfort with the site's health and safety protocols | 90.9% | 74.54% | 9.1% | 25.46% |
| 10 | Workers at least have a working time of 8 hours a day excluding breaks | 54.54% | 52.72% | 45.46% | 47.28% |
| | **Total Average Percentage** | **68.18 %** | **55.26 %** | **31.82 %** | **44.74 %** |

Table 3 highlights the implementation status of safety and health practices among contractors and workers on Sarawak construction sites, emphasizing risk control aspects. While hazard identification and the placement of warning signs showed high compliance among contractors (100%), workers lagged in several areas. Key gaps included training programs on risk control equipment, designated risk control teams, and comprehensive risk assessments, with non-implementation rates exceeding 50% among contractors and workers. Engineering controls, fire safety measures, and PPE requirements showed better contractor implementation but lower compliance among workers. Particularly concerning the low adherence rates to COVID-19 safety measures, with over half of contractors and workers failing to implement proper leave and isolation policies. These findings reveal significant shortcomings in communication, training, and risk management strategies, underscoring the critical need for improved efforts to reduce workplace incidents and associated costs.

**Table 3** *Analysis of risk controls aspects*

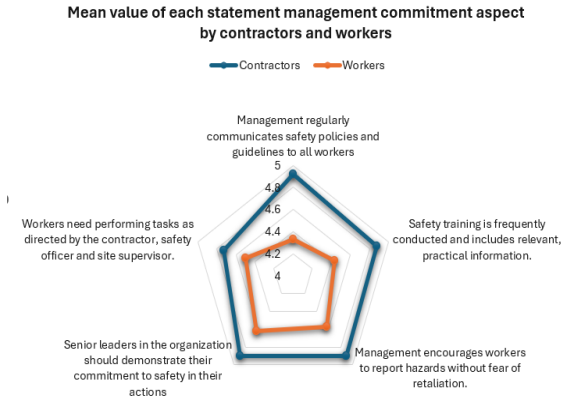
| No | Statements | Risk Control Aspects | | | |
|---|---|---|---|---|---|
| | | Implemented (%) | | Not implemented (%) | |
| | | Contractors | Workers | Contractor | Workers |
| 1 | Hazard identification processes in place to detect potential risks on site before starting work. | 100 % | 69.1% | 0% | 30.9% |
| 2 | Engineering control such guardrails and barriers in place to mitigate physical hazard in construction site | 96.36% | 74.54% | 3.64% | 25.46% |
| 3 | Risk control measures reviewed and updated after any incident or near missing accident. | 98.18% | 70.9% | 1.82% | 29.1% |
| 4 | Fire safety measures such as extinguisher and alarm are installed in construction sites in good condition | 76.36% | 65.45% | 23.64% | 34.55% |
| 5 | Workers who are sick with Covid-19 are allowed to take leave and are isolated to prevent the spread | 47.27% | 32.72% | 52.73% | 67.28% |
| 6 | Personal protective equipment (PPE) requirements clearly communicated, and is PPE provided to all workers | 90.9% | 45.45% | 9.1% | 54.55% |
| 7 | Have a training program on how to use risk control equipment and follow risk control procedures | 38.18% | 21.82% | 61.82% | 78.18% |
| 8 | Warning signs and safety markings placed in hazardous areas to alert workers of potential dangers | 100 % | 61.82% | 0% | 38.18% |
| 9 | There is a designated risk control team or personnel responsible for ongoing risk assessments and control | 41.82% | 29.1% | 58.18% | 70.9% |
| 10 | There is a comprehensive risk assessment conducted regularly to evaluate new and existing risks | 58.18% | 63.63% | 41.82% | 36.37% |
| | **Total Average Percentage** | **74.73 %** | **53.45 %** | **25.37 %** | **46.55%** |

## 4.2 Method for Improving Level Safety and Health

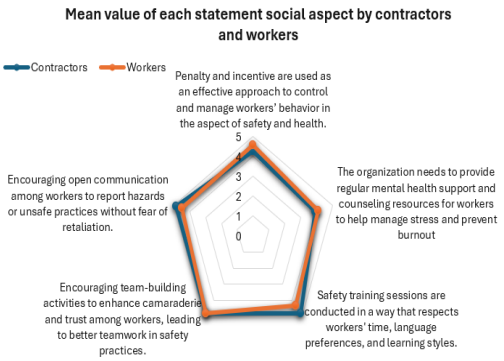
To improve safety and health levels for workers, contractors and workers identified key priorities in management commitment, social aspects, and risk controls based on the questionnaire's highest mean scores. Based on Table 4, management commitment aspects, contractors prioritized regular communication of safety policies (mean 4.92), emphasizing their role in fostering awareness, compliance, and strong safety culture (Choudhry et al., 2008), while workers favoured senior leaders demonstrating safety commitment through actions (mean 4.62). For social aspects, contractors encouraged open communication to report hazards without retaliation, promoting mutual accountability and hazard identification (Lingard & Rowlinson, 2015). Workers preferred team-building activities to strengthen camaraderie and improve teamwork in safety practices. In risk controls, contractors emphasized allowing only certified workers, such as riggers, to work at height, whereas workers prioritized regular equipment inspections, maintenance, and routine risk assessments to ensure safe working conditions. These insights underline the importance of communication, teamwork, and stringent safety practices in enhancing workplace safety.

**Table 4** *Analysis of method for improving level safety and health*

| Contractor | | Worker | |
|---|---|---|---|
| **Statement** | **Mean** | **Statement** | **Mean** |
| Management Commitment Aspect | | | |
| Management regularly communicates safety policies and guidelines to all workers | 4.92 | Senior leaders in the organization should demonstrate their commitment to safety in their actions | 4.62 |
| Social Aspect | | | |
| Encouraging open communication among workers to report hazards or unsafe practices without fear of retaliation | 4.87 | Encouraging team-building activities to enhance camaraderie and trust among workers, leading to better teamwork in safety practices. | 4.8 |
| Risk Control Aspect | | | |
| Every worker is not able to work at height level such a rigger without certificate | 4.93 | i. Risk assessments are conducted regularly, and results are clearly communicated to all workers on-site<br>ii. Safety equipment and machinery are regularly inspected and maintained to ensure they are in proper working order | 4.62 |




**(a)**

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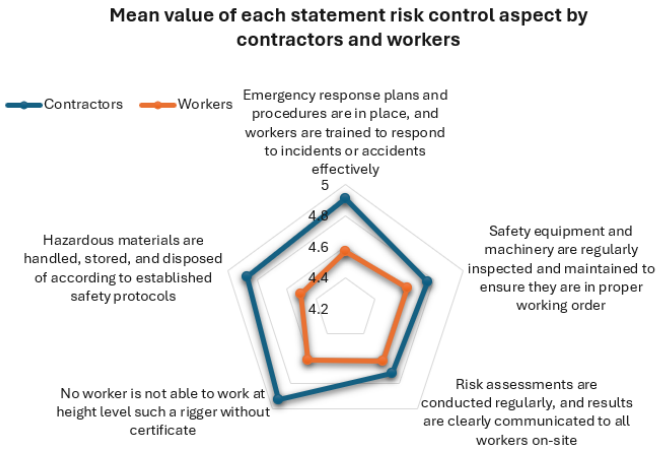


**(c)**

**Fig 2** (*a) Mean value of each statement by management commitment aspect; (b) Mean value of each statement by social aspect; (c) Mean value of each statement by risk control aspects*

## 5. Conclusion

In conclusion, both aims of this research have been achieved through the use of the questionnaire approach. The commitment of management to safety and health practices in Sarawak surpassed that of social and risk control measures. This research enhances the awareness of the importance of safety and health practices and strategies to mitigate the risks of hazardous circumstances or accidents during building projects. Furthermore, it cannot be disputed that descriptive analysis utilizing the Statistical Package for the Social Sciences (SPSS) significantly aids in the interpretation and presentation of data in this research. Although safety and health practices in risk control are somewhat below expectations relative to managerial commitment and social factors. Nonetheless, it has been demonstrated that there remains room for enhancement in safety and health procedures within the building industry in our nation. The strategy for enhancing worker safety and health will serve as a reference for researchers to implement in the construction sector as contractors in the future.

## Acknowledgements

A special gratitude I gave to my beloved supervisor, Madam Hannifah binti Tami for her advice, support, guidance, supervision and patience throughout the completion of my project. I extremely respect and thankful to my supervisor for providing me an opportunity to do this project with her support, suggestions and guidance. The opinions and knowledge provided was quite significant for me to widen my eye and keep working hard despite of having challenges along this project. She was patients, good tempered and enthusiastic lecturer who always explained in detail the progress of my project. I am quite honoured to be one of her Final Year Project students and I believed that I learned a lot during this project.

## Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of the paper.

## Author Contribution

*The authors are responsible for the study conception, research design, data collection, data analysis, result interpretation and manuscript drafting.*

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