

THE CAUSES OF MALAYSIAN CONSTRUCTION FATALITIES

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Submitted final draft: 6 October 2019

Accepted: 15 October 2019

<http://doi.org/10.46754/jssm.2020.07.018>

Abstract: The Malaysian construction industry continues to enhance the country's economy by displaying voluminous growth. Due to the unique nature of the process involved, this industry is being considered the most hazardous sector in terms of occupational safety and health (OSH). The statistics of fatal accidents recorded by Department of Safety and Health Malaysia (DOSH) presented that Malaysian construction industry has the highest number of fatalities within this period of study, making it the most critical sector that requires efficient OSH management in order to reduce a significant number of fatalities in construction sites. The main objective of this study is to identify the causes of fatalities in the Malaysian construction industry by analysing 145 fatalities investigated by DOSH during a period of five years (2013 to 2018) by applying the framework for causes of occupational accidents and illnesses. Johor has the highest occurrence of fatalities with 45 cases. These 145 cases were descriptively analysed. Falling from height (43%) recorded the highest number of accident cases and followed with struck-by (34%) as among the six listed categories in this study. The main accidents causes were discovered to be the management element (58 cases) followed by worksite element (57 cases) and human element (30 cases).

Keywords: Construction industry, construction accident, fatal accident, construction safety, safety management.

Introduction

The involvement in the multidisciplinary field of work in the construction industry created a complex working experience (Jaffar *et al.*, 2011). This industry is considered to be a major productive sector in Malaysia and essential for the development of the nation (Razak Ibrahim *et al.*, 2010). Even though the construction industry is classified as the top three major economic sectors, the rate of fatalities is very high due to the nature of the industry and the hazards involved during the time of construction (Jaafar *et al.*, 2017). In addition, the construction industry continues to rank among the most dangerous industry worldwide (Wasilkiewicz *et al.*, 2016).

Although the construction industry plays important roles in contributing to the economic performance, the number of accidents and fatalities that occurred in this industry will

not only affects the victim's families but also the employer which will suffer the loss of an experienced worker and be forced to absorb the incidental cost due to the interrupted project activities, increased insurance premiums and medical expenditure (Omran *et al.*, 2008). One of the contributing factor towards increasing number of accidents and fatalities in this industry is constantly changing work environment which exposed the workers to new hazards that may go unnoticed (Hinze & Teizer, 2011).

The frequent occurrence of injuries and health problem associated with construction shows that this industry is the most hazardous occupation related to the unique nature of the industry where workers face a greater risk of work-related fatality (Hashem *et al.*, 2013). Moreover, workers who spend their working lives on the construction industry have a higher probability of being killed at their workplace (Hanapi *et al.*, 2013). According to the statistic

reported by Social Security Organisation (SOCSO) in 2004, the fatality rate cases in the Malaysia construction industry was more than 3 times of other workplaces such as manufacturing, mining, and quarrying (Marhani *et al.*, 2012).

On top of that, the accidents that went unreported could be higher than the number of fatalities reported by SOCSO because more than 80 percent Malaysian construction workers are foreigners that might work without or expired work permits (Hamid *et al.*, 2008). In some other cases, accidents are often not reported in many countries where the regulatory authority is weak and the employer only provides cash compensation (Agwu & Olele, 2014). This missing data could increase the actual number of accidents in this industry which could be more than the reported cases.

The main objective of this study is to analyze the causalities of fatal accidents in the Malaysian construction industry over the period of 2013 to 2018 from the cases investigated by Department Safety and Health Malaysia (DOSH) (DOSH, 2018) using the proposed framework for causes of occupational accidents and illnesses. These findings could be used to form the basis for recommendations that will help to improve the construction worker's safety and reduce the number of accidents and fatalities.

Construction Site Fatalities

Accidents are undesired events which occur out of any planning, desirable, expectation, or controlled which is not necessarily causing harm to humans but also property damage and loss (Ali *et al.*, 2010). Majority of the accidents are caused by three main reasons, the occasional occurrence of accidents, unsafe conditions, and unsafe behaviours (Liu & Tsai, 2012). Subsequent theories developed from the domino theory defined immediate causes constitute of unsafe acts and unsafe conditions while contributing causes include safety management performance and the mental and physical condition of the workers (Hosseinian & Torghabeh, 2012).

The main causes for the high number of injuries and fatalities rates are extensive subcontracting, the absence of safety training, lack of safety awareness, the inefficiency of safety regulations and legislation and unsupportive top management (Awwad *et al.*, 2016). Other than that, poor communication and coordination between the employers and employees are said to be the causes of accidents because most of the workers came from various countries which may not understand the local language (Chong & Low, 2014). Most incidents and injuries on construction sites are a direct result of not adhering to their established safe work procedure (Abudayyeh *et al.*, 2006).

The construction industry is widely regarded as an accident-prone sector which consists of various hazards and dangers that have the potential of producing hundreds of injuries and deaths (Williams *et al.*, 2017). Unsafe acts and unsafe conditions are said to be the main cause of accidents thus, both of this conditions should be eliminated to prevent an increase in the number of accidents in future (Shin *et al.*, 2014). Most accidents occur because of the human act. Thus, to reduce the number of accidents and improved safety performance can only be achieved by focusing upon unsafe behaviour at construction sites (Choudhry, 2014).

There are many sources of accidents which occur at an individual and organizational level. Individual factors can be classified into eight causes which are experience, task duration, training and skill level, knowledge of regulation, risk perception, use of personal protective equipment, deviation from normal work standard and prior experience with accidents (Fass *et al.*, 2017). Safety management by organization or employer is important to ensure safety culture could be established within construction workers. The elements that should be run by an employer are written safety policy, accident investigation and report, safety records, safety manual, safety checklist, accident statistical analysis, and formal organizational structure (Cheng *et al.*, 2012).

Causes of accidents in the construction industry can be summarized as shown in Figure 1 (Jaafar *et al.*, 2017). Figure 1, explained a framework which presented two layers of causes comprising of immediate (human and worksite elements) and underlying causes (management and external elements). All the causes could be related to each other in producing occupational accidents and illnesses. Underlying causes may enhance the probability of the immediate causes to occur leading to accidents. Inadequate, or lack of, safety training has been identified as an important contributing factor to high accident rates in the construction industry (Guo *et al.*, 2012).

There are different groups of proximal factors and event characteristic including inappropriate construction planning, inappropriate construction operation, inappropriate construction planning, inappropriate construction operation or control, inappropriate site condition, inappropriate ground conditions, an unacceptably noisy and crowded environment and inappropriate operative action (Chi & Han, 2013). The statistic for fatal accidents that occurred in the construction industry shows that the accidents rate in this industry is still high. According to the study conducted by A. R. A. Hamid *et al.*, (2019a), the main cause of fatal accidents

construction industry mainly due to unsafe method, unique nature of industry, job site condition, human element, unsafe equipment and environmental factors.

The most frequent causes of injuries and deaths on construction sites are falls, being struck by an object, being caught in or between objects, electrocution, and others, such as toxic gases, drowning, and fire (Abudayyeh *et al.*, 2006; Hafiidz *et al.*, 2017). Other than that, being crushed by objects, machines or vehicles also considered as contributing factor of fatal accidents (Ayob *et al.*, 2018). Accidents which involve machines or vehicles are extremely critical especially when involved with cranes which are commonly used for transporting and lifting. For example, accidents involving crane in Malaysia has recorded few incidents causes serious injuries, fatalities, loss of work time and property which occurred in and outside the construction site (A. R. A. Hamid *et al.*, 2019b).

There are many approaches applied to reduce the accidents rate such as training, inspection, motivation, enforcement, penalties and emphasizing competency, but there are limitations due to conflicts with production; uncertainty limits of effectiveness prevention; limited view of accident causality; limited learning and etc. (Mitropoulos *et al.*, 2005). In

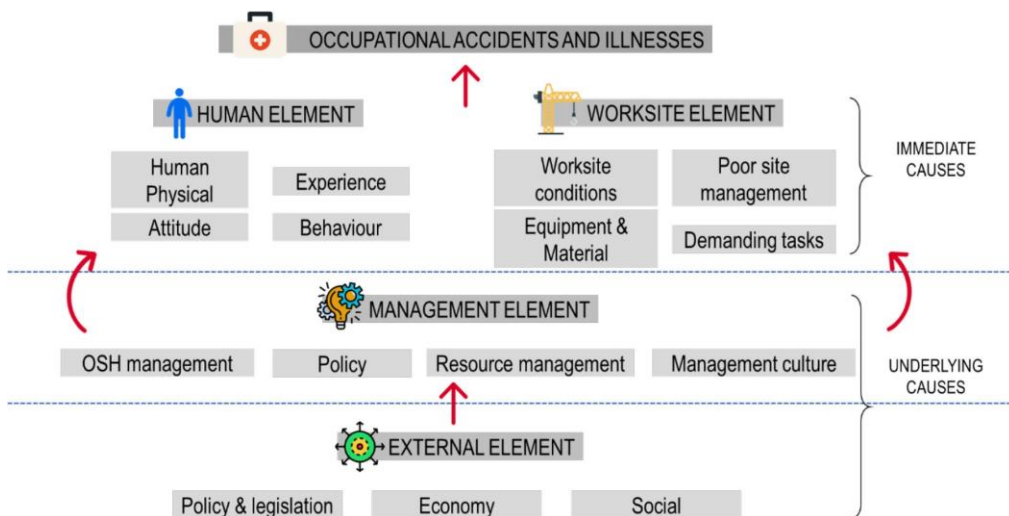


Figure 1: Framework of causes for occupational accidents and illnesses

construction, analyzing the near-miss accidents is another effective method for accidents prevention. Near-miss usually referred to as precursors of accidents, indicators of potential accidents, an imminent signal of accidents which not involve any injuries and damage but could result in great harm if there is no further accidents prevention method being implemented (Yang *et al.*, 2012).

Effective implementation of OSH is believed can reduce the number of accident and fatalities rates. But, the compliance of OSHA in Malaysian construction industry still infirm due to many factors such as lack of enforcement officer, late reporting of accidents, failed to comply with work system standard set by the DOSH and employers failed to register their companies and employees (A. R. A. Hamid *et al.*, 2019c).

Research Methodology

This study is a review on the construction fatalities characteristic of the Malaysian construction industry. Firstly, the data were collected from 145 cases of fatal accidents investigated by DOSH in construction sites of Malaysia within a period of 5 years (2013-2018). Descriptive analysis of the 145 cases was conducted for the frequency of the accidents and their causes.

The data collected from the DOSH website were classified into six types of accidents

in identifying the causes of fatalities in the Malaysian construction industry. Descriptive analysis related to types, causes and locations were conducted according to states. The information gathered in writing this study was collected from respected journals to support this review.

Results and Discussion

This section describes and discussed the findings obtained from the construction fatalities data investigated by DOSH in the year 2013 to 2018. All the data collected are presented and discussed in terms of types of accidents, list of causes and states. It is important to understand that there are cases reported with multiple causes.

Table 1 below shows the general description by the frequency of fatal construction accidents that have been recorded in the database by the DOSH. The investigated cases were reported according to the types of accident. They were all fatal accidents involving workers and civilians at construction sites from the year 2013 to 2018.

Cases investigated were set into 9 categories which are falling from heights, struck by falling objects, struck by moving objects or vehicles, caught in between, fall into opening or drowning, electrocution, environmental factors, fire or explosion and exposure to, or contact with harmful substances. These categories were simplified into six types of accident which are falling from heights, struck by,

Table 1: Frequency by Types of Accident

NO	Type of Accident	Number of Cases	Percentage (%)
1	Falling from heights	63	43.4
2	Struck by falling object	31	21.4
3	Struck by moving object or vehicles	18	12.4
4	Caught in between	11	7.6
5	Fall into opening or drowning	8	5.5
6	Electrocution	7	4.8
7	Environmental factors	4	2.8
8	Fire or Explosion	2	1.4
9	Exposure to, or contact with harmful substances	1	0.7

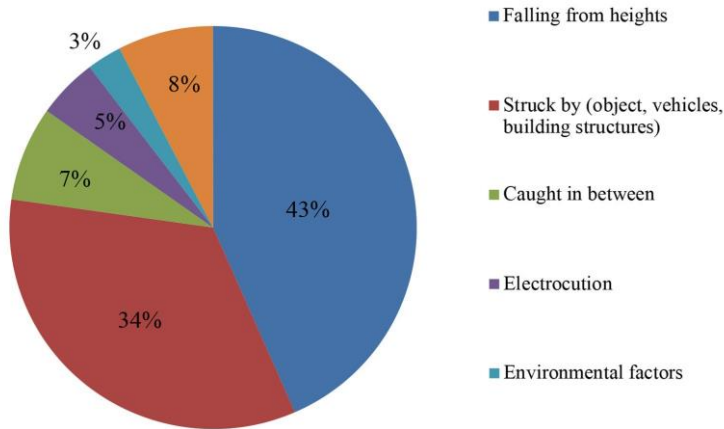


Figure 2: Main categories of Malaysian construction accident

caught in between, electrocution, environment factors and others which presented in Figure 2. Moreover, those factors accounted for the majority of fatalities in the construction industry (Janicak, 2008). Figure 2 shows the categories of fatal accidents investigated in the Malaysian construction industry within 2013 and 2018.

From the analysis shows that falling from heights has the highest occurrence in this period of four years with 63 fatalities or 43%. This is in agreement with previous studies that falls from height are found to be the leading cause of fatalities in the construction industry in many parts of the world (Chi *et al.*, 2014). Struck by

(object, vehicles, building structure) followed in the order of frequency, amounting to 49 or 34% cases of in the period of study.

The third recorded cause of fatalities is caught in between with 11 cases and a percentage of 7%. Caught in between is classified among five attributable cause of fatalities accident by Occupational Safety and Health Administration (OSHA) (Choudhry & Fang, 2008). Other causes such as fall into opening, drowning, fire, explosion and exposure to harmful substances recorded the total of 11 cases (8%), electrocution 7 cases (5%) and environmental factor 4 cases (3%).

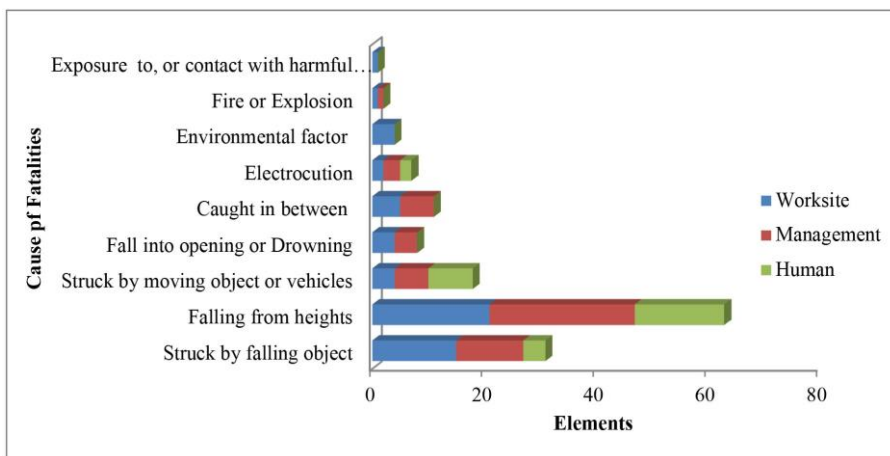


Figure 3: Contributing factors of construction sites fatalities

From the analysis, the causes of fatalities in construction sites mainly associated with human, worksite and management elements. Figure 3 shows the contributing factors of fatalities accidents by causes of accidents. In summary, management element becoming the major contributing factor for the total number of fatalities in the construction industry with 58 cases, followed by worksite element with 57 cases and human element with 30 cases.

From the Figure 3 above, management and worksite elements are major contributing factors of fatalities with 26 and 21 cases respectively for falling from heights. Causes of fatal falls can be related to individual, task, tools and equipment used, managerial and, environmental factors (Chi *et al.*, 2005).

Worksite and human elements amounted with 15 and 12 cases respectively for struck by falling object fatalities. Most of the fatalities related to this accident are due to carelessness or inattention which may result from management pressures to get jobs done quickly or the lack of quality training for workers, supervisors, and competent persons (Beavers *et al.*, 2006). In addition, the human element is a main contributing factor for the struck by moving

objects and vehicles with 8 cases followed by management and human elements with 6 and 4 cases respectively.

The overall analysis has shown that all the causes of fatal accidents occurred mainly because of the three main elements which are human, worksite and management. External elements were not found in this analysis because this element is hard to be traced during a physical accident investigation. It shows that the focuses of an accident investigation are more on the immediate causes and the first layer of underlying causes, which is management element. The summary of fatalities investigation data retrieved from DOSH website (DOSH, 2018) is presented in Appendix 1

Table 2 shows the frequency of accident in relation to the States of Malaysia. Among the twelve states which recorded in the database, Johor registered the highest number of accidents (30%), followed by Pulau Pinang with (19%) and Kuala Lumpur in third with 15%. Meanwhile, Sarawak also indicated a high number of fatality cases with 12%. The lowest numbers of construction fatalities investigated are in Kelantan and Putrajaya with 1% for each state.

Table 2: Location of fatal accidents by state

No	State	Frequency	Percentage (%)
1	Johor	45	30
2	Penang	28	19
3	Kuala Lumpur	23	15
4	Sarawak	18	12
5	Pahang	8	5
6	Selangor	7	5
7	Sabah	7	5
8	Melaka	4	3
9	Perak	3	2
10	Kedah	3	2
11	Kelantan	1	1
12	Putrajaya	1	1

Even though there are few states that are not being included in the database such as Perlis, Negeri Sembilan and, Terengganu, it does not mean that these states are completely free of mishaps (Williams *et al.*, 2017). It is because the data presented only focused on fatal accidents which occurred in the Malaysian constructions industry.

Figure 4 below show the number of fatalities cases from year 2013 to 2018 for every sixth month of the year. From the trends over time, the fatalities cases increased dramatically from year 2013 to 2014. However, the graph shows that the number of fatalities cases slowed down from year 2015 to 2017. Reduction in the rate of fatalities cases may due to recovery phase after vast number of constructions development years before. In year 2018, the number of fatalities cases rose significantly and expected to increase years due to rapid development in Malaysia if no appropriate action is taken immediately.

Underreporting of Construction Accidents in Malaysia

Malaysia Social Security Organization (SOCSO) is entrusted with the administration of Employment Injury Scheme (protection for employees against contingencies, including

occupational diseases and accidents that occur while traveling in the course of employment) and Invalidity Scheme (24 hours coverage against invalidity or death due to any cause) (SOCSO, 2018). The main purpose of SOCSO is for Malaysian citizens who work in non-governmental jobs to claim benefits for any mishaps that occur to them (Merican, 2010). As the organization that provides a different scope of occupational injuries and fatalities management to DOSH, it is interesting to compare the data of investigation cases done by DOSH and reported cases to SOCSO as shown in Figure 5.

As shown in Figure 5, there is an enormous gap between the two sets of data from 2009 to 2018. As Occupational Safety and Health Act, 1994 (OSHA 1994) is the legislation with the self-regulated principle, there is a tendency of underreporting in occupational accidents and illnesses cases depending on the discrepancy of the organization (Abas *et al.*, 2013). The construction industry in Malaysia tends to be progress-oriented and might compromise OSH, especially small and medium type development. Therefore, minor injuries that can be settled internally might not be reported.

Another aspect of underreporting in the Malaysian construction industry is focused on the demographics of construction personnel. 80% of the construction workers are foreigners

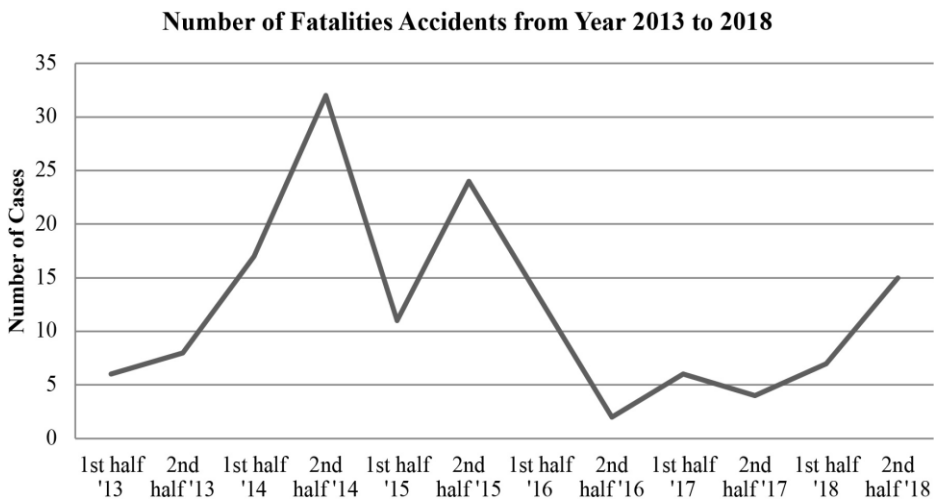


Figure 4: Number of Fatalities Accidents from Year 2013 to 2018

that could be working with a permit and without a permit (Hamid *et al.*, 2008). Furthermore, SOCSO's figures only cover those workers who have already subscribed to SOCSO which are only local citizen. It means that the scenario might be worse than what is depicted in Figure 5.

Legislation enforcement by the government plays an important role to develop healthy accidents reporting culture. These data are valuable and significant in preventing future occurrences. Organizations should be encouraged to have a proper OSH management program that will inculcate not just accident reporting culture but near-misses as well. Having proper data will help in understanding the scenario and coming up with a prevention plan.

Conclusion

The construction industry makes up an important part of the Malaysian economy which could be described as a substantial economic driver for Malaysia. From the data of construction fatalities published by DOSH, falling from height was found to have the highest occurrences, while the main contributing factors leading to the accidents are worksites and management factors.

Johor registered the highest number of fatal accidents followed by Pulau Pinang and Kuala Lumpur among the states in Malaysia. Rapid

development, migration and dense population in mentioned states may become one of the main factors in the increasing number of fatalities involving the construction industry. Other than that, limitation of suitable area for construction development causing most of the developer focusing on the construction of high-rise building instead of low-rise building. Constructions of high-rise building have a higher risk than low-rise construction due to different methods and job tasks.

In order to minimize the number of fatalities in the construction industry, all parties including regulators, contractors, consultants and also workers need to be fully committed in terms of OSH. An obligation to the rules and regulation will minimize the number fatalities and will indirectly improve the quality of life and the Malaysian economy. Therefore, it is becoming more important and challenging to increase OSH awareness among the workers due to an enormous number of workers which constantly increase year by year. An effective OSH management program is required to be implemented in the Malaysian construction industry to mitigate causes of occupational accidents which comprise of human, worksite, management, and external elements.

Underreporting of occupational accidents and illnesses in the construction industry is something that needs to be taken seriously. The implication of underreporting is huge

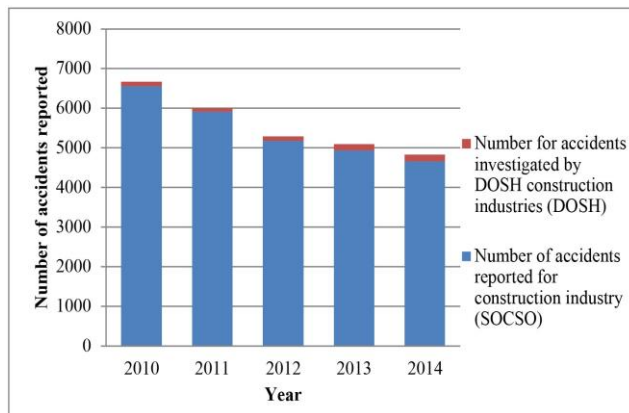


Figure 5: Number of accidents reported to SOCSO and accident cases investigated by DOSH

in contemplating responses and long-term planning for the Malaysian construction industry. Accidents and even near-misses reporting should be encouraged because it will provide underlying data that will benefit the industry. All parties including government and research organization should work together in developing an efficient data management program (inclusive of statistical analysis) that can be accessed by all related parties. It will be essential in ensuring healthy lives and promoting well-being to construction personnel, in-line with the sustainable development goal of good health and well-being.

Acknowledgements

This work was supported, in part, by Universiti Sains Malaysia under the reference number of 304/PTEKIND/6313293.

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Appendix

Appendix 1: Case summary of reported fatal accident in Malaysian construction industry between 2013 to 2018

No	Accident Category	Locations	Cause	Elements	Sub-element
1	Struck by falling object	Johor	Nil	Worksite	Worksite Arrangement
2	Struck by falling object	Selangor	The brick wall work was not fully assembled and there is no stiffener or support to support the brick wall	Worksite	Worksite Arrangement
3	Falling from height	Melaka	<p>i. No SOP for sewerage construction</p> <p>ii. No SOP for rescue works in sewer hole if there is emergency.</p> <p>iii. No training to workers for sewerage activity</p> <p>iv. No valid CF for the hoisting machineries.</p>	Management	Safety Management
4	Falling from height	Selangor	<p>i. No fence on opening edges.</p> <p>ii. Wrong usage of safety harness</p> <p>iii. Installing and transferring work for working platform not according to method statement</p>	Human	Behaviour
5	Falling from height	Penang	<p>i) unsafe access to the temporary ladder ii) wall opening was not properly covered</p>	Worksite	Worksite Arrangement
6	Struck by moving object or vehicles	Sarawak	<p>i. No site registration number (construction site) ii. Fail to produce SOP iii. Fail to produce training records. iv. Fail to produce PPE records</p>	Management	Safety Management

7	Struck by falling object	Selangor	i) unreported case to DOSH ii) No OSH document on activity involved iii) No record on SHO and SSS for the project above 20 million worth	Management	Safety Management
8	Fall into opening or Drowning	Penang	The case was not reported to DOSH	Management	Safety Management
9	Falling from height	Penang	i) No SOP for cage platform's installation works ii) Wall opening	Management	Safety Management
10	Falling from height	Sarawak		Worksite	Task Demands
11	Falling from height	Pahang	Walls opening was not covered	Worksite	Worksite Arrangement
12	Struck by falling object	Melaka	i. No SOP for lifting works ii. No SOP for working at height	Management	Safety Management
13	Struck by falling object	Johor		Worksite	Worksite Arrangement
14	Falling from height	Melaka	i) no record on training for working at height ii) not wearing PPE	Human	Attitude
15	Struck by moving object or vehicles	Sarawak	the car found to be speedy	Human	Attitude
16	Falling from height	Johor	No railing on the scaffold	Worksite	Equipment and Material
17	Struck by falling object	Johor		Worksite	Worksite Arrangement
18	Falling from height	Sabah	i) Improper use of working platform ii) No PPE iii) scaffold installation is not according to specification by PE	Management	Safety Management
19	Fire or Explosion	Johor	i. No SOP ii. No HIRARC	Management	Safety Management
20	Struck by moving object or vehicle	Johor	i. No SOP ii. Failure to provide a safe workplace to its staff	Management	Safety Management

21	Struck by moving object or vehicles	Johor		Human	Behaviour
22	Falling from height	Kuala Lumpur	No safe working procedure and Method Statement with regards to the supervision of construction and stability support	Management	Safety Management
23	Fall into opening or Drowning	Penang	Hole on the floor was not covered	Worksite	Worksite Arrangement
24	Struck by moving object or vehicles	Sarawak	1) No safe work procedure 2) Outriggers of the crane was not deployed before lifting job was done	Management	Safety Management
25	Struck by falling object	Johor	Nil	Human	Behaviour
26	Caught in between	Sarawak	No safe work procedure	Management	Safety Management
27	Struck by moving object or vehicles	Sarawak	Incompetent driver	Human	Experience
28	Falling from height	Johor	Nil	Worksite	Task Demand
29	Falling from height	Penang	Unsafe working condition	Worksite	Worksite Condition
30	Falling from height	Sarawak	1) Walls opening was not covered 2) Fail to provide access or working platform	Worksite	Worksite Arrangement
31	Fall into opening or Drowning	Sarawak	No supervision from the employer	Management	Safety Management
32	Falling from height	Kuala Lumpur	1) Safety harness was not hooked on the life line 2) No stopper on the open edge	Worksite	Equipment and Material
33	Struck by falling object	Kuala Lumpur	Breakage of wire rope	Worksite	Equipment and Material
34	Falling from height	Penang	No safe work procedure	Management	Safety Management
35	Electrocution	Sarawak	No safe work procedure	Management	Safety Management
36	Fall into opening or Drowning	Pahang	Failure to provide warning sign	Management	Safety Management

37	Falling from height	Johor	Failure to wear safety harness while working at height	Human	Behaviour
38	Electrocution	Sarawak	Unsafe act	Human	Behaviour
39	Caught in between	Sarawak	1) No safe operating procedure for working inside the trench 2) Failure to conduct HIRARC	Management	Safety Management
40	Falling from height	Kuala Lumpur	The victim was not wearing any PPE equipment	Human	Behaviour
41	Falling from height	Penang	Nil	Worksite	Task Demand
42	Falling from height	Pahang	1) No safe work procedure 2) No supervision from the employer 3) Life line was not provided to the workers while working at height	Management	Safety Management
43	Falling from height	Johor	The open edges were not covered	Worksite	Worksite Arrangement
44	Falling from height	Johor	The open edges were not covered	Worksite	Worksite Arrangement
45	Falling from height	Johor	There are weaknesses in construction site management particularly the access to the work site	Worksite	Worksite Arrangement
46	Falling from height	Sarawak	No safe work procedure in relation to working at height	Management	Safety Management
47	Caught in between	Penang	Environmental factors	Worksite	Worksite Condition
48	Falling from height	Johor	1) Lack of supervision from the employer 2) Floor opening	Worksite	Worksite Arrangement
49	Electrocution	Sarawak	Unsafe act	Human	Behaviour
50	Environmental factor	Sabah	1)Raining 2)Water level increase 3)Drowning	Worksite	Worksite Condition
51	Falling from height	Pahang	No safe work procedure	Management	Safety Management

52	Falling from height	Penang	There were signs of a break in the lanyards	Worksite	Task Demand
53	Struck by moving object or vehicles	Kuala Lumpur	Failure to hoisting System	Worksite	Equipment and Material
54	Falling from height	Penang	1)No supervision by employer 2)Did not wear safety Harness	Management	Safety Management
55	Falling from height	Sarawak	Nil	Worksite	Task Demand
56	Struck by moving object or vehicles	Penang	Swing lock pin was loosen causing the crane boom to fall down	Worksite	Equipment and Material
57	Struck by falling object	Kuala Lumpur	Fail to comply with safe operating procedure	Human	Behaviour
58	Falling from height	Sarawak	Nil	Human	Attitude
59	Falling from height	Johor	Unsafe act	Human	Behaviour
60	Falling from height	Penang	1) Unsafe working condition 2)Inadequate supply of PPE to the workers	Management	Safety Management
61	Struck by falling object	Kelantan	Nil	Worksite	Worksite Arrangement
62	Fall into opening or Drowning	Penang	Nil	Worksite	Worksite Arrangement
63	Struck by moving object or vehicles	Pahang	1)No safe work procedures for dredging the river bank 2)No supervision	Management	Safety Management
64	Falling from height	Selangor	Nil	Worksite	Task Demand
65	Struck by moving object or vehicles	Kuala Lumpur	Nil	Worksite	Equipment and Material
66	Caught in between	Penang	Environment factors	Worksite	Worksite Condition
67	Falling from height	Sarawak	1) Victim did not put any safety harness on him while working on the platform 2)Weight of a sand-filled bucket has exceed the safe working load for the loading platform	Human	Behaviour
68	Falling from height	Penang	The victim fail to put safety harness while working at height	Human	Behaviour

69	Caught in between	Penang	No safe work procedure	Management	Safety Management
70	Struck by falling object	Kuala Lumpur	Safety helmet used was broken due to the impact	Worksite	Worksite Arrangement
71	Struck by falling object	Kuala Lumpur	No safe work procedure	Management	Safety Management
72	Falling from height	Johor	Failure of machine during operation	Worksite	Equipment and Material
73	Struck by falling object	Melaka	Nil	Worksite	Equipment and Material
74	Falling from height	Johor	1)No safe work procedures for working at height 2)No supervision 3)Inappropriate use of PPE	Management	Safety Management
75	Struck by falling object	Kuala Lumpur	No safe work procedure	Management	Safety Management
76	Struck by falling object	Johor	No safe work procedure	Management	Safety Management
77	Caught in between	Penang	No safe work procedure	Management	Safety Management
78	Falling from height	Putrajaya	Nil	Worksite	Task Demand
79	Caught in between	Penang	Failure to ensure that work is carried out in accordance with safe operating procedures	Management	Safety Management
80	Struck by falling object	Kuala Lumpur	Failure to ensure that work is carried out in accordance with safe operating procedures	Management	Safety Management
81	Fall into opening or Drowning	Pahang	1) No safe work procedures 2) Not wearing PPE (safety jacket)	Management	Safety Management
82	Struck by falling object	Penang	Unsafe work procedure	Management	Safety Management
83	Caught in between	Selangor	Accidents are likely to occur due to the structure failure	Worksite	Equipment and Material
84	Struck by falling object	Penang	Nil	Worksite	Equipment and Material
85	Falling from height	Johor	NIL	Human	Behaviour
86	Electrocution	Johor	No safe work procedure	Management	Safety Management
87	Struck by falling object	Kuala Lumpur	Failure of structure to support extra load	Worksite	Equipment and Material

88	Struck by moving object or vehicles	Kuala Lumpur	1)No safe work procedure 2)Fail to provide risk assessments for activities performed	Management	Safety Management
89	Struck by falling object	Penang	No safe work procedure	Management	Safety Management
90	Falling from height	Johor	No safe work procedure	Management	Safety Management
91	Falling from height	Sabah	1)Fail to comply with safe operating procedure 2)Communication system was not properly managed	Management	Management Culture
92	Falling from height	Kuala Lumpur	The working platform was not properly support	Worksite	Equipment and Material
93	Falling from height	Johor	Stairs was not equipped with handrails to prevent people falling	Management	Safety Management
94	Falling from height	Johor	Safety harness was not hook at the place provided	Human	Behaviour
95	Environmental factor	Johor	1) Struck by lightning 2) No lightning arrester near the open area	Worksite	Worksite Condition
96	Falling from height	Johor	The victim did not wear harness while working at height during mould installation works	Human	Behaviour
97	Falling from height	Johor	1)Fail to wear safety harness 2)No supervision from the employer	Management	Safety Management
98	Struck by moving object or vehicles	Pahang	1)Failure to comply with safe work procedure 2)Failure of the crane's operator to read load chart 3)Excessive load lifting 4)Failure of the employer to ensure that the area is safe when lifting work carried out	Human	Behaviour
99	Struck by moving object or vehicles	Selangor	Fail to comply with mobile crane standard procedure for lifting works	Human	Behaviour

100	Exposure to, or contact with harmful substances	Johor	Chemical spill in cabin	Worksite	Worksite Condition
101	Struck by falling object	Penang	Nil	Worksite	Equipment and Material
102	Struck by falling object	Johor	Structure failure	Worksite	Equipment and Material
103	Struck by moving object or vehicles	Penang	Failed to follow SOP	Human	Behaviour
104	Falling from height	Penang	Nil	Worksite	Equipment and Material
105	Falling from height	Kuala Lumpur	Fail to comply with the safe work procedure	Human	Behaviour
106	Struck by falling object	Selangor	1)Fail to comply with the safe work procedure 2)Lack of supervision from the employer's side	Management	Safety Management
107	Struck by moving object or vehicles	Penang	The vehicle was drive by drunken driver	Human	Attitude
108	Falling from height	Sabah	1)Life line to hook safety harness were not installed 2)The slovenly condition at the workplace	Management	Safety Management
109	Falling from height	Kedah	1)Mobile cranes poorly maintained 2)No safe work procedure for lifting works	Management	Safety Management
110	Struck by falling object	Kuala Lumpur	1)Fail to conduct risk assessment for hacking works 2)The employer has failed to fully exercise supervision over the workers.	Management	Safety Management
111	Struck by falling object	Perak	1)No safe work procedure for dismantling the machinery 2)Lack of supervision	Management	Safety Management
112	Struck by moving object or vehicles	Kedah	No safe work procedure	Management	Safety Management
113	Falls into opening or Drowning	Sarawak	Floor opening	Worksite	Worksite Arrangement
114	Caught in between	Perak	No safe work procedure	Management	Safety Management

115	Struck by falling object	Johor	No safe work procedure	Management	Safety Management
116	Caught in between	Johor	1)No safe work procedure 2) Structure failure	Worksite	Equipment and Material
117	Falling from height	Penang	No safe work procedure	Management	Safety Management
118	Falling from height	Kedah	1)No safe work procedure 2)No supervision by the employer	Management	Safety Management
119	Falling from height	Johor	1)Unsafe act for not wearing safety harness when working at height 2)No safe work procedure	Human	Behaviour
120	Falling from height	Johor	1)Not wearing safety harness when working at height 2)Railing is not installed on the scaffold to prevent fall	Human	Behaviour
121	Electrocution	Kuala Lumpur	Nil	Worksite	Equipment and Material
122	Falling from height	Johor	1)No safe work procedure for lifting work 2)Incompetent signalman	Management	Safety Management
123	Environmental factor	Kuala Lumpur	1) Struck by lightning 2) The victim was working in the open and no lightning detector at the scene	Worksite	Worksite Condition
124	Environmental factor	Johor	Fails to provide PE Design for a floor support structure	Worksite	Equipment and Material
125	Falling from height	Johor	Lack of supervisory	Management	Safety Management
126	Fall into opening or Drowning	Perak	Rain over the last few days may weaken the structure of the ground.	Worksite	Worksite Condition
127	Struck by falling object	Pahang	Nil	Human	Behaviour
128	Falling from height	Penang	1) Unsafe working condition 2) Negligence of safety measure	Worksite	Worksite Condition
129	Falling from height	Kuala Lumpur	No safe work procedure	Management	Safety Management

130	Falling from height	Johor	Fail to perform risk analysis on the scaffold dismantling procedure	Management	Safety Management
131	Falling from height	Johor	Inappropriate usage of PPE.	Human	Behaviour
132	Falling from height	Johor	Failure to wear Personal Protective Equipment (PPE)	Human	Behaviour
133	Struck by falling object	Johor	Brickwork of the wall was not properly done	Worksite	Worksite Arrangement
134	Electrocution	Sarawak	Failed to do hazard identification, risk assessment and risk control over the work to be done.	Management	Safety Management
135	Struck by falling object	Kuala Lumpur	Nil	Worksite	Worksite Arrangement
136	Falling from height	Kuala Lumpur	No safe work procedure	Management	Safety Management
137	Struck by moving object or vehicles	Johor	Unsafe working condition	Worksite	Worksite Condition
138	Electrocution	Johor	Work premises seem watery and through observation it was found that severe electrical wiring was not properly maintained and fully inspected by a competent person.	Worksite	Worksite Arrangement
139	Fire or Explosion	Kuala Lumpur	Nil	Worksite	Equipment and Material
140	Struck by falling object	Johor	Nil	Human	Behaviour
141	Falling from height	Johor	No supervision for working at height	Management	Safety Management
142	Struck by falling object	Johor	Failure of structure	Worksite	Equipment and Material
143	Struck by moving object or vehicles	Kuala Lumpur	Lifting excessive load	Human	Behaviour
144	Caught in between	Johor	Unsafe working area	Worksite	Worksite Arrangement
145	Falling from height	Penang	No safe work procedure	Management	Safety Management