

The Impacts of the Pandemic COVID-19 on Construction Industry in Kuala Lumpur

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Abstract: COVID-19 has affected the construction industry. It has affected all aspects. Most construction projects have stopped, postponed, or slowed down. Many employees and workers have stopped working or lost their work due to the pandemic. In Malaysia, especially in the construction facilities sector in Kuala Lumpur, many projects have been halted or postponed due to initial MCO restrictions. This project investigated and evaluated the effects that COVID-19 caused to construction industry by conducting a qualitative study through interviews with contractors in construction companies in Kuala Lumpur, the effects were sorted and analyzed in detail in all aspects. The interview sessions were held through online meetings with 4 contractors in Kuala Lumpur which randomly selected based on contractor listing in Malaysian Construction Industry Development Board (CIDB) website. The results that had impacted building firms due to the global COVID-19 pandemic had been analyzed and evaluated based on thematic content analysis using NVivo software. Results from the interviews found that the MCO has resulted in 6 main impacts consists of (i) time; (ii) cost; (iii) safety; (iv) regulation compliance; (v) limited human resources supplies; and (vi) limited resource availability on-site. These shows that MCO has given the negative impact to the project success. This finding is critical for the government to ensure that they are aware of the MCO's effects for the construction industry and to assist construction participants in overcoming the six variables identified in this research.

Keywords: COVID-19, Kuala Lumpur, Qualitative Study, Construction Industry, Movement Control Order (MCO)

1. Introduction

The COVID-19 pandemic originally appeared in Wuhan in China, where extraordinarily strong respiratory conditions caused the appearance of the COVID-19 pandemic [1]. The disease is highly contagious and has rapidly spread over the world, and the World Health Organization (WHO) calls it a worldwide pandemic [2]. Without supplies of building materials, and a paucity of workers, the

construction business grew exponentially during the epidemic. In addition to the requirements above, many countries have instituted multiple policies to restrict the mobility of people due to the presence of the virus, and this has largely impeded progress because of the requirement for on-site work and every employee of the project must be present to do their work, monitor, and control each task.

A study about the impacts of the COVID-19 on the construction industry in Malaysia was conducted by [3] and revealed the impact of the pandemic to the construction sector. The first concern was the time which consisted of a delay in the project's handling due to delays in material supply, changes in work breakdowns, and a reset of the project schedule due to time delays during the MCO era. The cost of providing a healthcare kit (face mask, hand sanitation, soap), COVID-19 testing for workers, COVID-19 Health Supervisor appointment costs to control on-site prevention and transport costs for the workers, to encourage social separation among the workers, were the second concern. Then safety is the third concern with many sub-themes relevant to prevent pandemic workers including compulsory daily temperature recording, social distancing, COVID-19 checking for all foreign workers, managerial workforce (movements, arrangements, scope of work), workers hygiene, touch tracking, downtime, and residential management. The fourth concern is the regulatory enforcement that is most essential for ensuring that the project is carried out and the authority reserves the right to permit or terminate the site because of non-compliance with SOP. These concerns were further grouped into two general themes which are negative impact and positive impact of MCO towards the project success.

2. Literature review

2.1 Methodology

A qualitative approach of research has been used for this study to get correct and apparent data. An adequate method for gaining data in which the respondents are aware of the problem or difficulty and have been produced subjectively from their own thinking is a qualitative method used for this study.

This study used a non-random sample. Non-random Sampling is particularly effective for exploratory research such as a pilot survey (deploying a survey to a smaller sample compared to pre-determined sample size) [4]. 4 interviewees from 4 construction companies in Kuala Lumpur are chosen. However, the area which is Kuala Lumpur is chosen due to the heavy projects they have but the 4 companies will be randomly chosen from CIDB.

2.2 Data collection and analysis method

The data gathered from the respondents were analyzed using thematic content analysis, which according to [5] paper that says that qualitative data consists of words that may have several meanings and may lead to a misinterpretation, and therefore uses the analysis of thematic content, since it identifies the quote, codes and the categorization of the codes. In this study, thematic content analysis was therefore employed to examine the data collected from the interview with NVivo Software. The software can execute the common word rapidly in the script to locate the same topic, give a word cloud and can simply identify the link between the topics. The interview session was recorded during the telephone and internet chat and the data were transcribed manually. The transcribed script was then evaluated using NVivo and the findings are based on the highest subject in the box form. The larger box shows the high-impact incident.

2.3 Preliminary interview

It was necessary to ensure the efficiency of the prepared questions by conducting a trial interview on the basis of which the questions are modified. One of the contractors was asked to cooperate to conduct a trial interview two weeks before the actual interview. Based on the pilot interview session it was found that the contractor is facing difficulty in understanding the questions because they are general on one topic. It was necessary to make amendments to the questions and make them more specific to

ensure that the contractors understood the questions. The questions were modified, and their number increased to 23 questions.

2.4 Interviewees

In this study, a semi-structured interview with contractors based on their MCO experiences was carried out. 23 questions have been prepared. Questions have been intended to enable respondents to openly discuss their opinions and experiences throughout the interview. The interview was split into six parts. The duration for each interview session was about 20 to 30 minutes. An Online interview have been carried out. For subsequent analysis, meetings were recorded. The questions for the interview were based on the prior literature and focused on elements derived from the success elements of the previous projects, including time, cost, human resources, availability of resources, prevention of safety and regulatory compliance. it was established that a respondent's qualifying requirements for this study, such as the respondents, are contractors, having an active project, participate in the Kuala Lumpur construction project, and registered with CIDB. First, a few industries were picked using the CIDB website. After the requirements were met, the invitation email was issued to the responders using the CIDB website's registered email. Only 4 contractors from 12 e-mails sent provided comments and were willing to take part in this study. According to [6], the quantity of usable data collected from each respondent is larger than the number

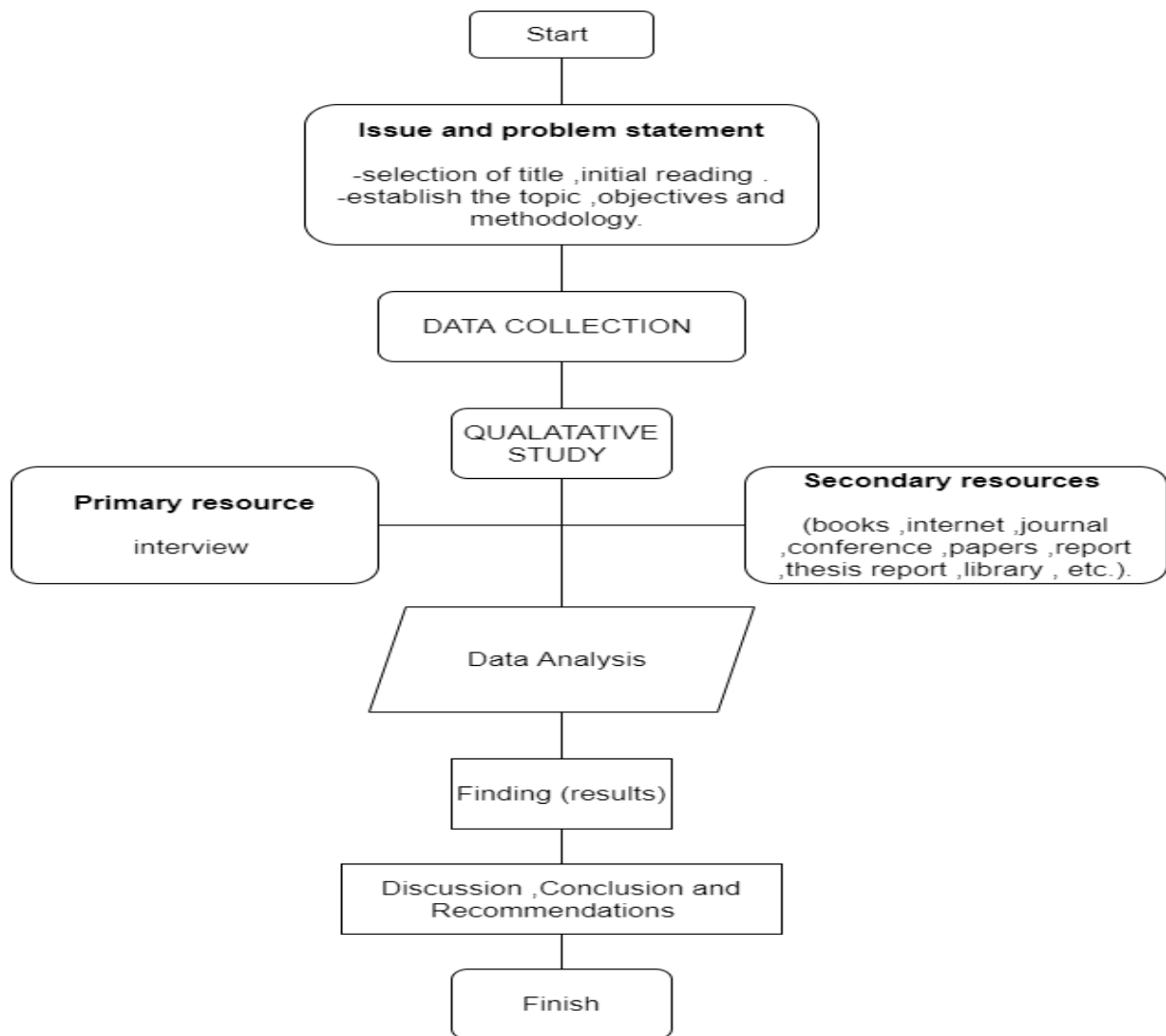


Figure 2.2 study flowchart

3.0 Results and Discussion

3.1 Results

Along with every other walk to life, the construction workers have also been impacted by the ongoing pandemic. The analysis of this data investigates the effect of pandemic Covid-19 on construction activities, time management, its effects on the overall cost, the safety of the workers, the regulation compliance of the SOPs, available human resources, and resource availability.

An analysis of the respondent's views on the effects and impacts of pandemic COVID-19 on construction activities falls into six main themes. These main themes are (i) Time, (ii) Cost, (iii) Safety, (iv) Regulatory Compliance, (v) Human resources, and (vi) Resource availability.

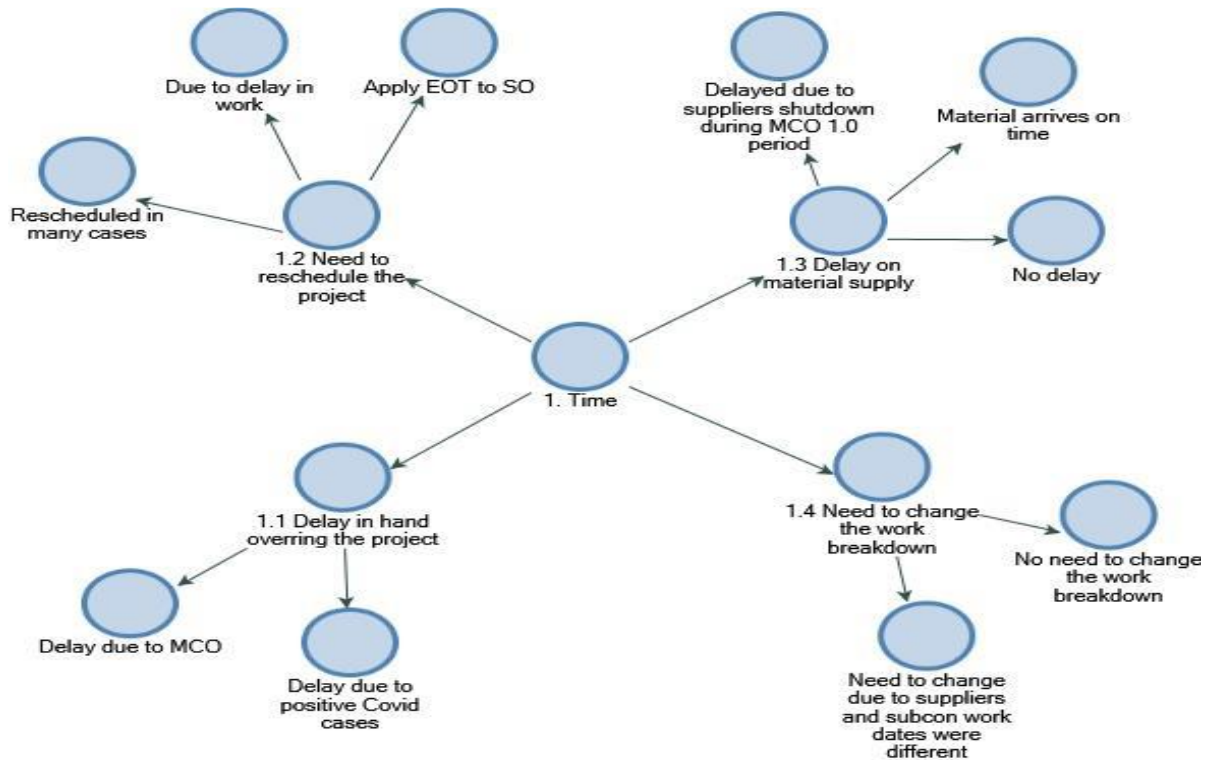


Figure 3.1: Mind map for time

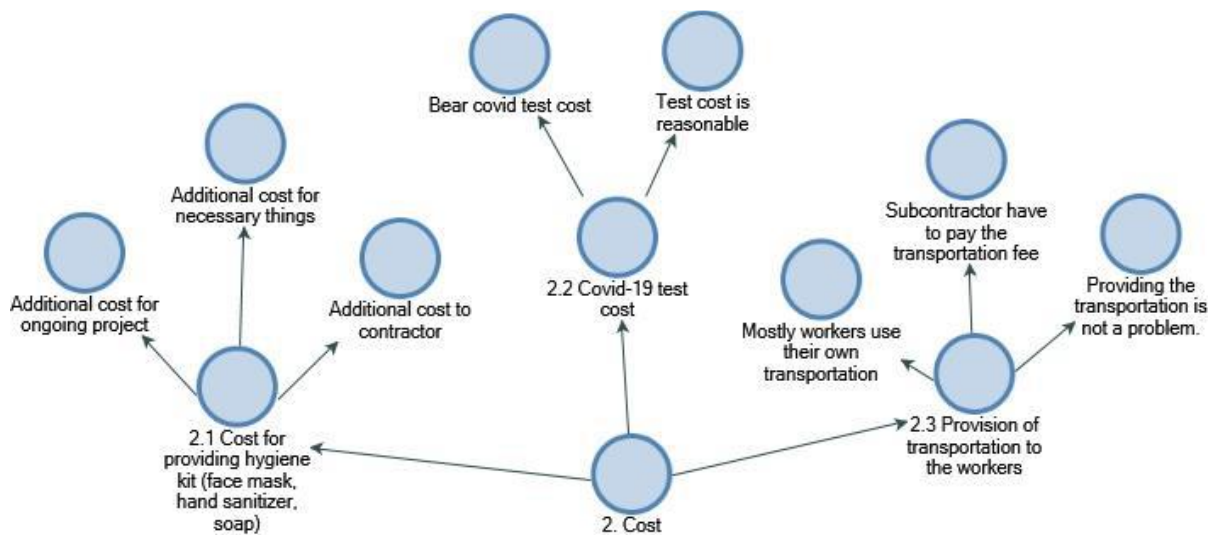


Figure 3.2: Mind map for cost

- i. Time
 - The first main theme “Time” comprises four sub-themes. These sub-themes are (i) Delay in hand overring the project, (ii) Need to reschedule the project, (iii) Delay on material supply, (iv) Need to change the work breakdown.

ii. Cost

The second main theme comprises three sub-themes. These sub-themes are (i) cost for providing a hygiene kit (face mask, hand sanitizer, soap), (ii) Covid-19 test cost, (iii) Provision of transportation to the workers.

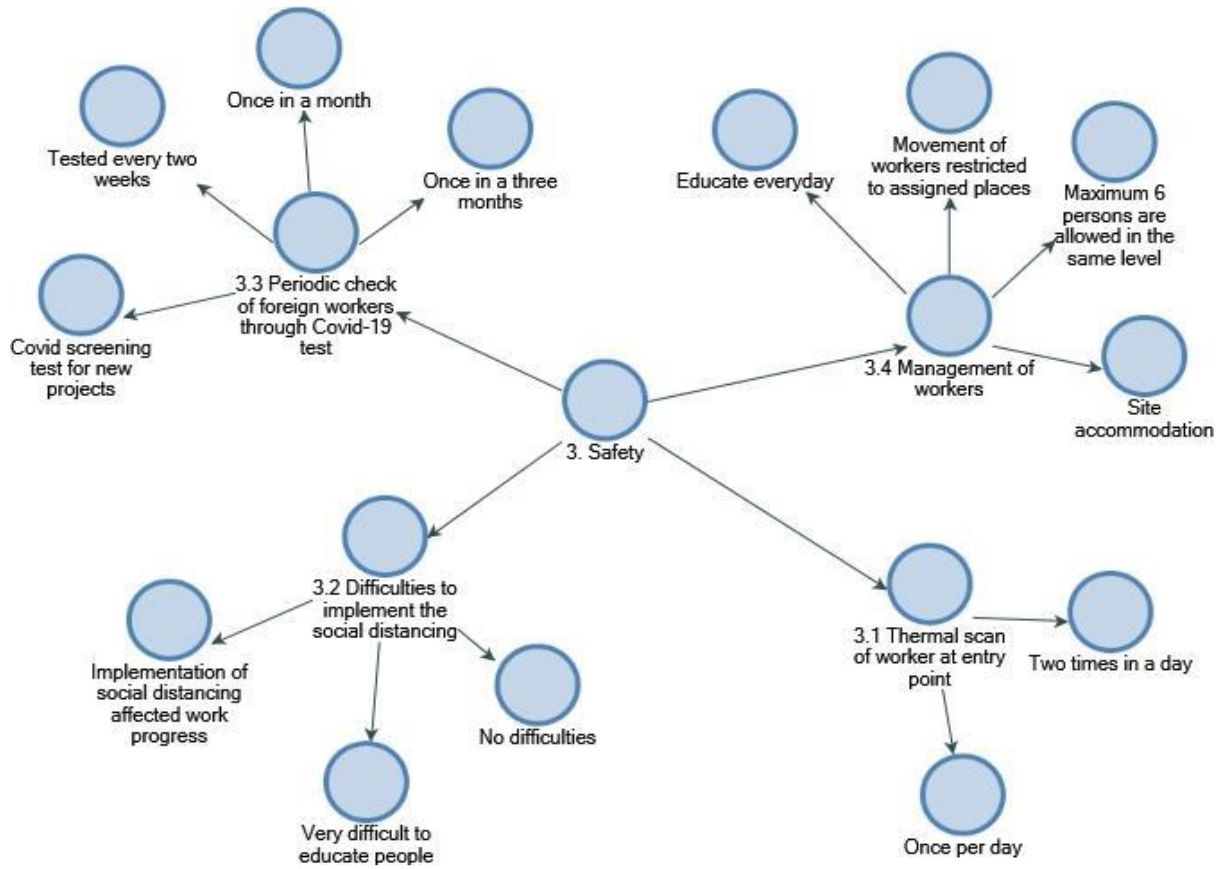


Figure 3.3: Mind map for safety themes 3.1 to 3.4

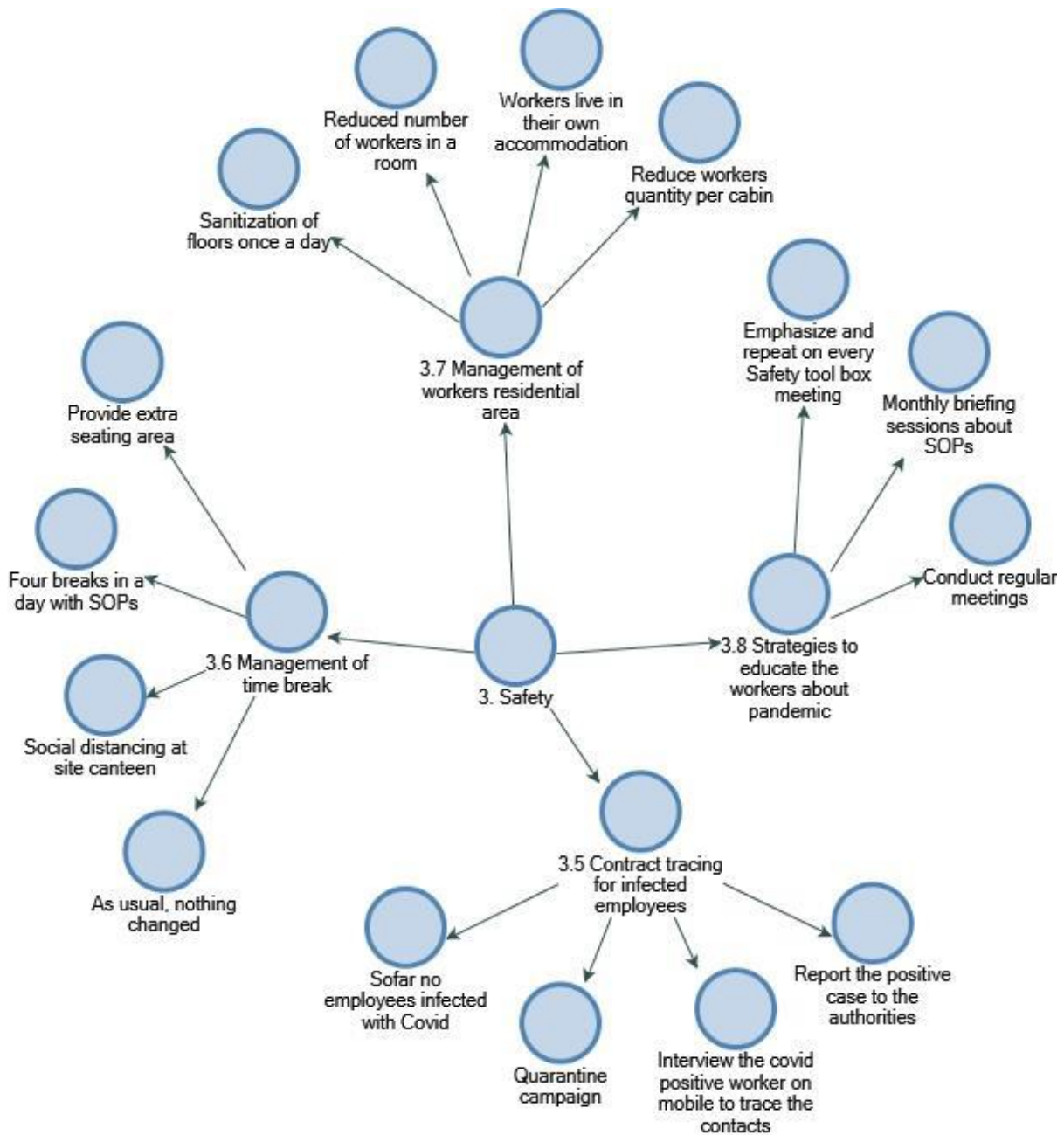


Figure 3.4: Mind map for safety themes 3.5 to 3.8

iii. Safety

The third main theme comprises eight subthemes. These subthemes are: (i) Thermal scan of worker at the entry point," (ii) Difficulties to implement the social distancing, (iii) Periodic check of foreign workers through Covid-19 test, (iv) Management of workers, (v) Contact tracing for infected employees, (vi) Management of time break, (vii) Management of workers residential area, (viii) Strategies to educate the workers about the pandemic.

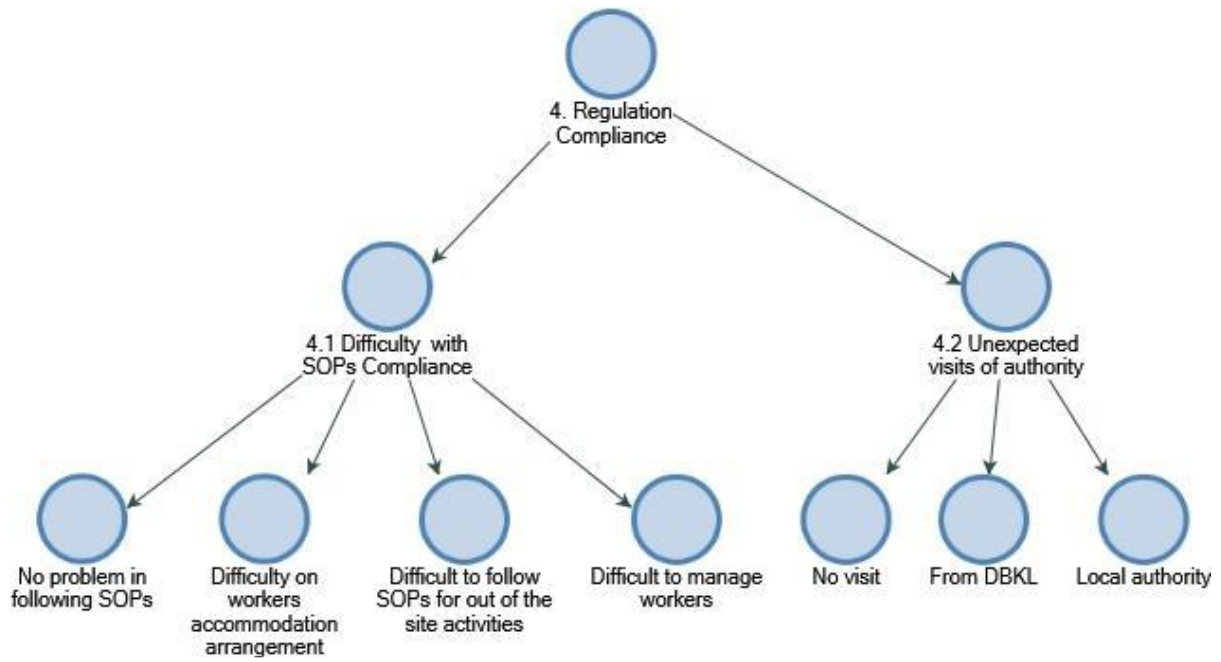


Figure 3.5: Mind map for regulations compliance

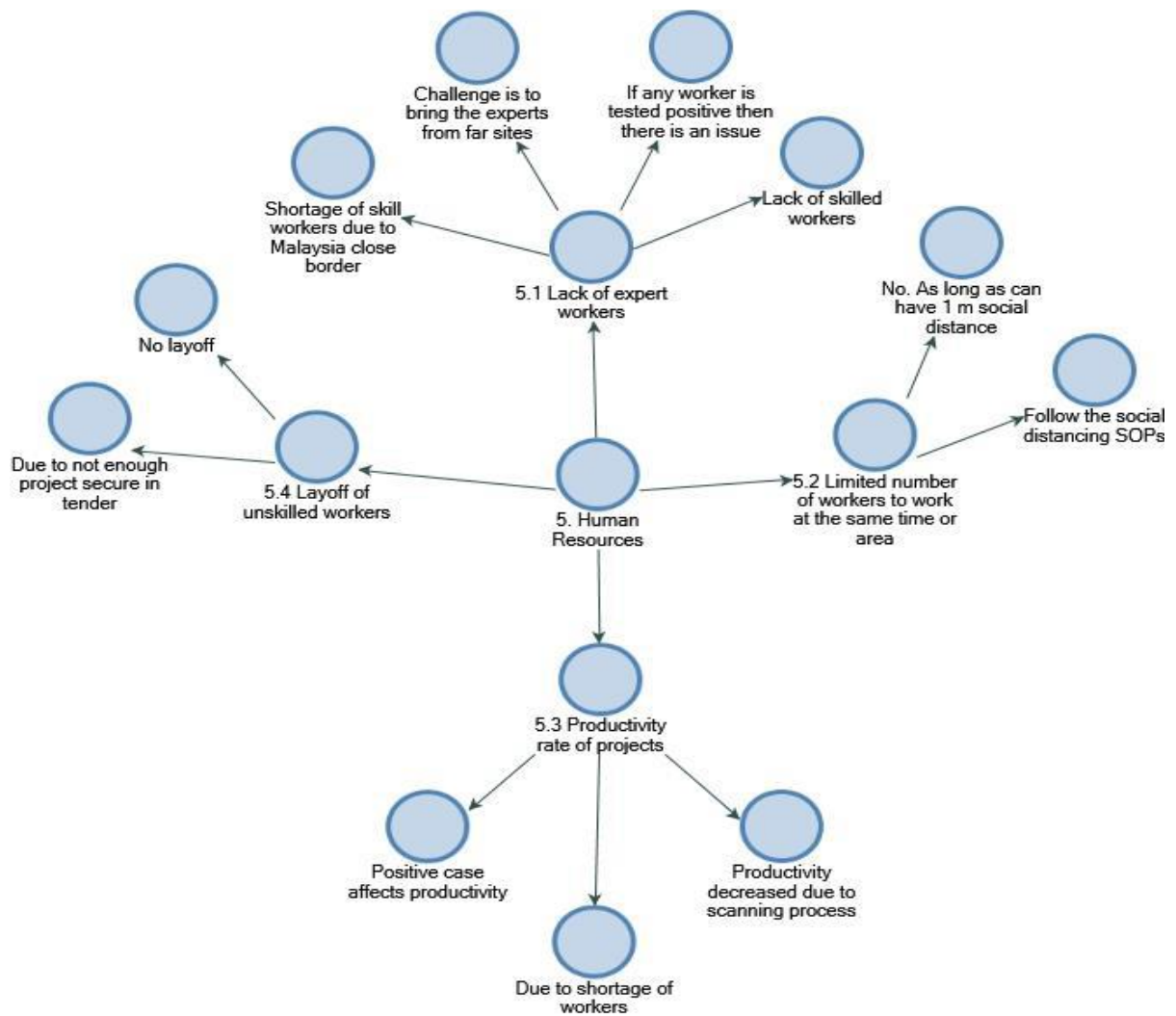


Figure 3.6: Mind map for human resources

- iv. **Regulation Compliance**
The fourth main theme "Regulation Compliance" comprises two sub-themes. These sub-themes are (i) Difficulty with SOP compliance, (ii) "Unexpected visits of the authority."
- v. **Human Resources**
The fifth main theme "Human Resources" comprises four sub-themes. These sub-themes are (i) Lack of expert workers, (ii) Limited number of workers to work at the same time or area, (iii) Productivity rate of projects, (iv) Layoff of unskilled workers.

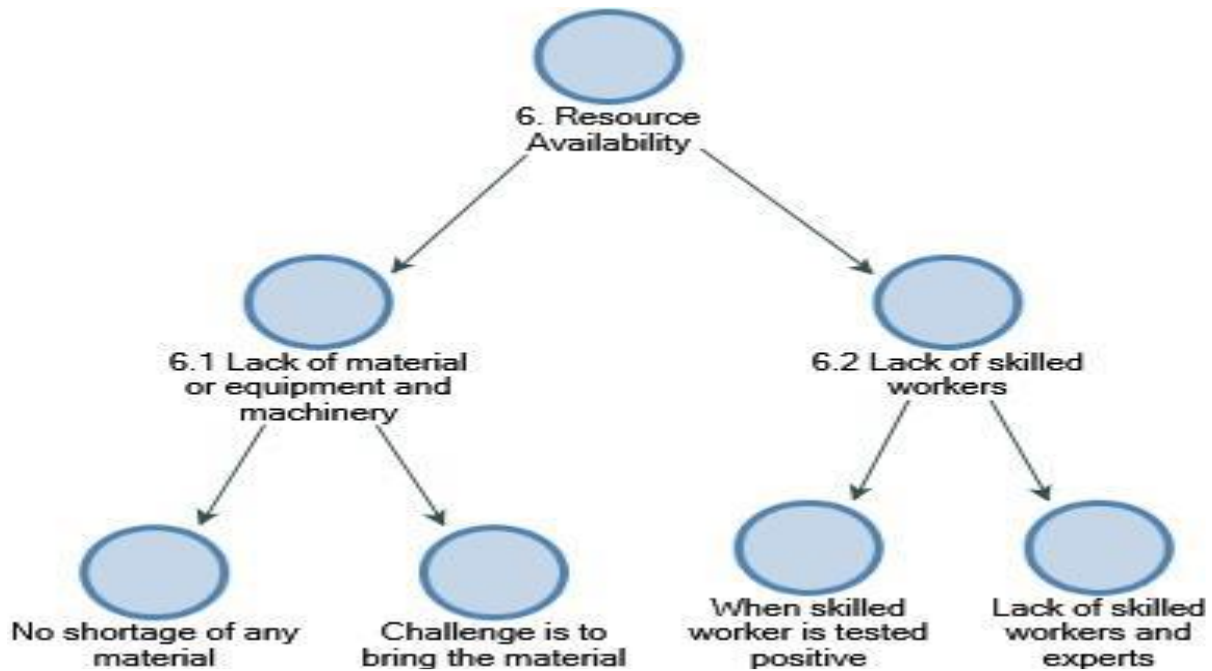


Figure 3.7: Mind map for resources availability

- vi. **Resources Availability**
The sixth main theme "Resources Availability" comprises two sub-themes. These sub-themes are (i) Lack of material or equipment and machinery, (ii) Lack of skilled workers.

3.2 Discussion

On the basis of the six components highlighted, regulatory compliance has emerged as the most critical factor in evaluating whether or not a project can continue to operate during this pandemic. The project will be delayed until the project has been told to close since the SOP has failed, losses will occur and costs will continue to increase every day, which will eventually lead to project failure.

Then came the preventive components of safety, including taking procedures to ensure that personnel and the site do not become a new cluster to spread the virus. The Ministry of Health has established a variety of preventive measures in the SOP and regulatory compliance is linked to this prevention.

Due to the six-week control order, four other variables, including time, cost, resources and availability of resources, took a bad turn during the pandemic. The time and price of the project have to be reprogrammed and changed to increase expenses and time. Even if contractors and workers are put under pressure, the work must be finished. The project must nevertheless be finished, even if it forces contractors and workers to do it within the new time period and financial constraints. Furthermore, because there is greater demand but a low supply, manufacturers' low output for materials supply will cause a delay. In this chaotic environment the supply of machinery and the limited quantity of skilled workers also transpired. In addition, contractors must pay closer attention to all concerns at the building

site in order to minimize mistakes in project development and comply with the SOP, particularly as regards social distancing, hygiene and health at work. According to the above discussions, the MCO had a considerable impact on the above six impact factors and the government should pay close attention to all of them to aid building operators, particularly those designated as SMEs as they are the most affected.

4. Conclusion

This study has investigated and evaluated the impacts of the pandemic COVID-19 on the construction industry. Analytically, it is proved that project suspension, labor effect and job loss, time overrun, cost overrun, and financial impacts are the most significant variables. This study examined and assessed the effects of Covid-19 on Kuala Lumpur construction activities. The discussion in this paper concludes that MCO has had many adverse impacts for project success, affecting the elements leading to project success, such as time, costs and availability of resources. In another sense, MCO has been teaching individuals how to prevent the Covid-19 by self-care, especially when it comes to adopting proper hygiene and social separation on a daily basis. In parallel, it was noted that the SOP compliance level among construction workers was improved and this new standard in the construction sector had to be maintained to avoid future waves of Covid-19 in Malaysia. However, the contractors and project managers are trying hard to mitigate the impacts by following the SOP regulations given by the government. The findings of this study are for construction companies and the Malaysian government to get a better image by using such data from research and studies on the current situation of construction companies and the effects caused by the corona virus. This will help to develop appropriate plans and procedures to reduce or eliminate the impacts.

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