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E-PROCEEDING OF

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GREEN & SAFE CITIES
2022

“Sustaining the
Resilient, Beautiful and Safe Cities
for a Better Quality of Life”

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“ **Sustaining the Resilient, Beautiful and Safe
Cities for a Better Quality of Life** ”

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CONTRACTOR'S PERSPECTIVE ON THE IMPACT OF COVID-19 ON CONSTRUCTION INDUSTRY

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Abstract

The World Health Organization (WHO) has declared COVID-19 a pandemic, forcing most of the country to go into lockdown. COVID-19 has caused widespread economic depression, forcing many businesses in various sectors, including the construction industry, to close down. As a result of the Malaysian government enforcing a Movement Control Order (MCO) to break the chain of COVID-19, the construction industry, without exception, is dealing with a slew of issues. It has a significant impact on the construction industry. Contractors are dealing with some difficulties as construction costs continue to increase as a result of workplace safety and health regulations, project suspension and termination, and productivity loss. Therefore, the aim of this research is to study the impact of COVID-19 pandemic outbreak on the construction industry in Malaysia based on the contractor's perspective. The study implied a quantitative method which is by distributing the questionnaires to the G1-G5 contractor's company in Klang Valley and all data are analysed by using SPSS. The result reveals that increment of the total cost of the project, increase in project duration, increase in material price and additional temporary accommodation for labour are the impact of COVID-19 on the construction industry during the COVID-19 pandemic outbreak. These findings can raise awareness among the contractor on the impacts of the pandemic outbreaks on the construction industry and help them to sustain the economic growth.

Keywords: *Construction industry, Contractor, Impact, Pandemic COVID-19*

INTRODUCTION

The construction industry is a large sector, accounting for 13% of global Gross Domestic Product (GDP) (McKinsey & Company, 2020). As a result, any decrease in construction sector performance has a negative impact on the national economy (Hesselius et al., 2016). The emergence of Coronavirus disease in 2019, which is caused by severe acute respiratory syndrome, was first reported in Wuhan, China, 2019 (Hui et al., 2020). The disease is contagious and has spread rapidly throughout the world, prompting the World Health Organization (WHO) to declare it a pandemic (WHO, 2020).

The threat of COVID-19 became more apparent in Malaysia when neighbouring Singapore reported its first imported COVID-19 case from Wuhan, China on January 23, 2020, which was also the republic's first positive case. Eight close contacts were identified in Johor, Malaysia, as a result of this first case (Abdullah, 2020). Workers' health must be screened,

additional personal protective equipment (PPE) must be provided, site facilities must be upgraded, social distancing procedures must be implemented, shared tools and equipment must be disinfected, and remote working on site are all procedures that must be followed in the construction sector (Raoufi, Fayek., 2020). COVID-19 has imposed a total lockdown, severely limiting economic activity (Helm, 2020). Nicola et al. (2020) reported that the restrictions implied by the authorities had reduced the mobility causing many industries to shut down the business and resulted in job loss and the essential supplies like food and medical supplies which led to a socio-economic impact on each individual. Therefore, the aim of this research is to study the impact of COVID-19 pandemic outbreak on the construction industry in Malaysia based on the contractor's perspective.

LITERATURE REVIEW

Pandemic of COVID-19

The abbreviation COVID-19 stands for Corona Virus disease. SARS-CoV-2 is the agent responsible for the disease (Severe Acute Respiratory Syndrome Coronavirus 2). The outbreak began in December 2019 in Wuhan, China, and is now considered a major global threat to human health. As of June 28, 2020, the virus had claimed the lives of 502,772 people (Worldometer, 2020). The COVID-19 epidemic is the most significant crisis of the current period, and its recovery could take years, affecting a wide range of economic sectors, including construction (Harari, 2020).

As a result of the rapid increase in positive cases and the difficulty in identifying the contacts, the Malaysian government issued a Movement Control Order (MCO) on March 18, 2020 (Ministry of Health, 2020). Malaysia has since extended and revised the Movement Control Order in accordance with the World Health Organization's stringent recommendations (WHO). On June 5, 2020, the Malaysian government declared that 5,131 of the 6,750 construction sites inspected by the Construction Industry Development Board (CIDB) remained inoperable as of June 4, 2020. Construction value added fell 7.9 percent year on year in Quarter 1 2020 as a result of the slowdown, which was exacerbated by MCO.

Impact of COVID-19 to Contractors

Unlike other industries, the construction industry frequently requires project participants' attendance and onsite involvement (Gamil and Alhagar, 2020). Cash flow issues became a major concern during the pandemic as a result of rising material costs and the difficulty owners had in making timely payments to contractors. This hampered material deliveries, slowed productivity, delayed project development, and even resulted in project suspension (Choudhari, 2020).

Total Cost of Project

Shortages of supplies and equipment, late deliveries, inclement weather, and poor supplier performance all increase the likelihood of project schedule and cost overruns (Zhimin et al., 2020). McKibbin and Fernando (2020) investigate the impact of the COVID-19 pandemic and discover a decrease in labour supply, an increase in the risk premium, and an increase in production costs across all sectors as the main supply-side effects. Subcontractors' ability to pay machine tariffs and materials on-site may be hampered as a result of the pandemic outbreak, resulting in additional costs. Aside from that, contractors must pay wages even if the work is not progressing (Gamil and Alhagar, 2020).

In addition, contractors are required by law to provide a safe working environment, especially during a pandemic (BEIS, 2020). The project costs will increase as a result of Covid-19 testing, which is required of all workers, particularly international workers, before they may resume work on-site (Esa et al., 2020). The contractor also had to pay for Covid-19 PPEs,

hygiene kits, a wash station, cleaning tools and supplies, Covid-19 testing, masks, and screening tools. They must also provide health officers and invest in worker training and information about new hazards and controls. (Ministry of Health Malaysia, 2020; Amoah et al., 2021).

The government established the Wage Subsidy Program to assist employers who are economically impacted as a result of COVID-19 and to ensure that they can continue operating their businesses while preventing workers from losing their jobs. Malaysians earning less than RM4,000 per month are eligible for the subsidies, the amount of which is determined by the size of the company's workforce. Companies with more than 200 employees will receive RM600 per retained worker, while those with 75 to 200 employees will receive RM800. Those who have fewer than 75 employees will receive RM1,200. (The Star, 2020).

Increase Project Duration

The primary metric for determining project success is the timely completion of a project (Amilcar and Luis, 2020). As a result of the global construction industry's shortage of construction materials and material delivery delays during the pandemic, construction output declined during the pandemic (Alsharif et al., 2021). COVID-19 had a significant impact on Jordan's construction industry, resulting in job losses, a shortage of foreign workers, legal ramifications from project delays, and financial losses (Bsisu, 2020). According to Bailey et al. (2020), the pandemic is slowing down construction efforts, resulting in project delays, interruption, and, in some cases, project suspension. Because of movement restrictions and supply shortages, the project's suspension is the most affected factor in the onset of a pandemic (Gamil and Alhagar, 2020).

Many projects have been halted or postponed as a result of an interrupted supply chain and employee shortages caused by quarantines (Rouhanizadeh et al., 2019). Indonesia and China remained closed and inaccessible for the export of infrastructure and construction-related equipment, products, and plants. This will undoubtedly cause the project's completion to be delayed (Hook, 2020). There have been reports of projects being completely halted in order to resume construction at a later date (Ogunnusi, et.al., 2020). Construction workforce management should shift away from traditional goals and toward efficient worker utilisation to manage a productive and cost-effective project (Randolph et. al., 2006).

Increase in Material Price

Construction projects have experienced late equipment supply and delivery due to disruptions in manufacturing by machine suppliers and transportation, similar to material shortages (Zhimin et al., 2020). Furthermore, there is a scarcity of materials to support ongoing projects, as well as price fluctuations in materials (Gamil and Alhagar, 2020).

COVID has had a significant impact on contractors' ability to work on-site. Some sites were suspended, some employees became ill or were quarantined (Levelset, 2020), and there were payment and material delivery delays (Skyline Construction, 2020). COVID-19 has disrupted and is expected to continue to disrupt subcontractor scheduling as well as product and material delivery (Del Rio-Chanona et al., 2020).

When commodities or raw materials from other countries were involved in the supply chain, delays were especially noticeable (Fernandes, 2020). The MCO and global lockdown also resulted in significantly reduced material production, causing significant delays in construction projects. Consider China, one of the world's largest suppliers of construction materials, its decreased manufacturing output during its nationwide lockdown has had a global impact on construction. Due to decreased production and logistical issues in Malaysia, it is concerned about the availability of building material products when needed and at stable prices (CIDB, 2020).

Additional Temporary Accommodation for Labour

During MCO, the contractor must reduce the number of workers to a minimum of 50 percent of the current number required, and working hours are limited to 8.00 am to 5.30 pm, 5 days a week, with no time extensions allowed (MITI,2020). Physical distance policies aimed at reducing virus spread to influence the number of people allowed to work in a given area, how employees perform their jobs, and how project managers anticipate the working environment (Araya, 2021). In Malaysia, if a worker at a Centralised Labour Quarters (CLQ) is found to be positive for Covid-19, the employer is required to relocate close contact workers within the same CLQ to alternative accommodation. Workers can live in a separate area of the CLQ away from the other workers and they must be watched closely to ensure that they do not leave the CLQ while under quarantine (CIDB, 2020). Compliance with the SOP stated by the government lead to the additional temporary accommodation for labour.

METHODOLOGY

The method used for collecting the data information is by using a questionnaire survey. The questionnaire has been checked and approved by Faculty/Branch Ethics Review Committee Universiti Teknologi MARA (UiTM) before it was distributed to the respondents. The population for this study is focusing on the contractors registered under Construction Industry Development Board (CIDB) in the Klang region who has affected due to the pandemic Covid-19. As for the sampling method, a simple random sampling method is used which G1 – G5 contractors have been chosen as the respondents. The primary data collections were conducted in this research which is a questionnaire survey that were distributed to the available contractors in Selangor region (Klang Valley). For the secondary data collection, the information was gained from literature reviews such as reference books, published journals, articles and research papers and the internet. This method is used to support the primary data collected.

The analysis method used for this research is descriptive statistics which is under the quantitative data analysis. In addition, this kind of method also measures central tendencies which is mean, median and mode. Hence, the result will be used for conclusion and recommendation through these methods and analysis. A total of 106 respondents participated in answering the questionnaire survey.

RESULTS

Demographic Background

General demographic data were compiled from the participants, which include their working experience and their position at the respective organization.

Table 1

Participant's demography for the study

Category	Item	Frequency	Percentage (%)
Gender	Male	56	52.8
	Female	50	47.2
Age	20-25 years old	44	41.5
	26-30 years old	30	28.3
	31-35 years old	16	15.1
	36-40 years old	9	8.5
	41 years old and above	7	6.6
Years of working experience in Construction Industry	5-10 years	87	82.1
	11-15 years	13	12.3
	16-20 years	5	4.7
	More than 20 years	1	0.9
Position in the organisation	Project Manager	18	17
	Manager	16	15.1
	Engineer	11	10.4
	Quantity Surveyor	41	38.7
	Supervisor	19	17.9
	Other	1	0.9

Source: Analysis from questionnaire

Table 1 presents the summary of the participants' demographic backgrounds. It is indicated that more men are involved in construction work than women. Most of the participants, who represent 38.7 percent out of the total participants, were Quantity Surveyors at the Contractor companies. For the working experience, most of the respondents are having 5-10 years of working experience in the construction industry; therefore, their responses and opinions are relevant based on their working experiences.

Impact of COVID-19 on the Construction Industry

Table 2 shows the findings and demonstrates the assessment of the impacts based on the level of effect using Likert's type scale. A total of 106 respondents participated in answering the questionnaire survey. It is illustrated that the pandemic COVID-19 give an impact on the total cost of the project with an average mean of 4.90. The second most affected part is the increase in project duration with an average mean of 4.89. The longer it takes to combat the pandemic, the longer it will take to complete the project. An increase in material price was at the third rank and additional temporary accommodation for labour were at the last rank. The findings highlight the importance of preparing the construction industry, particularly contractors, to deal with a sudden pandemic.

Table 2*The impact of COVID-19 on the construction industry*

The impact of COVID-19 on the Construction Industry	Frequencies for Likert Scale						Mean	Rank
	1	2	3	4	5	Total		
Total cost of project will increase	-	1	1	16	88	106	4.90	1
Increase of project duration	-	-	1	10	95	106	4.89	2
Increase of material price	-	-	1	15	90	106	4.84	3
Additional temporary accommodation for labour	-	1	1	16	88	106	4.80	4

*Source: Analysis from questionnaire***DISCUSSION**

These findings provide empirical support to the existing literature on the impact of COVID-19 on the construction industry from the perspective of contractors. The impact of Covid-19 on construction industry to the contractors in Malaysia such as the increase in the total cost of the project, an increase in the project duration, an increase in material price and additional temporary labour accommodations. This is supported by Bailey et al. (2020), the pandemic is slowing down construction efforts, resulting in project delays, interruption, and, in some cases, project suspension.

CONCLUSION

This article has investigated and assessed the consequences of pandemic COVID-19 on the construction industry from the perspective of contractors. It is statically proven that the increase in the total cost of the project, increase in the project duration, increase in material price and additional temporary labour accommodations are the main impact of COVID-19 on the contractors in the construction industry. The findings of this article are intended to help stakeholders and policymakers in the construction industry understand the impact of an unanticipated and uncontrolled pandemic faced by contractors in Malaysia in the construction industry. This will help to improve plans for dealing with any unexpected circumstances in future.

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Sekian, terima kasih.

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Saya yang menjalankan amanah,

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Setuju.

27.1.2023

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