

## **Implications of Covid-19 to the Construction Industry in Kelantan from Contractor's Perspective**

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**Abstract:** The spread of the Covid-19 virus has affected the global economy, social and commercial activities. Therefore, the construction industry in Malaysia was also affected by this pandemic where construction activities have to be stopped due to movement control order (MCO) restriction. This situation has resulted in an economic recession to the local construction industry. Corresponding to this, the purpose of this study is to identify the factors that affect construction contractors due to the Covid-19 pandemic, particularly in the district of Kota Bharu, Kelantan. Besides, it was also aimed to analyze the factors that affect construction contractors due to the Covid-19 pandemic, particularly in the district of Kota Bharu, Kelantan. This study had interviewed 5 respondents from G7 class contractor companies around the district of Kota Bharu. This study has recognized 6 main factors that affected construction contractors throughout the pandemic includes project time, cost loss, manpower, productivity, supply of building materials and employers. Overall, this study found that the pandemic has had a major impact on the local construction players. Perhaps, more strategic planning can be strategized by a construction contractors as a preparation to face such pandemic in the future.

**Keywords:** Covid-19, Constructions Industry, Contractor Perspective

### **1. Introduction**

Infectious diseases can adversely affect human populations and seriously interfere with their activities. Covid-19 is a human-to-human infectious disease caused by the coronavirus virus, SARS-CoV-2 [1]. Covid-19 pandemic cases statistics are rising day by day globally. Malaysia was also one of the countries with the highest number of cases. The virus has affected every sector of the world economy including Malaysia. Various economic sectors have also received a boost from the transmission of Covid-19 and no exception for the construction sector [2].

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In order to overcome the spread of this epidemic, countries around the world have to close their borders, commercial and social activities are delayed, and non-essential businesses are also suspended [3]. This ongoing outbreak of Covid-19 has worried all citizens, especially construction contractors, which will affect the construction industry activity in Malaysia. Therefore, this study was conducted in relation to the implications of Covid-19 transmission to the construction industry in Kelantan from the perspective of contractors which aims to identify the factors affecting construction contractors due to the Covid-19 pandemic in Malaysia.

## 2. Literature Review

### 2.1 Movement Control Order (MCO)

The initiatives and measures taken by the Government to reduce the Covid-19 epidemic are with the implementation of the Movement Control Order (MCO) which was firstly introduced on 18 March 2020 [3]. All daily, economic, political and social activities have been temporarily closed to ensure that the Covid-19 pandemic does not spread widely in Malaysia. All Malaysians were instructed to stay at home. In addition, other restrictions are also imposed including a ban on holding large-scale gatherings, health checks and quarantine [4]. On 25 March 2020 the Prime Minister, Tan Sri Muhyiddin Yassin through a national live broadcast announced that the control order was extended until 14 April 2020. However in this statement, there were control considerations further movement until the end of April or May as the number of cases in Malaysia is expected to increase by mid -April, [18]. Through the announcement given during the Movement Control Order (PKP) has started on 18 March 2020 until 31 March 2021 and PKP 3.0 throughout Malaysia from 1 June 2021 to 28 June 2021. The MCO implementation method there were several phases to deal with the spread of the Covid-19 pandemic. Table 1 shows the phases for the MCO by the Malaysian government to control the spread of Covid-19.

**Table 1: Phases of MCO**

<b>MCO</b>	<b>Phases</b>	<b>Duration</b>
1	PKP	18 Mac – 28 April 2020
	PKPB	29 April – 09 Jun 2020
	PKPP	10 Jun 2020 – 31 Mac 2021
2	Phases 1	1 Jun 2021 – 14 Jun 2021
	Phases 2	15 Jun 2021 – 28 Jun 2021

### 2.2 Impact of Covid-19 on Construction Industry

Covid-19 has caused delays in construction projects. The impact of the COVID-19 pandemic is very an important role in the economic, social, and political development of the country. Due to the lockdown situation, all sites are being closed across the Globe. The Covid-19 pandemic has emerged in the world and has affected the construction industry. Due to this outbreak, all construction activities have stopped following the implementation of MCO by the Malaysian government. For construction contractor staff working from home is not practical, as physical activity must be performed at the location i.e. the project site. In addition, there will be a high impact on the Malaysian economy if there are large construction projects that experience delays in project completion [19].

### 2.3 Impact of Covid-19 on Contractor Sector

Covid-19 has caused delays in construction projects. The data that has been collected is by using qualitative methods that are interviews between researchers and respondents in the construction industry. Interview invitation letters were sent to 94 contractor companies in class G7 in Kota Bharu, Kelantan. Several categories of delays in project construction during Covid-19 were identified: time, cost loss, labor, work productivity, material supply and employers. The main reason for the project delay is because each construction site must be closed during the implementation of the Movement Control Order (MCO) and the working period days have been shortened.

### 3. Research Methodology

This study aimed to identify the factors affecting construction contractors due to the Covid-19 pandemic. In addition, it also was conducted to analyse the challenges and implications of the Covid-19 pandemic on construction contractors in the district of Kota Bharu, Kelantan. The methodology is to use qualitative methods to gain a better understanding in obtaining data.

Qualitative methods were used to analyze the data that had been collected [9]. Data collection was obtained through the method of interviews with the staff of the G7 contractor company. These interviews were conducted through phone calls and also by messaging through the *WhatsApp* application. The sessions were recorded by the researcher according to the questions provided. Next, the data obtained were analyzed according to the content analysis method. Table 2 shows the details of the interviews conducted.

**Table 2: Details About Interviews Conducted**

No	Date	Location	Respondent
1.	14/05/2021	Online (Call)	R1
2.	16/05/2021	Online (Call)	R2
3.	20/05/2021	Online (Call)	R3
4.	22/05/2021	WhatsApp	R4
5.	22/05/2021	Online (Call)	R5

#### 3.1 Research Design

This study used a qualitative form of method in which the method focuses on a specific environment or aspect and at the same time has a main purpose to be explored [10]. The research design consisted of the study process, population and sampling, study instruments and data analysis. Data collection methods are very important to obtain the information obtained accurately and based on solid evidence. There were two types of data used in this study, namely primary and secondary data.

Primary data is the most effective data with what the researcher wants to study using the right sources [11]. In this study, an interview method was used to obtain data. The interview is an interaction between the researcher and the respondent. Interviews were conducted with the aim of obtaining information from the study respondents orally [11]. Secondary data is data obtained from reading and reference materials consisting of reading materials and references from print media such as books, journals, articles, reports, and other relevant sources.

Sample size dependence is important because it symbolizes the strength of the test results [12]. Therefore, the researcher has decided to select five respondents who have at least five years of experience in the construction industry who are staff of G7 contractor company. The population of respondents consisted of project managers, engineers, site supervisors and directors of contractor companies.

#### 3.2 Research Instruments

Research instruments are the basis for obtaining data as needed by researchers to achieve the research objectives [13]. This is because interview-type studies are usually used for qualitative data collection using questionnaires designed by researchers.

For the implementation of these interviews, it was conducted in two phases, in the first phase the researcher chose to start a general conversation where it is related to current issues but so in terms of general conversation it is related to each research question. Next question was about the main focus of the research questions posed by the researcher.

To ensure that all types of answers thrown by the respondents are not missed then the researcher takes action to record the entire interview. The interviews that were conducted were through phone calls and also messaging through the WhatsApp application. Interviews were recorded using digital recording equipment in addition to handwriting. The identities of all respondents were kept secret and considered confidential.

### 3.3 Data Collection

Qualitative methods were used and conducted through interviews to obtain more accurate data [14]. Each data obtained will be collected and filtered before the analysis process is performed. All information obtained will be analysed manually based on the order of research questions that have been set. In addition, information through interviews will be compiled and reworked in the form of transcripts so that it is easier to understand to answer all research questions. The qualitative research process begins by asking general research questions, followed by a selection of relevant subjects or topics [7]. Next is the collection of data related to the aspect focused. The results of the interpretation of existing or new data, theories or concepts can be determined. This process is done repeatedly to streamline the research questions so that clear and accurate questions can be determined. Once the theory or concept can be firmly established, the next process is the writing of the findings or conclusions obtained. Table 3 shows the details of the interviews conducted.

**Table 3: List of interviews**

No	Date	Location	Respondent
1.	14/05/2021	Online (Call)	R1
2.	16/05/2021	Online (Call)	R2
3.	20/05/2021	Online (Call)	R3
4.	22/05/2021	WhatsApp (Message)	R4
5.	22/05/2021	Online (Call)	R5

### 3.4 Data Analysis

Qualitative data used by researchers were by means of interviews and field notes. Observations in contextual form were successful during the interview process. This method can improve the understanding that facilitates for the researcher in the process of making data interpretation [9].

Each data analysis is performed to present the data in a more meaningful form. The way the data is presented shows that the researcher has analysed the data obtained systematically and effectively. The data obtained were neatly arranged and analysed systematically then the results of data analysis are displayed in the form of tables, graphs and even descriptions [15].

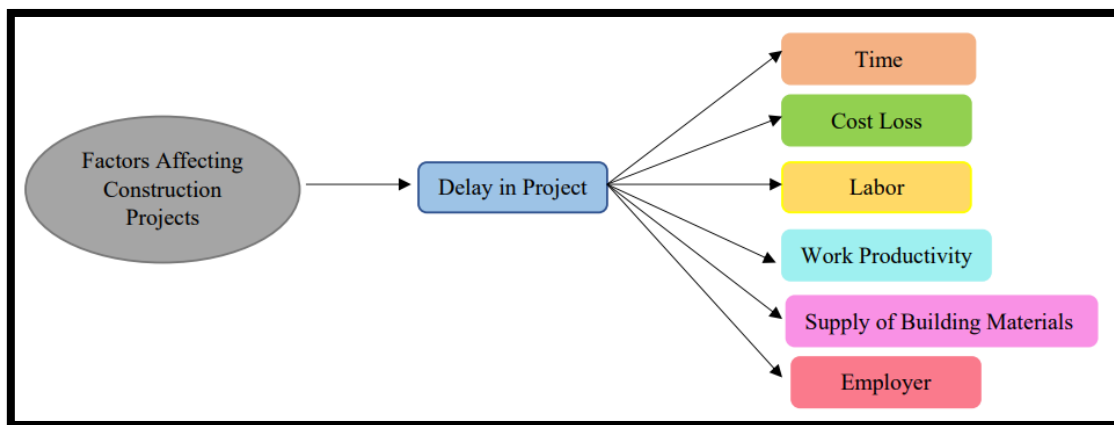
## 4. Results and Discussion

This section shows the results of interviews conducted with five G7 contractor companies in Kelantan. Respondents were interviewed to identify the factors affecting construction contractors due to the Covid-19 pandemic and analyze the challenges and implications of the Covid-19 pandemic on

construction contractors in the district of Kota Bharu, Kelantan. Table 4 shows the effect of Covid-19 on construction projects during the Movement Control Order.

**Table 4: Factors affecting construction projects during the Movement Control Order.**

EFFECT	R1	R2	R3	R4	R5
Time	/			/	/
Cost Loss	/		/	/	/
Labor	/	/		/	/
Work Productivity		/			/
Supply of Building materials	/		/	/	
Employer			/		



**Figure 1: Factors Affecting Construction Projects**

#### 4.1 Factors Affecting the Contractor

The number of COVID-19 victims is increasing day by day, and is affecting construction contractors. The construction process at the project site is disrupted due to time, cost loss, labour, work productivity, supply of building materials and employers.

##### 4.1.1 Time

Time is considered to be one of the main factors that have a high impact on project delays [16]. The spread of this epidemic has stopped all sectors from operating temporarily during the implementation of the PKP, including the construction sector [17]. All of the respondents claimed that the construction project at the project site had to be stopped following the Movement Control Order (MCO) implemented by the government to curb the spread of the Covid-19 epidemic.

##### 4.1.2 Cost

In terms of cost, two respondents stated that the company had to bear most of the cost to pay employees' salaries and pay more salaries to security guards to take care of goods at the construction site to avoid loss of machinery and equipment. Meanwhile, three respondents stated that project payment was one of the factors that caused the company's finances to be disrupted. Payment for government projects was delayed due to interruptions with government implementation during the MCO.

#### 4.1.3 Workers

Manpower shortages can also affect delays in the project construction process. Two respondents stated that the company had to lay off employees due to the closure of the project site and there were also employees who laid off themselves. In addition, two respondents said, their company lacks employees because there is no entry of foreigners into Malaysia as a result of the implementation of the MCO.

#### 4.1.4 Productivity

The success of a contractor company is based on work productivity or performance demonstrated. Some respondents said the lack of work productivity was due to the reduction in the total quantity of workers during construction work. Lack of work productivity was among the factors causing negative impact on construction projects, previously workers managed to complete 30% to 50% of work in one area or space with several workers in one day but for current pandemic situation, productivity dropped between 10 % to 30% by project [16].

#### 4.1.5 Material Supply

Two respondents reported experiencing delays in the delivery of building materials. Delays in the delivery of this material also resulted in disrupted work schedules. Delays are particularly relevant especially when the supply chain involves materials or raw materials from abroad or overseas. For example, one project manager mentioned that project materials imported from abroad would take time for delivery due to the Covid-19 outbreak. The next respondent stated that the delivery became slow because the factory and logistics experienced high demand problems causing the order of goods to be delayed.

#### 4.1.6 Employer

One of the respondents of this study is a manager of a G7 contractor company. He said employers were under a lot of pressure to think of a solution in the face of the Covid-19 pandemic. He also stated that the company experienced a huge impact in terms of cost of losses, progress in construction work and delays in obtaining claims from clients.

This study has identified the problems caused by pandemic COVID-19 on the building construction industry. There are 6 main factors that affect the construction contractors due to Covid-19 factors namely time, cost, manpower, productivity, supply of building materials and employers. The results of the study showed that Covid-19 has affected the building construction industry at the construction site by causing the problem of delay in the project construction process. The delay in the construction work was because the construction process had to be stopped due to MCO. The project time frame has been shortened for construction activities and approval by the government took too long to get permission to open the project site. The next effect that the contractor faces is cost loss. A number of companies suffered from high losses as the company had to bear most of the cost to pay employees' salaries due to many construction sites being closed. Moreover, labor shortages and productivity are among the effects that have influenced construction process delays. However, the construction industry was also affected due to lack of supply of building materials and contractors could not access raw materials, and this became a factor that hindered them in carrying out the construction process.

### 5. Conclusion

In overall, pandemic Covid-19 has affected construction contractors in the district of Kota Bharu, Kelantan. The main conclusions of this paper are summarized as follows:

- i. Delays in construction projects are among the factors affecting construction contractors.
- ii. Six factors that affect the problem of construction project delays have been identified.

Clearly, further research is needed to develop a better understanding. For example, direct interviews with individuals currently in the construction sector and direct project monitoring operating during or after Covid-19 can provide beneficial reality results. With this, it is possible that the organization can develop an accurate plan for the construction project process, which can then reduce delays for

construction projects. Further research is also needed to explore the experience of other professionals such as consultants, building material suppliers and surveyors.

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