The Impact of the Covid-19 Endemic and the Challenges Faced by Construction Industry of Category G7 in Johor Bahru

Tanusha A/P Ramani

Project Paper Submitted in Partial Fulfilment of the Requirements for the Degree of Master of Business Administration

Universiti Tun Abdul Razak

February 2022

DECLARATION

The author hereby declares that this project paper is the original study undertaken by her unless stated otherwise. Due acknowledgement has been given to references quoted in the references. The views and analyses in this study are that of author's, based on the references made; and this does not constitute an invitation to use this study as a technical tool for management purpose.

Signature : _____

Name : **TANUSHA A/P RAMANI**

Date :

ACKNOWLEDGEMENT

I am extremely happy and blessed to have completed my education with the University and first and foremost would like to thank God for his blessings shined upon me.

I owe a great debt of gratitude to everyone who had been by my side through this journey, for sharing all my happiness, sadness and tantrums but still stood by me and motivating me to go on and on not limited to this study, but for my overall life goals too. A special shout-out to my supervisor Asst. Prof. Dr. Azrul Fazwan Kharuddin who was of tremendous help to me during this tenure, without whom I would not have been able to conclude my analysis.

This is just the beginning of my accomplishments as I wish to continuously upgrade myself and hence, my loving torture to all of you will persist.

Finally, I would like to give myself a pat on the back as a form of appreciation as during the last few months of this submission, I had not given myself the due credit, rest and leisure I needed. Juggling work, life and studies at the same time was not as easy as it sounds, but I'm glad my mind and body synchronized and cooperated despite many sleepless nights and many hurried deadlines.

In the end, it was all worth every bit of it and this memory will last a lifetime.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

Abstract of the research project paper submitted to the Senate of Universiti Tun Abdul Razak in partial fulfilment of the requirements for the Master of Business Administration

THE IMPACT OF THE COVID-19 ENDEMIC AND THE CHALLENGES FACED BY CONSTRUCTION INDUSTRY OF CATEGORY G7 IN JOHOR BAHRU

By

Tanusha Ramani

February, 2022

The construction industry has a significant impact on global economic development. Construction of adequate buildings and infrastructures ensures that a country achieves specific goals such as social development, industrialization, freight transportation, sustainable development, and urbanization. This exploratory research study accesses the impact of the Covid-19 endemic in the construction sector particularly in Johor Bahru and the Malaysian Government initiatives to mitigate the Economic, Social and Industrial impact of the endemic. The semi structured interview research approach was applied with getting feedback from management levels employees of construction companies in Johor Bahru with sampling design of 122 (respondents who participated in this study). The construction companies were chosen at random based on category G7 on companies' listings on the Malaysian Construction Industry Development Board (CIDB) website, and content analysis was used to determine the main outcomes using SPSS software. Quantitative method was applied in this research to give a comprehensive approach and supportive of research outcomes. Results from the questionnaires found that the pandemic has resulted in 5 (five) main impacts consists of (1) financial constraints; (2) increase in raw material price; (3) Contractual Implication; (4) delay in construction progress and completion and (5) expensive to implement new Act 446. This exploratory research further suggest directive to future researchers to study in-depth related to the endemic and the construction industry, which in return could help the sector transition towards the new normal.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Somewhere during the end of year 2019, the world was hit by an unknown respiratory syndrome; it was the Coronavirus (SARS-CoV-2); now infamously known as COVID-19. It came as a surprise and is believed to first be founded in the Mainland China without any warning or whatsoever. It was first traced as a flu-like disease that gave severe respiratory issues; patients started succumbing, disease started spreading like a wild fire to other parts of the world such as Malaysia, Korea, United States of America, Iran and many more. Any kind of close contact proved to be a risk of spreading the virus. It was first reported on the 27 December 2019 and became publicly declared on 8 January 2020. Sooner enough, China declared this as a pandemic and immediately imposed drastic measures such as compulsory face mask usage and total country shut down for a few months. This disease and its pathogen were firstly identified in Mainland China manifesting as a pneumonia case; and upon further research it was then conformed as being spread from cases related to the Huanan Seafood Market, in Wuhan, the capital of Hubei province. Soon enough the outbreak started across the world via travelers and gradually all countries started imposing strict travel restrictions and closing the gates totally on all entry and exit borders and all kind of tourism activities. On 31 January 2020, World Health Organization (WHO) declared the outbreak a Public Health Emergency of International Concern. The first imported case of Covid-19 was confirmed in Johor Bahru on 25 January 2020; and by March 2020 it started emerging locally. Due to the sudden spike in Covid-19 cases locally transmitted in Malaysia within the few weeks, the Government announced a nationwide lockdown knows as Movement Control Order (MCO) starting from 18 March 2020 until 4 May 2020 and progressively continued until the first week October 2021.All the measures of containment have affected the Economic performance of Malaysia with a decline of 4.5 % Gross Domestic Product (GDP) for full year 2020 (FY2020). The daily economic worth of Malaysia also declined to a mere RM 700 million a day for the year 2020 in comparison to just a year earlier where the daily income would be locked in at approximately RM 2.4 billion daily.

For the first quarter of 2021, Malaysia's Gross Domestic Product (GDP) improved in comparison to previous year though still on the declining side at a mere 0.5 %. But this is a news to celebrate as this signifies rebound from the previous year and hopes of a better economic scale is present. The gradual recovery of the Gross Domestic Product (GDP) performance for the year 2021 is attributed towards more economic sectors being re-opened from the second quarter 2021 in line with the vaccination rates that reached the optimal 80 % target for herd immunity.

In order to maintain a healthy economic range, the Ministry of International Trade and Industry (MITI), announce that the government will begin treating Covid-19 as an endemic disease and hence Malaysia moved towards the endemic way of life from the end of October 2021.

Construction sector plays a significant role in economic growth due to its dynamic nature in linking various sectors in the economy, where these linkages generate a multiplier effect that impacts the national income. Construction sector not only plays a critical role in contributing to the country's economic growth, it also helps to improve the quality of life in Malaysia. In addition, the construction industry also contributes in generating employment within Malaysia's economy.

Taking the state of Johor as a focal point in economic contribution towards Malaysia's economy, the state contributes a notable 9.6 % , after Selangor and Wilayah Persekutuan Kuala Lumpur which contributes 24.3 % and 16.1 % towards the country's Gross Domestic Product (GDP) respectively (DOSM, FY2020). However, the performance for construction sector in Johor had a sharp decline of negative 37.7 %. as can be seen from figure 1.1 and 1.1.1 below:

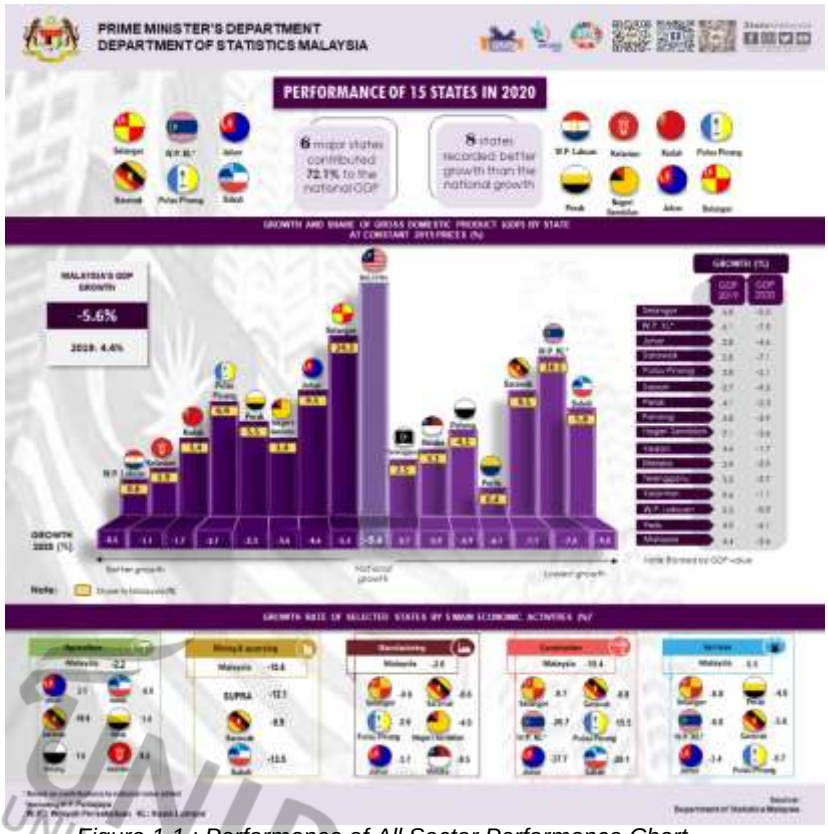


Figure 1.1 : Performance of All Sector Performance Chart

State	Agriculture	Mining & quarrying	Manufacturing	Construction	Services	GDP 2020	GDP 2019
WPLabuan	-13.6	-	-1.2	-8.2	0.1	-0.5	5.3
Kelantan	0.2	-12.8	-5.1	3.5	-1.0	-1.1	5.6
Kedah	-1.8	-5.9	1.4	2.0	-3.6	-1.7	4.6
Pulau Pinang	-0.8	-13.8	2.8	-15.5	-5.7	-2.1	3.8
Perak	1.4	-9.3	3.5	-17.4	-4.0	-2.3	4.1
Negeri Sembilan	-6.6	-11.2	-4.9	-25.6	-1.1	-3.6	5.1
Johor	3.1	-14.5	-3.7	-37.7	-3.4	-4.6	2.8
Selangor	0.3	-6.9	-0.6	-9.7	-6.8	-5.3	6.8
MALAYSIA	-2.2	-10.6	-2.6	-19.4	-5.5	-5.6	4.4
Terengganu	-3.4	-7.9	-9.4	-7.3	-3.4	-5.7	3.3
Melaka	3.7	-10.3	-8.5	-26.9	-4.6	-5.9	2.9
Pahang	1.6	-19.9	-4.0	-21.7	-8.7	-5.9	3.8
Perlis	-18.5	-8.8	-5.6	-9.6	-1.2	-6.1	4.5
Sarawak	-10.0	-5.9	-8.6	-8.8	-5.6	-7.1	2.8
WPKL*	3.3	-8.6	-6.3	-26.7	-6.0	-7.5	6.1
Sabah	-6.6	-13.5	-6.5	-29.1	-7.4	-9.5	0.7
SUPRA	-	-12.1	-	-	-	-12.1	-0.6

Figure 1.1.1 : Performance of All Sector Performance Chart

Taking into the account the performance of construction sector for first quarter of 2021, the sector recorded a despairing negative 10.5 % decline in total value of work done. This was mainly attibuted to the MCO that had been extending since March 2020 till October 2020. Unfortunately, due to the rising Covid cases, critical state of Intensive care unit (ICU) in hospitals as well as quarantine centres, and the increasing number of deaths in the country, the then Prime Minister of Malaysia Tan Sri Muhyiddin Yassin had again reinstated the total lockdown which came in force on 11 January 2021 right until middle of the 2021. The movement control order (MCO) as understood has restricted all kind of social activities banned, interstate travelling restricted, tourism curtailed and dine-in not allowed, and most predominant which will be discussed further in this report is the limitation of work activities and manpower for the working class especially in the construction sector. Nevertheless, most of the sectors was allowed to operate including the construction sector but it came together with strict regulation from the governing authority known as Ministry of International Trade and Industry (MITI). In a press release dated 13 April 2020 and all subsequent release, Ministry of International Trade and Industry (MITI), allowed contractor that fits the below description operate in full capacity upon obtaining approval from Ministry of International Trade and Industry (MITI), via their online portal known as CIMS 1.0 and gradually upgraded to CIMS 3.0 (known now).

i. Main contractor (CIDB) category G 1 and G2;
ii. Project that has achieved 90% completion;
iii. Tunnel projects;
iv. Building maintenance works;
v. Slope maintenance works;
vi. Sudden emergency works;
vii. Project with 70% IBS score;
viii. Construction of workers dorm;
ix. Professional services such as building surveyors and consultancy;

During this period a majority of large construction firm was still unable to operate as they do not constitute under the above Ministry of International Trade and Industry (MITI), classification. Therefore, it is clear that construction companies that construct significant projects such as commercial properties, high rises, infrastructure, residentials and the like under the category G7 of the Construction Industry Development Board (CIDB) classifications which majorly has huge numbers of workers could not continue with their day-to-day operations.

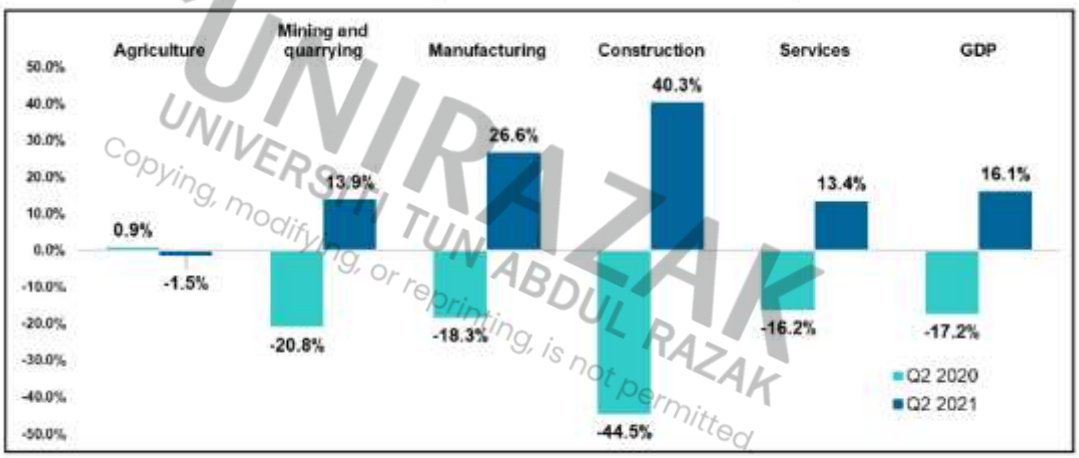
For the second quarter (Q2) of 2021, the Malaysia GDP recorded a steady growth of 16.1 % after FY2020 contractions. This was because towards June 2021, all construction sectors were allowed to operate in full scale with compliance to strict Standard Operating Procedures (SOP) such as social distancing, limited number of workers based on vaccination rates, wearing of medical mask and multiple hand sanitization which is infamously known as the ‘new norm’. During the Q2 period of 2021, the accomplishment of the construction sector rose from a negative 10.9 % in Q12021 to an implausible 40.3 %. Specialized construction activity and civil engineering both grew by 58.1% and 50 %, respectively, which supported the Gross Development Product (GDP) performance of the country. Furthermore, the performance of residential buildings improved by 16.3%, and the linked sub-sector improved as well.

Chart 1: GDP (RM Billion) and Annual Percentage Change (%)

Source: Department of Statistics Malaysia

Figure 1.2: GDP and Annual Percentage Change

Chart 4: Quarterly GDP Growth by Kind of Economic Activity



Source: Department of Statistics Malaysia

Figure 1.3: GDP Growth of All Economic Sectors

1.1.1 Construction Company Grades Classifications by CIDB Malaysia

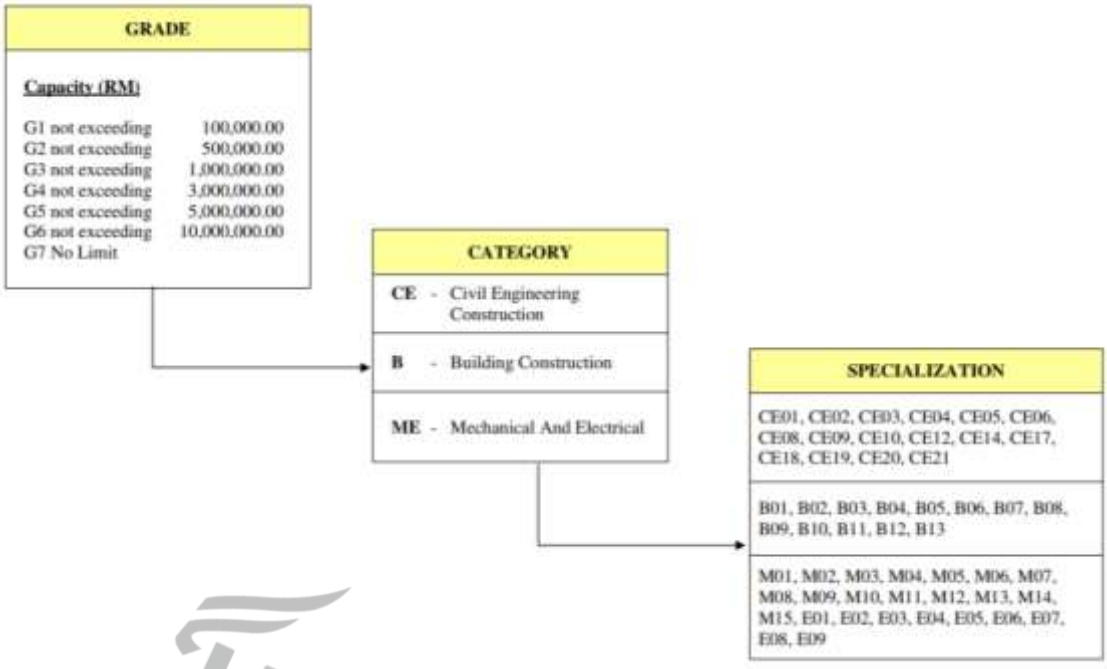


Figure 1.4: CIDB Grades Classification

Further exploration on the subject matter has further conformed that the pandemic; now moved towards the endemic phase has definitely had enormous on the impact in terms of safety, financial and operational constraints on the construction industries' as follows:-

1.1.2 New Regulation According to Workers Minimum Standard of Housing and Amenities Act 1990 (Act 446)

- Contractors need more time to comply to new regulation on workers accommodation which came into effect on 1 September 2020 says the Johor Masters Builders Associations. This enforcement was a double blow to all contractors, as contractors with large number of foreign workers could not be making changes immediately; besides adhering to rules which was very costly. Slowly but surely compliance can be done, but ample of time was needed (Tee See Kim, President, Johor Builders Masters Association);

- Though the Act was existence since the year 1990, sudden enforcement was a far cry for perfection, as contractors needed knowledge as well as revenue in order to implement within such a short notice (Johor Indian Chamber of Commerce and Industry secretary Datuk K. Krishnan) (Sunday Star, 2021);
- During inspection and enforcement on foreign workers accommodation done nationwide by the local authority, directed by the Human Resource Ministry, it was founded that only 26.1 % complied to the new regulations (Datuk Awang Hashim, Sunday Star, 2021);
- Space constraints, conversion of land use and differing local municipal council requirement further creates disputes to the already tough scenario. Not all sites are conducive to meet the law requirements especially when the construction project works are running on a full-scale basis. Cost pressure was also a factor to consider (Dato Hoam Seng Choon, REHDA President, Sunday Star, 2021);
- Requirement to build workers housing on residential plot of land also requires a lot of time as conversion land status from Agriculture to 'residential' was very time consuming and proof to be an obstacle; compliance was also challenging as local authority requirement was also differing and contradicting from one another; for example, certain municipal council allows for accommodation to be set up at factory lots, some municipal council don't (Datuk Low Kian Chuan, National Chamber of Commerce Secretary General, Sunday Star, 2021);
- Obtaining a Certificate of Fitness of Occupation (CFO) for newly built dormitory also proof to be a challenge as its time consuming as all applications has to pass 6 (six) departments for an approval. To make it worst, different authorities require different compliance. For example, in some states hostel within the main property is allowed, whereas in some, hostel should be out of the main property (Matthew Law, Malaysian Factory Council Secretary-General, Sunday Star, 2021);

- Complying to the latest housing law means that all employers would need bigger space of at least 3.6sqft per person. Previously 4 (four) workers can be placed in a space of 3.6sqft in double decker beds, but with the new law, only 2 (two) people is allowed in that space area. In Penang alone with approximately 150, 000 foreign workers, this requirement would mean that space requires would double up in size. Employers are finding it hard to comply mainly due to space constraints (Datuk Jimmy Ong, Federation of Malaysian Manufacturers, Sunday Star, 2021).

Actual notices related to Act 446 as per figures below:

Figure 1.5: Extraction from Presentation on Act 446

Lampiran 4

JABATAN TENAGA KERJA SEMENANJUNG MALAYSIA
KEMENTERIAN SUMBER MANUSIA

PEMATUHAN DI BAWAH BAHAGIAN IIIA AKTA STANDARD MINIMUM PERUMAHAN, PENGINAPAN DAN KEMUDAHAN PEKERJA 1990 DAN PERATURAN-PERATURAN DI BAWAHNYA

BIL	PELANGGARAN	KESALAHAN (TANDAKAN X)			DENDA
1	Seksyen 24D	Penginapan tidak mempunyai Perakuan Penginapan			Denda tidak melebihi RM50,000
2	Seksyen 24E	Gagal memberikan Notis Pendudukan			Denda tidak melebihi RM50,000
3	Seksyen 24F	Bangunan tidak memenuhi standard minimum			Denda tidak melebihi RM50,000
			i. Tiada ruang rehat.		
			ii. Tiada ruang makan dengan kerusi dan meja.		
		Bangunan penginapan/ penginapan berpusat berbentuk bukan dormitori	iii. Tiada Bilik tidur.		
			iv. Tiada ruang dapur.		
			v. Bilik air dan tandas (sama ada berasingan atau bersekali) kurang dari nisbah 1 bilik air dan tandas : 8 orang pekerja.		
			vi. Tiada kipas bagi setiap ruang rehat, ruang makan dan bilik tidur.		
			vii. Tiada lampu bagi setiap ruang rehat, ruang makan, bilik tidur, bilik air dan tandas.		
			viii. Tiada ruang untuk menyidai pakaian.		
			ix. Tiada alat pertolongan cemas.		
			x. Tiada tong sampah.		
		Bangunan penginapan/ penginapan berpusat berbentuk dormitori	i. Tiada ruang rehat.		
			ii. Tiada ruang makan dengan kerusi dan meja.		
			iii. Tiada ruang tidur.		
			iv. Tiada ruang dapur.		
			v. Bilik air dan tandas (sama ada berasingan atau bersekali) kurang dari nisbah 1 bilik air dan tandas : 15 orang pekerja.		
			vi. Tiada kipas bagi setiap ruang rehat, ruang makan dan ruang tidur.		
			vii. Tiada lampu bagi setiap ruang rehat, ruang makan, ruang tidur, ruang tidur, bilik air dan tandas.		
			viii. Tiada ruang untuk menyidai pakaian.		
			ix. Tiada alat pertolongan cemas.		
			x. Tiada Tong sampah.		

Figure 1.6 :A copy of Ministry of Human Resource Notice of Penalty

Lampiran 4

BIL	PELANGGARAN	KESALAHAN (TANDAKAN √)			DENDA
4.	Seksyen 24(3	Potongan sewa dan caj penginapan melebihi kadar dibenarkan.			Denda tidak melebihi RM50,0
5	Seksyen 24(4	Penginapan tidak mematuhi undang-undang pihak berkuasa tempatan.		✓	Denda tidak melebihi RM50,00
6	Peraturan 4	Kemudahan asas yang tidak boleh dikongsi	i. Tiada katil		Denda tidak melebihi RM50,00
			ii. Katil disediakan tetapi saiz katil kurang daripada 1.7 meter persegi		
			iii. Ruang antara dua katil bertingkat kurang daripada 0.7 meter		
			iv. Tiada tilam, bantal dan selimut	✓	
			v. Tilam disediakan tetapi ketebalan kurang daripada 4 inci		
			vi. Tiada almari berkunci	✓	
			vii. Almari berkunci disediakan tetapi ukuran kurang daripada 0.35 meter panjang X 0.35 meter lebar X 0.9 meter tinggi		
7	Peraturan 5	Saiz kelusaan lantai bagi bilik tidur dan ruang tidur	i. Kelusaan lantai bilik tidur untuk setiap pekerja di penginapan/penginapan berpusat bukan berbentuk dormitori kurang daripada 3.6 meter persegi		Denda tidak melebihi RM50,00
			ii. Kelusaan lantai bilik tidur untuk setiap pekerja di penginapan/penginapan berpusat berbentuk dormitori kurang daripada 3.0 meter persegi	✓	
8	Peraturan 6	Tiada bekalan air dan bekalan elektrik di penginapan/ penginapan berpusat			Denda tidak melebihi RM50,00
9	Seksyen 24(2	Kewajipan dan tanggungjawab berkenaan dengan keselamatan dan kesihatan	i. Tidak menyediakan penginapan berasingan untuk pekerja yang berkerja jantina.	✓	Denda tidak melebihi RM50,00
			ii. Tidak mengambil langkah pencegahan untuk memastikan keselamatan dan kesejahteraan pekerja.		
			iii. Tidak mengambil langkah keselamatan kebakaran mengikut undang-undang bertulis berkuatan.		
			iv. Sistem pendawaian elektrik tidak memadai kehendak keselamatan mengikut pihak berkuasa berkaitan.		
			v. Tidak menyediakan kepada pekerja bantuan perubatan yang diperlukan.		
			vi. Tidak melaksanakan langkah pencegahan untuk membendung penyebaran penyakit berjangkit sebagaimana diarah oleh Pegawai Perubatan Kesihatan.		
			vii. Tidak memberikan imunisasi dengan perbelanjaan majikan kepada pekerja yang mengidapati penyakit berjangkit.		
10	Seksyen 24(5	Tidak melaksanakan penyelenggaraan ke atas penginapan/ penginapan berpusat			Denda tidak melebihi RM50,000
11	Seksyen 24(	Tidak melantik orang bertanggungjawab bagi penginapan			Denda tidak melebihi RM50,000

Figure 1.6.1 :A copy of Ministry of Human Resource Notice of Penalty

Bil : 602

NOTIS PEMATUHAN PENEMPATAN PEKERJA ASING
DALAM KAWASAN MAJLIS BANDARAYA JOHOR BAHRU

ADALAH DIMAKLUMKAN, bahawa kawasan kediaman (perumahan) adalah tidak dibenarkan untuk dijadikan penempatan pekerja dimana lanya adalah bercanggah dengan Garis Panduan Piawaian Perancangan Asrama Pekerja, Majlis Bandaraya Johor Bahru.

SILA AMBIL PERHATIAN bahawa Tuan / Puan dengan ini adalah dikehendaki mengosongkan kediaman tersebut dan / atau berpindah ke lokasi asrama pekerja yang disenaraikan dalam tempoh 30 hari dari tarikh Notis ini diterima bagi mengelakkan tindakan penguatkuasaan.

Bersama-sama ini disertakan senarai asrama pekerja yang telah diberi kelulusan dan masih mempunyai kekosongan untuk diambil perhatian oleh pihak tuan.

Bagi makluman pihak tuan, pihak Majlis Bandaraya Johor Bahru telah mengenalpasti kawasan-kawasan yang dibenarkan untuk penempatan pekerja asing. Maklumat tersebut boleh didapati di kaunter Jabatan Perancangan Pembangunan, Majlis Bandaraya Johor Bahru atau diakses melalui pautan https://www.mbjb.gov.my/ms/garispanduan-asrama-pekerja.

Bertarikh: 22 Mac 2021

Figure 1.7 : Notice of Vacate from Local Municipal Council

Figure 1.8 : Extraction from a presentation material from Local Municipal Council (MBJB)

1.1.3 Construction Material Price Increase

- In October 2021, the Building Material Cost Index (BCI) (without steel bars and with steel bars) climbed by 0.1 to 2.3 percent in Peninsular Malaysia. Perak saw the biggest increase in steel prices, at 3.4 percent, followed by Sandakan (2.7 percent), Miri (2.6 percent), Selangor and the Federal Territory of Kuala Lumpur (2.2 percent), Sibu (0.5 percent), and Kuching (0.5 percent) (0.1 per cent). The price of building materials, such as cement, steel, and iron, has risen as the price of coal and petroleum products has risen around the world. Due to the government's implementation of the Movement Control Order in June 2021 and the four phases of the National Recovery Plan, building materials became more expensive after construction activities restarted. Following the rise in the price of construction materials, particularly steel and cement, the Malaysian Public Works Department has recommended that the Ministry of Finance extend the Variation of Price till next year to ensure that government projects are not hampered and can be completed on time. (DOSM, 2021);

- The upward climb of construction price has surged from 18 % (eighteen percent) to 21 % (twenty one percent) within 9 (nine) months of the pandemic. Essential T10 rebar which is used to construct columns and beams has increased as must as 21 % (twenty one percent) from RM 2400 to RM 2900 per tonne. Similarly, reinforced steel bar price has risen from RM 2280 per tonne on first quarter of 2020 to RM 3000 of fourth quarter of 2020 which account to approximately 18 % (eighteen percent) increase from the previous year. Datuk Soam Heng Choon REHDA, 2021);
- This increase has not been included with hike with general items such as cement, sand and bitumen. (Md Nasir Ibrahim, chairman of the Guild of Bumiputra Contractors Bhd, daily express, 2021). An increase in construction material price would ultimately be passed over to buyers of properties; as such government intervention is relatively vital to control rising price of raw materials. Smaller stakeholder is also experiencing a huge hit due to this price hike and its especially damaging when there is limited to no revenue during the pandemic and MCO but expenses are sky rocketing with placements of new SOP's, medical expenses, compensations and so on. It was suggested to include price variation clause in contract to protect small contractors and stakeholders (Master Builders Association of Malaysia, 2021);
- Continuous price hike without control by the Government will lead to price being imposed to purchasers by way of expensive property price; and in some cases, projects might be left abandoned, halted, or slow progress as contractors are not able to finance it. This will lead to suffering not only for the general public and companies, but towards the Government as well. An increase in construction material cost will have a snow ball effect on rising price of properties as it constitutes the overall construction cost of contractors and Nominated Subcontractors (NSC).

Moreover, during negotiation stages, price will likely be discounted which will lead to poor quality of work and professionalism (Anthony Lee Tee, Bina Puri Holdings Bhd chief operating and transformation officer, 2021).

1.1.4 Overloaded with Continuous Enforcements and Notices by Various Regulating Bodies

i. Jabatan Kerja Raya (JKR), Construction Industry Development Board (CIDB), Local Municipal council and Ministry of International Trade and Industry (MITI)

- For instances, The Jabatan Kerja Raya (JKR) has fixed operation hours for construction firms to be from 8.30 am to 5.30 pm for as long as the Movement Control Order (MCO) is still enforced (relevant from MCO 1.0 to MCO 3.0); however, the local municipal council Majlis Bandaraya Johor Bahru (MBJB) and Majlis Bandaraya Iskandar Puteri (MBIP) has stated working hours for construction sector to remain as usual; whereas the authority governing the construction does not indicate working hours of construction projects. To make it worse, the SOPs varies from districts and zones under the Movement Control Order MCO (PKP), Conditional Movement Control Order CMCO (PKPB), Enchanched Movement Control Order EMCO (PKPD) enforcements.

ii. CIDB and JKKP (DOSH)

- Both this local Authority has the prerogative to instruct and impose relevant regulatory for construction industries in different sections. For instance, Construction Industry Development Board (CIDB) can impose notices should the company does not comply to items such as non-registration/non-declaration of the main-contractor and appointed sub-contractors on the CIMS portal of Construction Industry Development Board (CIDB), non-compliance towards building material quality, non-compliance toward scaffolding and staging,

falseworks, valid identification documentation of foreign workers on site, construction personnel registration card (green card) , skill workers accreditation competency card and the link related to construction works only.

- On the other hand, Department of Occupational Safety & Health (DOSH) has a different rule set only related to safety, health and welfare of all workers on site in compliance to Act 514 (1994) and Factory and Machinery Act 1967. Under the DOSH regulation, they have the rights to implement regulation related to swab test, vaccination and quarantine as its related to the health and welfare of each worker. However, during the pandemic stage, both the CIDB and DOSH does enforcement and issues Notices of Penalty (NOP) and Notices of Improvement (NOI) on separate times and contractors are left confused on which regulation is the confirmed one in order to follow.
- In addition, contractors are also left overloaded with further implications by more enforcement done by Kementerian Kesihatan Malaysia (KKM), Polis Diraja Malaysia (PDRM) and even the local Municipal Council all related to the same issues.

1.1.5 Safety Regulations, Limitation of Number of Worker, Swab Test and Vaccination Drives

- When the MCO 1.0 was lifted on May 2020, which then subsequently changed to CMCO, then MCO again which then continued to MCO 1.0 to-date MCO 3.0; one thing remained constant; it is the stringent rules on workers social distancing, wearing of medical masks throughout their working hours, daily temperature recording as well as 1 day 3 times sanitization of canteen, office and sites. During MCO 1.0, all sector needed to get approval from MITI to operate, and number of workers allowed was limited 50% (fifty percent) capacity and Work from Home (WFH) was encouraged.

- However, it is a known fact that WFH was not possible for the construction project team. Physical work was the only means of delivering a completed project.
- During MCO 2.0 phase, construction industry was allowed to operate with 30% (thirty percent) attendance from management level, and the management decides on their downlines;
- However, during MCO 3.0 with tighten SOP's, the number of workers were limited to 60% (sixty percent); this was a major hindrance, as it's almost impossible for a construction site that build few blocks of high rise, work only on 60% (sixty percent) capacity. This would further delay progress; and while all this new SOPs are being implemented, the Government did not have an option for contractors to claim loss time, or EOT or any sort of extension for the projects that is well into delays. This non-interference or lack of legal bindings to protect the contractors from further loss was damaging, as contractors could be slapped with Notice of Non-Completion and further Liquidated Ascertain Damages (LAD) which could also eventually bankrupt the contractors, and cause increased unemployability due to retrenchments.
- Compulsory Swab test of either RTK-Antigen (nasal and/or saliva) PT-PCR swab test was made mandatory by the Ministry of Human Resource to be done every fortnightly as can be seen in the latest SOP (figure 1.9) released on 20 October 2021. Typically, 1 (one) construction site has a minimum of 150 foreign workers, and since cost of test has to be borne by the company, it has affected the financial cashflow of the contractors and their subcontractors.
- Furthermore, regulation on vaccination numbers for workers has not only burned a hole in contractors cashflow, but it has also further contributed to the halt of construction works as workers needed to get vaccinated in order to work on full capacity.

- The Construction Industry Vaccination Program (CIVac) is a Malaysian initiative led and administered by CIDB; to increase vaccination uptake among the construction workforce in order to develop herd immunity and minimise the number of COVID-19 workplace clusters. This would safeguard employees' well-being and, as a result, aid Malaysia's economic recovery. Yet, this initiative also came with additional cost to the employer as though the vaccines are free, but there is a sur-charge of RM 90/pax being payment administrative fee as can be seen from figure 1.9 below.
- This surcharge was not the only cost the company had to bear, whereas; transportation fees for 2 (two) trips for both doses, quarantine fees, stop of construction works on site which led to risk of LAD, special insurance was also involved.

Figure 1.9: SOP Phase 4

Figure 1.10: Vaccination Fee Notice

1.2 Problem Statement

The economic growth of a country is linked to its prosperity, and all sectors, such as primary, secondary, tertiary, and quaternary, contribute to the economy's stability. The building industry is crucial because it represents the country's prosperity, health, and quality of life. Because the construction sector is the backbone of any country's economic growth, it has an impact on every sector's role at all levels of the economy. Developing countries rely heavily on the building industry to carry out their long-term development plans. In terms of money circulation, the building industry has a direct impact on social and economic development. Because the construction industry plays such a large part in the economy, its influence on a country's economy is linked to forward and backward links with other industries. Because these ties to other sectors are based on performance, any change in one of them will have a big impact on the country's economy. As a result, the building industry has a significant impact on a country's socioeconomic features.

Furthermore, the Government should consider the extent to which COVID-19 endemic causes huge loss such as potential project delays, cost overruns, claims, or material adverse consequences or effects, trigger notification requirements. Uncertainty about the duration and severity of this crisis made it difficult to predict how the industry will recover.

Financial constraints and confusion over new standard operating procedures (SOPs) are to be blamed for the construction industry's slow restart. This is despite the government's billion-ringgit investment in stimulating the economy, as well as comprehensive SOP guidelines developed by ministries to ensure businesses can operate while containing the virus's spread.

Despite being one of the first industries to reopen under the Movement Control Order (MCO), 4,000 construction projects remained stalled, according to government figures. As of Q4 2020, CIDB reported that 5,528 of the 7,699 construction sites inspected in Malaysia were idle.

In a survey conducted by CIDB on the end year of 2020 to find the root cause of hesitant amongst contractors to resume its business, it was found that 26 % had financial issues, 21% are confused over new SOPs, 12 % had issues with supply chain of raw materials, 18 % were having issues with mandatory swab test (RTK-Antigen and/or RT-PCR), 6% had issues with shortages of manpower, whilst the balance percentages had issues with closing in the form of work from home (WFH) of relevant government agencies, roadblocks and fear of the Covid-19 virus infections. The said above did not improve until Q2 of 2021.

The construction industry was nearly stagnant in 2020 due to a halt in several mega construction projects, as well as an increasing inventory of unsold housing stocks. Construction value add fell 7.9 percent year on year in Q1 2020 as a result of the slowdown, which was exacerbated by restrictions imposed by the Movement Control Order (MCO).

Even before the outbreak, the residential market was already struggling due to rising building costs, shortages of skilled labour, and massive unsold inventories (Dhananjay Sharma, 2020) but was showing signs of recovery. However, the market faces additional risk because the economy is expected to enter a recession in the second quarter and people are taking more precautions when making home-buying decisions in addition to the other struggles faced by the contractors by itself.

According to Bank Negara Malaysia, the total value of construction loans disbursed fell by 6.7 percent year-on-year in the first four months of 2020. In April alone, the value of loans fell 32.9 percent year on year, from MYR7.5 billion in April 2019 to MYR5 billion in April 2020.

Assuming that the COVID-19 crisis is resolved in 2021, the industry will recover, with an average annual growth rate of 6.8 percent between 2021 and 2024, thanks to investments in infrastructure, healthcare, education, and renewable energy projects. The government approved a budget for 2021 worth MYR322.5 billion (US$73.3 billion), the largest in the country's history, and is 2.4 percent higher than the budget for last year, which was MYR314.7 billion (US$76 billion). 73.3 percent of the total budget is allocated to operational expenditure, 21.4 percent to development expenditure, and the remaining 5.3 percent is allocated to COVID-19.

It should be iterated that, during the pre and post pandemic, very little was done to uplift the construction/building/engineering sector of the country as the Government focused on lending its financial support to SME’s.

Since the year 2020, the Government has had many incentives for the SME’s figure 1.11 such as the special relief facilities, Automation and Digitalization Facility (ADF), Agrofood Facility (AF) and Micro Enterprises Facility (MEF), Micro Credit Scheme, Government Guarantee Scheme and employer Covid-19 assistance programme just to name a few; however, there was very little done to help the large businesses such as the construction sector to overcome the hard times which would have been a big relief.

In my opinion, the large business that employs hundreds of workers, which mega project, million to billions of Ringgit worth of GDP would require the financial aid more than the Small Medium Enterprise (SME) as the economic and social impact it would have on the country should the business winds up will be enormous from bad debt to unemployment.

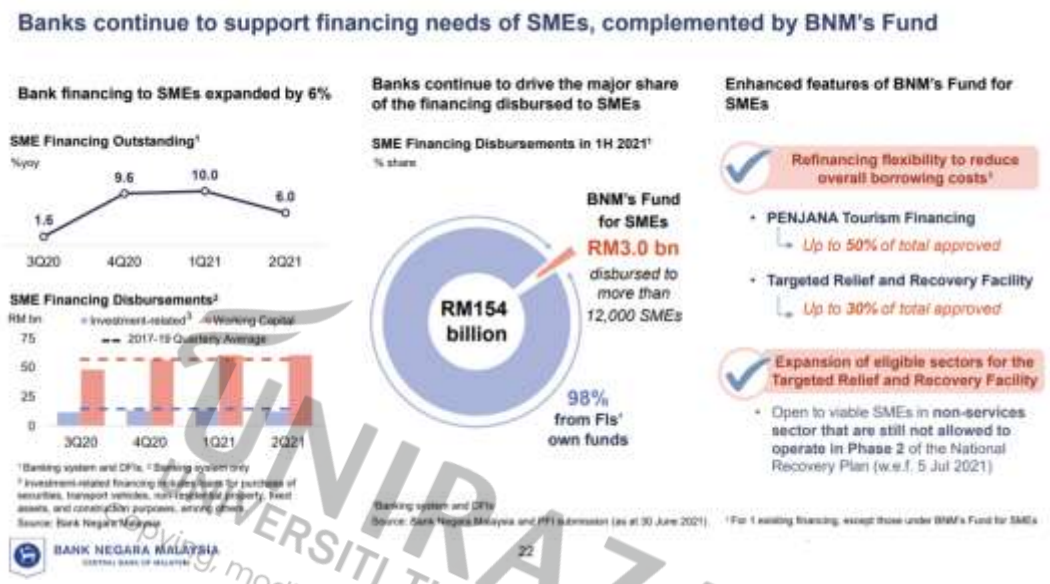


Figure 1.11: Banks support on SME

Even during the 2022 budget announcement made on October 2021, there were no announcements of large construction and infrastructure projects to reinvigorate the Malaysian construction industry. On the hindsight, the government will continue to construct small and medium projects worth a total of RM2.9 billion across the country, focusing on Class G1 to G4 contractors (Malaysia Ministry of Finance, Datuk Seri Tengku Zaful, 2021); again, not focusing on category G7 contractors.

In summary, the pandemic and endemic phase both have had a significant impact on the construction industry, whether they are established companies or small and medium-sized businesses. The consequences affect not only the financial aspects of the project, but also the project's success and performance. As a result, the productivity of project performance has decreased, and delivering a project is seen as difficult during this time.

Aside from the previously discussed project success and performance, one of the factors in successfully completing the project should be the safety and health of the workers or the environment of construction sites, as well as regulatory compliance which is most definitely a challenge during the endemic as any violations will cause the construction site to be closed by the authorities such as CIDB, DOSH, JTK as well as the local municipal council.

1.3 Research Objective

"Nation building requires involvement and contribution of efficiency, productivity, cost competitive and environmentally friendly in construction industry. Nation will be able to develop and utilize their resources more efficiently than others" (PM Dato' Seri Abdul Bin Ahmad Badawi, 2007).

It is undoubted that construction sectors in Malaysia assumes an important role in in creating quality life for each citizen as well as generating income to the country both socially and economically with its building and infrastructure construction. This in terms also helps in the growth of other industry such as banking, manufacturing and professional services; which is known as a multiplier effect.

It goes without saying that the construction has played a vital role in terms of revenue generation, capital formation, and most importantly promising employability to hundreds of thousands of local workers as well as foreign labours. As the construction sector denotes vast contribution towards the countries' Gross Domestic Product (GDP) as well as socio-economy, it is important to ensure the health and sustainability of this sector. This sector provides basic amenities of roof above heads namely residential properties such as landed houses, apartments, condominium, flats and so on; commercial properties such as shops, officer towers, hotels and other tourism spots, not ignoring the fact of hospitality they provide in the names of Hospitals; moreover infrastructures in terms of roads, highways, ports, airports, drainage,

sewage systems, telecommunications and all are packed in the one word ‘construction’ and this involves a huge percentage of giving quality lifestyle and homes to all individual in the whole world. Therefore, magnifying on issues faced by the construction sector in Malaysia specifically Johor Bahru is much needed.

In terms of Safety, Health & Environment (SHE) is concerned in the construction sector, before the pandemic and MCO was announced, all safety practitioner only had to refer to 2 (two) guidelines which are the Occupational Safety and Health Act 1994 (OSHA) and Factory and Machinery Act 1967 (FMA); however, after the pandemic there are now new regulations that a construction company is needed to comply coming from Jabatan Tenaga Kerja (JTK) under the Ministry of Manpower which stresses on accommodation, Kementerian Kesihatan Malaysia (KKM) which relates to massive levels of swab test, Construction Industry Development Board (CIDB) and the local municipal council known as Majlis Bandaraya Johor Bahru (MBJB) and Majlis Bandaraya Iskandar Puteri (MBIP) respectively depending on the locality of the construction site. This too has further impacted the progress and cash flow of each company due to the variance of information disseminated to the public.

On 30 March 2021, Real Estate & Housing Developers' Association (REHDA) announced that almost 75 % (seventy five percent) of contractors and developers see a decline in performance and efficiency which in terms impacts they construction progress and to exacerbate the situation, complex new rules and regulations set up by the few authorities further imposes delay of between 10 (ten) to 14 (fourteen) days in resuming its operations. Further survey done by REHDA on the month of October 2020 with 121 (a hundred and twenty-one) REHDA member further revealed that almost 82 % (eighty two percent) of respondents are facing cash flow problems, 78% (seventy eight percent) is reconsidering their investment plans in land banks, 94 % (ninety four percent) saw declining business, 88% (eighty eight percent) saw loss of profit by almost 40% in comparison to the year 2019. In respect of cost management,

35 % (thirty five percent) of respondents considered pay cuts and the balance 65% (sixty five percent) are chose alternatives such as freezing of recruitment, no bonus, increments and benefits payout, and reduction other marketing and miscellaneous expenses (Rehda president Datuk Soam Heng Choon, 2021).

Succinctly, the objective of this study is to find out if:-

i. to identify the effects and challenges the Covid-19 endemic faced by the G7 category construction sector, specifically in Johor Bahru, furthermore to address the continual survival of businesses in order to preserve the mandate of employability, opportunities and mass growth of all forward and backward linkage businesses as well.
ii. Are construction companies severely affected by the Covid-19 endemic in terms of operational and financial;
iii. How are the new safety and health regulations and central labour quarters (CLQ) regulation imposed by the Government affects cost and time of the construction companies;
iv. Was there possibility of projects in progress being halted due to the effects of the Covid-19 pandemic and MCO and impact of project delivery to its buyers;
v. Was there risk of Liquidated Ascertain Damages (LAD) and Contract termination pre and post endemic?
vi. Are there any effects in terms project being tendered pre and post endemic;
vii. Are there any construction material cost increase impact and how does it affect the cash flow and budget of construction companies;
viii. What do you think can be done by Government to assist in the recovery of G7 class contractors.

1.4 Research Questions

The research questions that are needed to be asked and hoped to be answered based on the findings and data collecting are:

i. What are the various ways construction companies has been impacted by Government regulations in the wake of the Covid-19 endemic;

ii. What are the opportunities for the construction industry as a result of the endemic;

iii. What do you think can be done by Government to assist in the recovery of G7 class contractors.

1.5 Significance of the Study

The construction industry contributes significantly to the country's economic health and growth. Delayed construction projects would cause a domino effect on the economy.

Building projects experienced adverse effects due to the COVID-19 pandemic in our global market. Therefore, identifying the underlying problems caused by COVID-19 can provide the best solution for minimizing the effect of the epidemic. Accordingly, it is critical to emphasize the impact of COVID-19 and the strategies to address those problems in the construction industry. As such, the significance of this study is to identify the problems caused by COVID-19 in the construction industry, as well as opportunities present during the pandemic and ways the Government can assist in reducing the burdens of G7 contractors.

These findings will not only help policymakers improve existing strategic plans and develop new policies to deal with the effects of COVID-19 on building construction organizations; but it will also help stabilize the industry by providing a

contingency plan and/or ideas to all construction industries on how to braise the storm and remain competitive while the pandemic is still critically active especially with findings of new variants strains. This paper also explains how construction work can be resumed in this situation. If construction work continues, the economic downturn and unemployment will be alleviated.

1.6 The Organization of the Study

This research is divided into 3 (three) categories where the First Chapter would be consisting of background of the study, problem statement, research objectives, research questions, the significance of the study and followed by the organization of the study.

Next, the Chapter 2 (two) is the literature review consisting of its own introduction, theoretical foundation, empirical research, proposed conceptual framework, hypothesis development, and the summarization of the whole Chapter 2 (two).

In Chapter Three (3), after the introduction, the author will elaborate on the research design, the sampling size and procedures, how the data are collected and operationalized and measurement such as the use of all type of variables which is included independent variables, dependable variable, data analysis techniques based on descriptive analysis and inferential analysis technique and end up with the summary of Chapter 3 (three).

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

As the spread of Covid-19 begun on late December 2019, many countries had declared Total Lockdown (MCO) and/or stay at home order which includes Work from Home (WFH). This has restricted all physical interactions and replaced with virtual interaction. During the total lock which was announced by the Malaysian government on March 2020, no one was allowed to leave their home except to purchase essentials; that too not more than 10km radius from the house they live in. On May 2020, when the MCO was lifted, the new Standard Operating Procedures (SOP) remained unclear; as social distancing was mandatory, a certain percentage only was allowed to work from office, the balance work from home, operating hours vary, borders were still closed, and transportation and logistics was still halted. This unruly unclear Standard Operating Procedures (SOP) posed a major disruption to the construction industry. Construction industry members consist of developers, contractors, subcontractors as well as supply chain vendors. It is a well-known fact that not all jobs can't be done virtually, especially construction activities which is almost impossible. Due to the pandemic and the new regulations, the activities and performances of construction companies may fall by 30% (thirty percent) to 90% (ninety percent). Too exacerbate the already ailing condition, disruption of supply chain and shortages of manpower due to limitation of number of workers, issues related to renewal of permit as most government sectors are also working with half capacity and so on has contributed to more challenges in the performance of construction sectors.

Direct consequences have ranged from a slowdown in available goods and labor to suspensions and, in some cases, terminations of parties or entire projects.

This pandemic has connected every aspect of the construction performances and process categorically contract matters such as notices for defaults which includes Extension of Time (EOT), Liquidated Ascertain Damages (LAD), adjustments, scheduling, project suspension, tenders cancellation, Safety and Health (OSHA & FMA) workplace compliance related to social distancing, wearing proper harness such as surgical mask at all times, sanitization of work place, construction sites, canteen and workers lodge three times a day, taking of temperature and declaration of any symptoms and travel details, swab test; and workforce management related to accommodation. In addition, material supply chain logistic issue which causes delays, and construction material price increase.

2.2 Theoretical Foundation

According to Construction Industry Development Board (CIDB) records, the value of construction projects awarded fell 42 percent to RM55.3 billion from January to October 2020, compared to RM94.6 billion in the same period last year. It was also estimated that the construction industry lost about RM11.6 billion between March 18 2020, when the movement control order (MCO) was implemented – and April 14 2020, with another RM6.9 billion recorded following the reopening of 13 sub-sectors from April 15 to May 1, 2020. The losses were calculated based on the value of salaries, building materials, machinery rentals, project management, and profit lost due to the industry's inability to operate. (CIDB Chief Executive, Datuk Ahmad ‘Asri Abdul Hamid, 2020).

The prolonged Covid-19 epidemic has hampered the property business and continues to wreak havoc on stakeholders, potentially costing billions of Ringgits.

The epidemic has caused significant delays in completion and delivery of unoccupied possession due to building contractors' inability to operate at full capacity (VP).

Another issue that could arise is an increase in the number of abandoned projects. Abandoned projects are the result of construction cash flow demands exceeding sales or cash inflows for a project, resulting in a situation where the developer is unable to maintain the development further as they are unable to pay its appointed main contractors and subcontractors (Savills Malaysia Deputy managing director, Nabeel Hussain, 2021).

Property and legal experts warn that once the movement restrictions or bank loan moratorium are lifted, Malaysia might see millions, if not billions, of ringgit worth of projects abandoned.

With the current increase in construction site cases, Ahmad 'Asri stated that Construction Industry Development Board (CIDB) had increased site monitoring and inspection across the country through the inter-agency construction site enforcement committee, which includes other agencies such as the Department of Occupational Safety and Health, Public Works Department, Labour Department, and local authorities. When dealing with COVID-19 spread on construction sites, the condition of the construction sites, worker accommodation, and their movement from one site to another are critical considerations. Indeed, worker movement between construction sites has been identified as the primary source of COVID-19 transmission on construction sites. Cluster Damanlela is an example of this, as it impacted five construction projects," CIDB Chief Executive, Datuk Ahmad 'Asri Abdul Hamid, 2020) further explained.

As of December 2020, the number of clusters involving workplace, in particular construction sites were apparent; where 8 new clusters were found involving almost a thousand positive cases. (Health director-general Tan Sri Dr Noor Hisham Abdullah, 2020). Damanlela construction sector was one of the main reasons there was a spike in Covid-19 cases in Kuala Lumpur where daily the number tally is rising in average of more than 400 cases from previous days. The Damanlela cluster consist of district

of Lembah Pantai, Kepong, Kuala Selangor, Gombak, Petaling, Ulu Langat and Titiwangsa.

The same satiation was also experienced in Singapore where they identified the first case of Covid-19 infection involving a foreign worker who was working in a construction site on February 2020. Right after that Singapore experience a surge in infection within the workers population, namely the dormitory which are the shelters and homes for these foreign workers.

Workplaces such as construction sites, in addition to migrant worker dormitories, have been identified as COVID-19 clusters in Singapore. Prior to the emergence of Coronavirus Disease 2019 (COVID-19), a pandemic preparedness blueprint was not a top priority for Singapore's construction industry, which was focused primarily on physical hazards such as falls from great heights, vehicular accidents, and heat injuries. During the peak of the COVID-19 pandemic in Singapore, from April to June 2020, the country entered a "circuit breaker" period in which almost all physical work premises, excluding essential services, were closed. This included a near-complete shutdown of all construction activities across the country in order to prevent the spread of COVID-19 infection at the workplace. Mitigation measures such as workforce segregation, worker health surveillance, and COVID-19 infection testing were not in place at the time before the pandemic, which would otherwise allow for some continuation of construction work activities. Work was severely disrupted as a result, exacerbating the economy's problems. It also highlighted the importance of having an industry framework in place to prevent, detect, contain, and manage COVID-19 and other communicable disease hazards in the construction sector. (Wee Hoe Gan, David Koh, 2021).

If occupational and public health measures are not in place, the construction ecosystem and the nature of its work activities pose a risk for the transmission of

communicable diseases. A construction project is distinguished by a high degree of specialization and the simultaneous performance of numerous nodes of activities.

Site preparation, excavation, piling, tunneling, building, pathing and surfacing, sewage and drainage, power and communications works, and many other services are included. The main contractor hires various subcontractors to handle the subspecialized work, resulting in a network of multiple teams from different companies working alongside each other within the same premises. Even with the implementation of mechanization, many work tasks still require physically demanding lifting, manual handling, and climbing, often in hot and humid conditions. In the context of the COVID-19 endemic, such work conditions in construction make it difficult and often impractical to rely solely on individual-level measures to prevent workplace transmission, such as consistent use of surgical masks and regular hand hygiene. Interventions such as syndromic surveillance, routine testing, early detection, and timely containment are required to allow the construction sector to reopen safely, despite the fact that the pandemic is far from over.

Figure 2.1: Singapore Covid-19 control measures

In a study conducted on 2018 (Edmund, Yang and Eric, 2018), The financial crisis that erupted in the United States' subprime mortgage market in 2008 quickly spread around the world, wreaking havoc on many countries and people with many people losing their jobs and many firms being closed down.

Therefore, it is highly commendable if a construction firm catches up on all clues of any crisis including the Covid-19 pandemic to remain relevant by developing a timely warning system (Simard, and Laberge, 2018).

In this regard, Halou et al. (2019) contend that if a construction firm accurately approximates a crisis and implements crisis management in an efficient manner, the crisis is likely to be overcome with little or no damage. With the arrival of the Covid-19 pandemic, the message has been clear across the UK: everyone should stay at home. Indeed, this has created a major problem for the construction industry, as the vast majority of people are unable to work from home. However, this means that the majority of workers in this industry will not be paid if they do not show up for work, resulting in job loss (Laing, 2020). Since the financial crisis in March 2020, thousands of construction jobs have been halted, in addition to job cuts as a result of the coronavirus wreaking havoc on the economy. (Helm, D, 2020) also stated that COVID-19's total lockdown has severely hampered economic activity. The construction industry, without exception, has been severely impacted by the COVID-19 pandemic, and no study has been exclusively reported as a result of the impact of the pandemic on the construction sector.

In a research and data analysis done by (Abusalam Shibani, Dyaa Hassan, Neha; Shakir, 2020) in selected construction companies in the United Kingdom; it was analyzed that before the pandemic hit worldwide, most of the companies had at least 3 (three) projects on-going; but due to the pandemic at least 1 (one) of the projects was stopped completely; while the rest continued on a staggered manner.

Moreover, some on-going projects also suffered continuous extension of completion time which further impacted the financial stability of the companies. This is because buyers are no longer interested in buying properties or commercial properties as the inflation also hit individual markets and livelihood of buyers.

On the same note, the pandemic has caused construction firms to face financial constraints due to a lack of funds from clients and banks. Furthermore, the covid-19 pandemic has grounded many projects due to a lack of construction materials due to a lockdown that made material supply impossible.

Additionally, the author also highlighted all other challenges faced by construction companies which are ; delay in supply and delivery in construction materials due to cross border restrictions and lock down in manufacturing countries; delay in completion of projects due to several new safety regulations such as social as well as restriction of number of workers allowed to work; financial crisis due to poor payments by clients mostly due to halt and/or slow progress of construction which effects the stage billings, lack of support for bridging loans from banks which also leads to poor payments out to suppliers and subcontractors and employees' salaries. However, despite the financial crisis that the United Kingdom has experienced in the year 2008 due to the recession and recently due to the BREXIT, it was learn that none of the construction companies had a strategy in place to prepare itself for the next pandemic and/or health tsunami. Hence the author (Abusalam Shibani, Dyaa Hassan, Neha; Shakir, 2020) highlighted new strategies adopted by the construction companies in the United Kingdom that may help boost new opportunities and face the challenges adequately; which are maintaining a good relationship with suppliers, and subcontractors, and planning for shift works and rotation of work times for all general workers.

Further brief studies also founded that the GDP of the UK shrunk by a record 5.8 % (five-point eight percent) in March 2020; from the start of the Covid-19 detection; from which a whopping 6% (six percent) of it was accounted from the construction sector. In the UK, there are approximately 343,000 (three hundred forty-three thousand) firms which provided employability livelihood directly or indirectly to a total of 2.2 million (two point two million) employees in the country.

Unfortunately, the consequences of the pandemic have resulted loss of £301.5 million (three hundred and one million per day); the unemployment rate also was expected to increase to 3.9 % from previously years.

In a study conducted in the construction companies in the United States of America on the April 2020, it was reported that the GDP of the USA shrink by 4.8 % (four-point eight percent) in the first quarter of the year 2020 from which 4.1% (four-point one percent) of it was accounted from the construction sector. In the USA, there are approximately 700,000 (seven hundred thousand) firms which provided employability livelihood for 11.2 million (eleven point two million) employees in the country. Unfortunately, the consequences of the pandemic were faced by 45 % (forty percent) of contractors. Subsequently, the outbreak has raised unemployment rates in the USA by 14.7 % (fourteen-point seven percent).

The number of construction projects has reduced tremendously; and this is mainly attributed by interrupted due to process disruptions due to regulatory implications, and widespread market unpredictability. Over and above, several construction projects have been delayed or halted; similarly, to what happened in the oil and gas industry where demand and supply took a plunge due to travel restrictions.

This not only happened in Malaysia, whereas the same scenario also took place in Singapore where construction seems to go South post pandemic. Five subcontractors left a project they were working on in Sengkang because they were unable to get their existing contracts renegotiated to account for rising labour and raw material expenses.

The construction industry in Singapore has been facing increasing issues as a result of the pandemic, ranging from a severe labour shortage to ballooning material costs, resulting in the closure of certain businesses. According to data from the Accounting and Corporate Regulatory Authority (Acra), 1,538 construction-related businesses closed their doors in the first eight months of this year.

This accounts for around 2.86 percent of the 53,707 construction business organizations registered with ACRA as of 31 August 2021.

Another problem that construction faced is the sudden number of Covid-19 positive cases involving workers in construction industry compared to workers in other sectors. Further study and evidence also found that the health impact of Covid-19 was approximately 5 (five) times greater compared to other sectors; the effects was so severe where those contracted it are often hospitalized with critical vital readings. Study findings done by (Abdullah Alsharef, Siddharth Banerjee, S M Jamil Uddin, Alex Albert, Edward Jaselskis (2021) identified inconsistency on the term essential services and non-essential services related to construction firms to be a problem. This is because, in some states, construction is regarded essentials with different sets of regulations; while some states regard construction as non-essential with different sets of regulations. Therefore, the impact of the pandemic in construction was different across states. The same study also found that shortage of raw material and delay in material delivery was at a peak.

This was particularly significant for materials that was supposed to arrive from overseas such as China, Japan and Mexico to name a few as those countries was also battling the pandemic with their lockdown, quarantine and work place operations restrictions. Another reason that led up to this supply chain demand shortage was that manufacturing and logistic sectors were considered as non-essential business and were not allowed to operate on full capacity. Another factor highlighted by this study is the failure to secure relevant permits by the local authority.

Reduced rates of efficiency and productivity which also led to slow progress and delays of construction activities were also amongst the challenges faced. Most of these effects was due to the stringent safety and health measures such as usage of PPE and social distancing. Such new practice requires of full revamp of business processes and coordination which also led to additional work load. Emotionally also, workers were worried of getting infected by the virus and fear of transmitting the disease to the loved ones at home. Cash flow of companies was also impacted due to escalation of material price and untimely payments. The construction industry in the USA also faced delays and suspension of new projects, it was reported that most of the projects which was at the negotiation stage were left idle, investment plans stopped and bookings of properties from potential customers also slowed down; due to this, construction works was also switched to a slow and steady basis. They were also in the perception that the pandemic will not be over soon and making investments on land banks and others would proof to be futile and more damaging to the cash flow of the companies. In the matter of the above, many construction companies also opted for salary reduction and lay off as the efficiency and work load reduced between 50 % (fifty percent) to 60% (sixty percent) in comparison to the year 2019. This is also necessary as contractors are not able to make end meet with lack of income but increased overheads.

In a study conducted in West Bengal, India by (Ankan Biswas, Abhinandan Ghosh, Adrish Kar, Tuhin Mondal, Buntee Ghosh and Dr. Prasanta Kumar Bardhan, 2020) on the impact of the pandemic and its remedial measures. It was founded that the main challenges faced by the country was disruption of the supply chain management as various raw construction material which are needed for projects is hampered from reaching its location as all of it is being imported from many parts of the world. Increase in demand and lack of supply has also affected the small medium enterprises (SME) as the source of income lies in transporting/logistic of these items to the construction sites.

Labour shortages also posed a big threat as workers are unable to make their way to workplace due 2 (two) reason which are no operating public transportation and fear of being carrier of the virus and spreading it to the rest of the population including their families. Next reason identified was financial problems as construction firms as well as suppliers struggle to make ends meet due to no income, and negative profits. Contractual implications such as awarding of Extension of Time (EOT) by clients and Liquidated Ascertain Damages (LAD) by customers and client's risk that poses as challenge too. Its due to the chain reaction of 1 (one) factor has on the other such as; lock down results in halt in activities, which leads to reduction in manpower, which also results in disruption in supply chain, which also results in stringent compulsory compliance to health and safety regulations such as social distancing and limitation of working employees, also reduction in payments collection, and payables and lack of support by financial institutions and so on.

It was reported that the GDP of India shrink by 23.9 % (twenty-three-point nine percent) in the first quarter of the year 2020 from which 8% (eight percent) of it was accounted from the construction sector. In India, there are approximately 200 (two hundred) firms in which provided employability livelihood for 5.1 million (five point one million) employees in the country. Unfortunately, the consequences of the pandemic have resulted in reduced in investments by 30 % (thirty percent) which has greatly affected employability and gross value of the country. Bitterly, within months of the pandemic, the unemployment rates in India specifically in the construction sector has risen to 27.11 % (twenty-seven point one-one percent).

A study related to project success in Malaysia during the MCO was done by (Muneera Binti Esa, Farah Salwati Binti Ibrahim, Ernawati Binti Mustafa Kamal, 2020) and the results showed that construction companies faced challenges in compliance to a total of 15 new SOPs in placed, but herewith highlight 10 (ten) new SOP's most relevant to the industry after the pandemic.

They consist of:

i. Document preparation such as attendance, temperature monitoring, health declaration forms for each worker be it local or foreign;
ii. Workers management such as break hours, movements, travels and lodgings
iii. Transportations;
iv. Logistics of material and supplies delivery;
v. Pandemic awareness and information sharing;
vi. Emergency response and preparedness;
vii. Contact tracing;
viii. Safety compliance such as having different entry and exit points, social distancing, usage of PPE and so on;
ix. Back to work procedures
x. Date recording and safe keeping for local authorities viewing during inspection

This study was further broken down into 2 (two) branches which are the positive consequences and the negative consequences.

The positive consequences were most rightly related to a better upgraded safety compliance and regulatory and improved social welfare especially in regards to foreign workers wellbeing related to their meals, health and accommodation. With the new Ministry of Labour Law Act 1990 (Act 446) regulations intact, workers finally have a decent place to sleep in daily; in all honestly something that was lacking far behind before the pandemic hit. The negative consequences were similar to other countries as mentioned above; which are time, cost, resources scarcity and human resources issues.

i. Time – A project success as labelled is successful only when it can be delivered on time with good quality. Any delay would cause EOT which subsequently will increase operation cost, debtors cost, manpower cost as workers have to work longer hours to catch up on progress.

Project delay is also largely contributed by delayed material supply, stopped operations of manufacturers, inability to cross borders even district. All this restriction has led to several revising of work programme and schedule of completions which has led to tremendous stress and tightening budget.

ii. Cost – Many companies are facing cost increases ranging from RM 100,000 to RM 300,000 for their housing project, with two respondents facing a significant cost increase due to a large development project concept; while 2 respondents mentioned that even though their project is related to 'affordable homes' it's not affordable anymore to build it. This cost increase was majorly contributed by additional requirement by the Government such as ensuring the availability of hand sanitizer, masks, and more hand washing areas, construction of new quarantine centers and more dorms as existing dorms was considered unfit to be occupied due to space constraints. Another major factor which led to the increase in cost was the compulsory swab test requirement by the local authority that needed to be done before the foreign labour was allowed to resume work; and this cost had to completely be borne by the companies.

iii. Human Resource (HR) – The HR department had a tough time deciding on who should work and who should work from home during this time; as the allowed percentage of workers allowed to be working was between 30% to 50% only. This was almost impossible to be determined on construction sites and upon implications, productivity and progress kept declining at a rapid speed. A construction site cannot be in operation with just a handful of general workers contribution; and this regulation has also further induced unhappiness amongst workers who were daily wage earners; who depended solely on day-to-day work to get paid.

iv. Resource scarcity – Scarcity of construction materials, machineries and manpower was also a huge challenge to be overcome. The MCO has affected production of materials, which in terms delayed delivery, which then delayed progress.

v. Another reason is the imperceptive effort by the Government to renew permits of foreign workers was also a main cause of manpower scarcity, as foreign workers that had an expired permit had to be sent back to their native, as during the MCO, no permits was being processed and approved, and even if it was; it was a slow tedious process.

Fortunately, in 2021, the industry is predicted to rebound sharply, assuming that the containment measures in place in 2020 are not repeated, with growth fueled by investments in transportation and energy projects. In 2021, the industry is predicted to increase by 9.8%, with yearly growth ranging from 6.0 to 6.6 percent between 2022 and 2025.

A recovery in economic conditions, as well as investments in infrastructure, renewable energy, and residential, telecommunications, and water infrastructure projects, will boost the industry's growth over the projection period. The government gave MYR9.6 billion (US$2.2 billion) to the state governments of Sabah and Sarawak as part of the 2021 budget to update road, power, and water infrastructure, as well as improve health and education facilities.

The government's goal of producing 20% of its energy from renewable sources by 2025, as well as its goal of creating one million housing units for low-income earners by the end of 2029, will boost forecast-period growth.

2.3 Empirical Research

For this exploratory study, quantitative research methods will be used to gather the needed data.

(i) Survey research

Number of employees from selected companies will be distributed questionnaire. This method hopes to receive a high response from the participants. The questionnaire will be distributed to the participants by simple online link through multiple social media channel such as WhatsApp and google links,

(ii) Correlational research

This method will be used to find the relation between two sets of variables. Regression is generally used to predict outcomes of such method. Thus, it is believed that the outcome would be either positive, negative or neutral.

(iii) Causal-Comparative research

This method is based on comparison. It will be mainly used to find the cause-effect relationship between the variables. The health and safety, operational aspects and financial efficiency aspects would be measured as a respond to organizational performance.

2.4 Proposed Theoretical Framework

The aim of the study is to analyze the impacts of Covid-19 Endemic and the challenges faced by construction industry of category G7 in Johor Bahru. Hence, the outcome of the study could be either positive, negative or neutral.

Based on a few previous researches that was done, it can be confirmed that the Covid-19 pandemic has a negative impact on construction industry. However, previous research was done in other countries such as the United Stated of America, the United Kingdom, India, Singapore as well as Malaysia which focuses on construction industry in Kuala Lumpur, that too generally for all sectors and not targeted towards the G7 class contractors.

Since as of date of this research is being done, there has not been research on the Impact of Covid-19 Endemic on construction industry in Johor Bahru, it cannot be confirmed that the endemic also has a negative impact on G7 class contractors like in other researches.

If the outcome of the research turns up to be positively inclined, then it can be concluded that the pandemic/endemic did not affect the financial, operational and safety performance of construction sector in Johor Bahru in any way, in fact it only benefitted.

If the outcome of the research turns up to be negatively inclined, then it can be concluded that, like other research studies done before this, the pandemic/endemic has caused tremendous challenge towards financial, operational and safety performance of construction sector in Johor Bahru.

However, should the outcome of this research turn up to be neutral, then it can be concluded that the pandemic/endemic did not give any negative nor positive impact towards financial, operational and safety performance of construction sector in Johor Bahru

The aim of this research is to analyze if the G7 category of construction firms in Johor Bahru also suffered in terms of financial, operation as well as in safety compliance which is generally being iterated about in other researches.

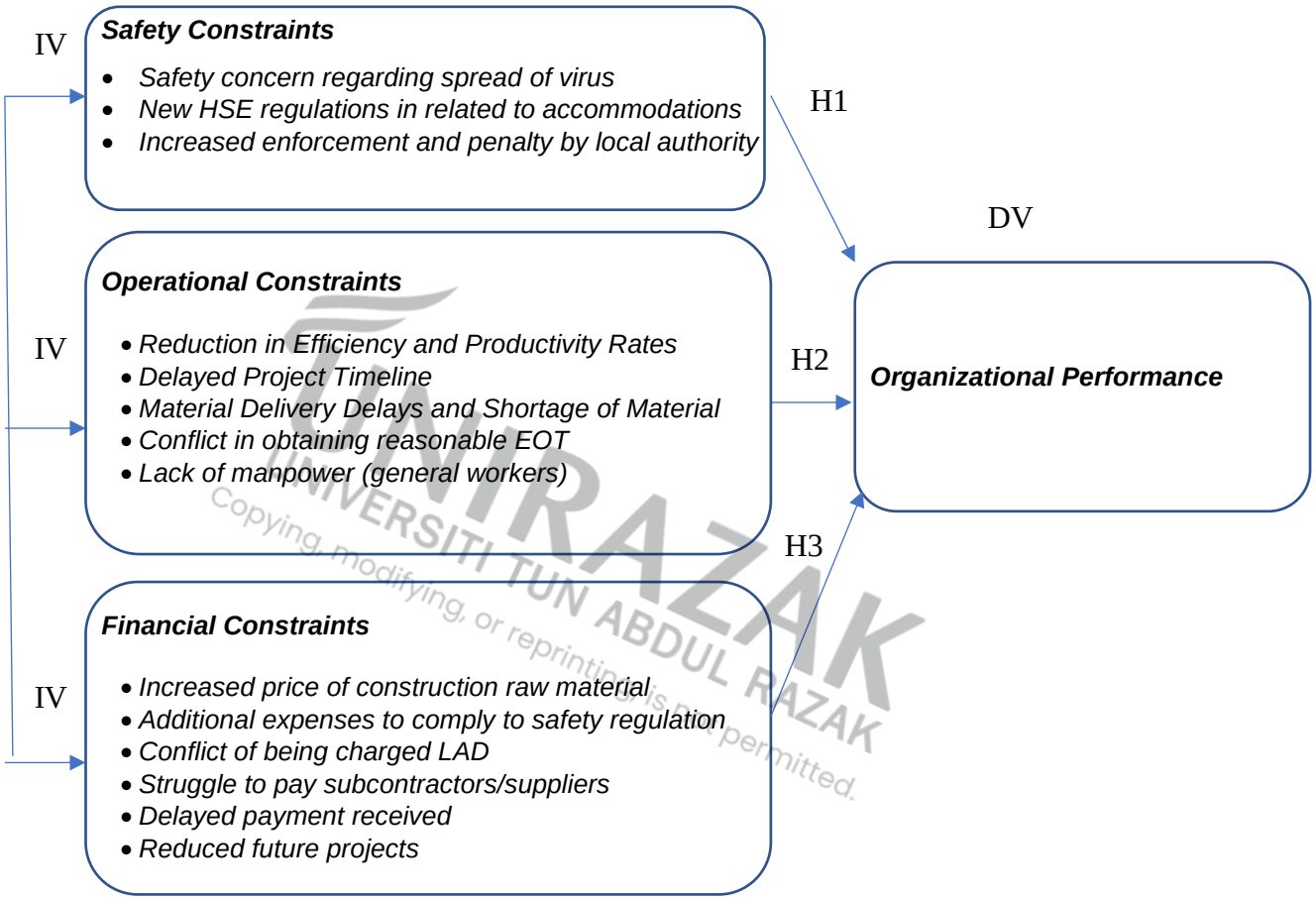


Figure 2.2 : Theoretical Framework

2.5 Hypothesis Development

In this research the construction industry organization performance would be integrated with challenges in order to measure the impacts of the Covid-19 pandemic within the industry particularly in Johor Bahru. Thus, the following hypothesis are developed based on the Conceptual Framework as shown in figure above.

H1: New safety regulations have impacted construction companies' organizational performance post the Covid-19 pandemic

H_2: Operational constraints have impacted construction companies' organizational performance post the Covid-19 pandemic

H_3: Financial constraints have impacted construction companies' organizational performance post the Covid-19 pandemic

2.6 Summary of Chapter 2

This section focuses on the creation of a theoretical framework based on the problem statement and research goals set out in this research. Prior to actually proposing a conceptual framework, the theory that applies to study goals and research questions is discussed in depth in order to prevent any misleading details and the conceptual framework has also been formulated in such a way that the sequence can be interpreted and believes that it is the correlation between all of the variables or the definition.

In the field of empirical analysis, the researcher aims to include as many information as possible of past research related to the subject of study through previous research on the subject related to this research. The results of the previous research and the field of their analysis will help the researcher look at which area of the study needs to be improved and how the study has been done on this subject, and what area of research draws past researchers to study and why they concentrate on it.

The evaluation of previous studies is also relevant to address the actual challenges faced by construction industry and also analyze how companies that was studied previously steered through the pandemic.

The creation of hypotheses that the researcher generates in this context is appropriate for its function, can also be tested and can also be directional and non-directional. This is not a matter of concern in this field, as researchers understand the needs and requirements of this hypothesis as standard procedures. It allows the researcher to go step-by-step in this research without jumping to a conclusion, and every department of this research, such as every aspect in the chapters, is actually a test as per the norm of the research requirement.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology and the procedures that will be applied to achieve the objectives of this research. This chapter sections include Research Design, Study Population and Sampling Procedures, Data Collection Method, Operationalization and Measurement, Data Analysis Techniques and Summary. This research has taken nine weeks in order to complete in terms of collecting data and report writing.

3.2 Research Design

The beginning of the research started with the observation of the background and current issues happening all around the world in recent times. Then some of the topics were considered and brief analysis on each topic is conducted. Then current topic was chosen for further perusal. Then the significant problems associated with the selected topic was identified and specific filed of analysis was decide on. Specific research problem was built on based on the collected data.

Next, main goal to be achieved through the studies is defined. Questions that would answer the inquisitive was developed. Questions were specified in conjunction to the study's purpose. The literature review of the research was built on existing theories related to challenges faced by construction industry during the pandemic. Then the existing case studies and research papers were analyzed and studied carefully.

The Conceptual Framework was build based on the questions that were needed answers. Later on, the hypotheses were proposed and study built around it.

Timeline of the study is fixed upon determining the study population and responses received in earlier stage.

Hypothesis will be proven from collected data and intricate analysis by comparing if tabulated data is proven or not. Finally, the collected data be iterated to conclude the study if the Covid-19 pandemic has affected the G7 category construction industry in Johor Bahru.

Figure 3.1 : Research Design

3.3 Study Population and Sampling Procedures

This research study focuses on G7 category of construction companies particularly in Johor Bahru. From information derived from the Construction Industry Development Board (CIDB) Centralized Information Management System (CIMS), figure below is the summary of all contractors and their trade of registration focusing only in Johor Bahru.

Grade of Contractor	Category of Projects (Project Value)	Total Numbers
G7	Unlimited	53
G6	Not more than RM 10,000,000.00	11
G5	Not more than RM 5,000,000.00	37
G4	Not more than RM 3,000,000.00	31
G3	Not more than RM 1,000,000.00	122
G2	Not more than RM 500,000.00	107
G1	Not more than RM 200,000.00	157

Figure 3.2 : CIDB grades of Contractors

This study will focus on contractors with a G7 grade registered under CIDB. The reason this group of contractors was chosen is because Johor Bahru is flourished with mega project which are built by contractors registered under this trade and a more impact pre and post to the pandemic can be derived from this particular group as they have the greatest number of suppliers, subcontractors and machineries. They are also chosen as they are assumed to have larger amounts of yearly profits with yearly audited reports and numerous amounts of foreign workers parked under their companies. It is well understood, that sudden changes in environments, government regulations, policies and hiccups in supply chain and implementation of the 'new norm' would have definitely impact the companies either positively or negatively.

It is planned to gain respondents from several group of departments which are the project department, the contract department, the account and finance department, human resource department, the purchasing/procurement department and the safety and health department. The participants are from both genders, from all age group and from designation of Managerial onwards to the top management.

The purpose of choosing employees from designation of Managerial onwards is because, the main objective which is to study organization performance would be much more suitable for individuals in this stage of the hierarchy so that a precise and honest answer would be obtained as they are the ones overseeing all aspect of the organization as a whole. Questions derived is also much more suited for individuals from this range.

The questions are developed based on researcher's own experience working in a construction firm. The interview questions will be both close and open ended as it would be addressing the issue on hand with more accuracy and detailing and the data obtained would be easier to be graphed/tabulated for interpretation of the results.

The questionnaires were distributed to the participants through email and WhatsApp via a link from google forms. The participants' names or their company particulars will be not collected during the questionnaire or interview to protect the anonymity status. The survey is formulated in a sequence way so that the participants could follow the flow in answering the questions such as starting from general demographic details, general opinions, safety and health, operation constraints, followed by financial constraints and finally conclusion-based opinion. The researcher was responsible to design the questions so that the respondents will have a clear view of the main objective and answer with much commitment of the real situation.

The secondary data such as news articles, previous research/studies and via books will not be used as those are already done during the conceptual stage and discussed in the background of the study; unless otherwise the result of the study is contradicting towards those research materials. The end of the study is aimed to give better objective or suggestions for future studies.

3.4 Data Collection Method

The data for the research were collected in semi-structured method. The data collected through the questionnaire was tabulated for easier interpretation such as graphs and bar chart. The data was then categorized accordingly based on given answers and participants race, gender, age, positions and severity or impacts of the issue. The best representation that portrays the result or conclusion of the study was then chosen and written in detail.

3.5 Operationalization and Measurement

Conceptual Framework that has been developed is clearly showing the variables related to this case study. Each variable will influence the outcome of this study in different ways. With the clear development of the framework and listed hypotheses, the study is steering in clear direction without much interruption and would focus mainly on debated issue. This has also avoided any unnecessary time and resource wastages.

3.5.1 Independent Variables

The independent variable is the variable that the researcher seeks to control or modifies and is believed to have a significant impact on the dependent variable. In this study, the author was searching for a potential effect on the dependent variable that may be triggered by a change in the independent variable. In this study we are looking at 3 (three) types of the independent variable.

H_{1a}: Stringent regulatory compliance and new SOPs impacts organizational performance

H_{2a}: Operational constraints such as supply chain disruption, tender cancellation and project progress slow down impacts' organization performance

H_{3a} Financial constraints due to increased project cost, material cost and increased cost due to central labour quarters CLQ regulations impact organizational performance

3.5.2 Mediating Variable

There was no mediating variable of this study.

3.5.3 Dependent Variable

Dependent variable is the variable that depends on the other variables that are being evaluated. These variables are supposed to shift as a result of experimental manipulation of independent variables or variables. It's the supposed impact. This study has 1 (one) dependent variable which is organizational performance.

These dependent variables determined how the questionnaire and surveys are structured in this study in order to receive answers that clarify the research questions. The basic of this study determined based on these dependent variables as it would give the clear picture on the problems.

3.6 Data Analysis Techniques

This study is the process of studying the impact of the Covid-19 endemic and the challenges faced by construction industry of category G7 in Johor Bahru that has not been studied in this state. The findings of the study will be used to classify relevant research problems.

3.6.1 Descriptive Analysis Techniques

At the end of the research the collected data is categorized according to the demographic status of respondents. After that the data was again tabulated as per the answers to find out the probability of higher response on each question as per category. Later the tabulated data was interpreted in another appropriate data presentation such as graphs, bar/pie charts or relevant tables.

For an example, a crosstab or two-way tabulation shows the proportions of the factors with distinct values for each of two variables, or cell proportions would be built. Then the row proportions would be examined, or the fractions in each group would be analyzed for ratios calculation.

With the descriptive analysis, researcher was able to derive to conclusion that are related to the hypotheses. The presentation of the data would give a clear picture on the problem that being studied.

3.6.2 Inferential Analysis Techniques

Inferential methods can produce similar summary values to descriptive statistics. As per required by the research fulfillment, the hypotheses are developed for the study purposes.

i. Hypothesis tests

The hypothesis tests use sample of data answers questions as follows: -

- Are your company operations effected by the pandemic?
- Did your company undergo financial difficulties?

Hypothesis test has also would allow researcher to draw conclusions about certain theories or speculations

ii. Regression analysis

The regression analysis explains the relationship between the set of independent variables and the dependent variables. This research integrates the hypothesis tests that help to assess if the relationships found in the sample data currently occur in the population. If the effect is statistically important, the researcher will have sufficient evidence to conclude that the association occurs in the population rather than in this study.

iii. Inferential Statistics

The point estimate for mean, standard deviation, and proportion of random sample responses could be determined using the Inferential Statistics results. It is, however, astoundingly doubtful that any of these point estimates are reliable. Since the researcher cannot quantify all subjects in this population, there might be a margin of error in these figures.

iv. Factor analysis

Factor analysis is a method used to minimize the number of variables to fewer factors. This technique removes the full common variance from all variables and places them in a common ranking. As an index of all variables, this score can be used for further analysis.

v.Cohort analysis

Cohort Analysis is a form of behavioral analytics in which users are grouped based on their common characteristics to better track and understand their behaviors. For example, the questions could be based on the position of the employee and the responses could be evaluated on the basis of the category.

3.6.3 Questionnaire Design

The research questionnaire in this study serves as a primary instrument of data collection. The questions were developed with same definitions to target all respondents so that the data received is analyzed constantly; respondents chosen are from the managerial to the top management levels employees, and the questions designed are suitable for them as they oversee general business operation as a whole. There are a total of 41 (forty-one) questions which are broken into 7 (seven) sections as follows:

Section A and B : This are general introductory of the researcher and the statement of the objective of the study.

Section 1 : This section gathered 10 (ten) basic demographic data of respondents which consist of gender, age, ethnicity, highest level of education, field of study, area of workplace in Johor Bahru, professional role at work place, average monthly income, department at work place and years of experience in the construction industry. All these questions are made compulsory to answer.

Section 2: This section gathered 4 (four) general close-ended questions which focuses on if the organization they are working at is currently facing impact due to endemic, the type of challenges faces, and organization rebound possibility. All these questions are made compulsory to answer.

Section 3: This section comprises of 8 (eight) close ended questions related to challenges faced in the Health and Safety (HSE) department of the organization which focuses on new Covid-19 regulation such as social distancing, Act 446 (minimum standard of housing and accommodation act), regulatory obligations and expenses related to implementation of those new Standard Operating Procedures (SOP's). All these questions are made compulsory to answer.

Section 4: This section gathers 6 (six) close-ended operational effectiveness of an organization which focuses on productivity, factors of delays, contractual issues, as well as quality overviews. All these questions are made compulsory to answer.

Section 5: This section gathers 8 (eight) close ended financial efficiency questions related to cashflows effects of regulatory compliances, creditors and debtors, Liquidated Ascertain Damages (LAD) as well as supply chain effects on price. All these questions are made compulsory to answer.

Section 6: These sections consist of 3 (three) close ended questions related to Organizational Performance, which is the Dependent Variable of this study.

Section 7: This is the final opinion and conclusion section with 2 (two) close-ended compulsory questions related to opportunities during the endemic and suggestions on how the Government could assist in easing the burden of the G7 contractors in Johor Bahru.

There are 3 (three) types of close-ended questions in this questionnaire which is:

i. Basic yes or no question;

ii. Likert scale where respondents would have to rate their feelings based on; *1: strongly disagree, 2: disagree, 3: neutral, 4 : agree , 5 strongly agree*; and

iii. Close ended with sets of multiple-choice answers that respondents are allowed to choose from. Respondent are allowed to choose more than 1 (one) answer for a question.

This kind of questions are the analyzed individually via the SPSS.

3.7 Pilot Test

In order to ensure the reliability of research and its response; a pilot test was done via a SPSS tool known as the Cronbach's alpha. Using this method, all internal consistency is tested using all variables of the Likert scale questions. As long as the reliability test suffice with a minimum rate of 0.7 above; the test is assumed to have achieved reliability and is therefore the study is acceptable to be proceeded accordingly.

According to previous researchers, a number of 30 to 50 responses is a realistic, optimal, and acceptable for a sample test. According to Connelly (2008) and Treece & Treece (2005), the number of samples for the study should be 10% of the total number of respondents. In this research, the target number of respondents was 120; 10% out of it to be used for the pilot test was supposedly 12 samples. The researcher then distributed the questionnaires to a total of 28 individuals working in the G7 industry. Out of the 28 questionnaires distributed, 20 came back with response.

Table 3.7.1 shows the Cronbach Alpha's reliability result of this study:

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.764	.776	18

Table 3.3: Cronbach Reliability

Table above was done with inputs of 18 (eighteen) close-ended Likert Scale questions and results were acceptable at a rate of 77.6 % percent.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
HSE1 :	61.69	46.062	.491	.920	.740
HSE2 :	61.85	47.895	.519	.841	.741
HSE3 :	61.77	45.865	.557	.942	.734
HSE4 :	62.12	45.226	.609	.827	.730
HSE5 :	62.08	47.514	.458	.772	.744
HSE6 :	61.42	50.334	.350	.901	.753
HSE7 :	62.04	48.038	.541	.675	.740
OPE1 :	61.65	48.075	.541	.936	.740
OPE2 :	61.38	51.606	.248	.794	.760
OPE4 :	63.04	60.438	-.398	.912	.817
OPE5 :	61.96	50.598	.287	.794	.758
OPE6 :	62.85	47.895	.353	.802	.753
FIN1 :	61.88	49.706	.410	.857	.750
FIN2 :	62.15	50.695	.268	.796	.759
FIN3 :	62.69	46.302	.545	.785	.736
FIN4 :	61.19	51.442	.274	.621	.758
FIN7 :	62.31	52.862	.093	.893	.771
FIN8 :	62.04	50.118	.261	.861	.760

Table 3.3.2: Cronbach Alpha if Item Deleted

Based on table 3.7.2 above that is focusing on Cronbach Alpha if item is deleted; should variable OPE4 is deleted, hence the value rises up to 81.7% of reliability. However, researcher is of the opinion that the OPE 4 question was relevant to the research as it involves G7 contractor obtaining their relevant Extension of Time (EOT) because the projects may have been experiencing delay due to the endemic for several reasons. This too will assist researcher in identifying if the EOT is relevant to the current situation during the research time. The OPE4 question was also negatively worded and the researcher has done reversal in scoring for it.

Though by removing this question would have raise the reliability to 81.7 %; the researcher decided to remain the variable as is as current value of 77.6 % is acceptable and sufficiently reliable to this study.

3.8 Data Collection

A total of 150 google form questionnaires were distributed to respondents via emails and WhatsApp for a period of 2 (two) weeks and a total of 122 response was received which accounted to 81% of success response rate

3.9 Summary of Chapter 3

Overall, in Chapter 3 (three), the research design was discussed in details on how the research was built from the beginning. Each stage of the how the research topics was decided together with the intended data collection method and sampling population was described. Then the variables involved in this study were identified and categorized appropriately for better understanding and clear picture on the direction of the study. Lastly once the research is carried out, how the data will be presented, discussed and what type of methods will be used was explained orderly. Also, how the conclusions or recommendations would be derived at the end of the study were also been cleared up in this section.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

The findings that were gathered via the questionnaire distributed were analyzed using Statistical Package for the Social Sciences (SPSS) and used to generate solutions and conclusions for the issues raised in the previous chapters. To interpret the outcomes or findings, the precise numerical data was used to create relevant diagrams such as bar charts, and data tables. To determine the validity and reliability of the questionnaires as a whole, they were placed through a reliability test. The data values were calculated using the mean and standard deviation from the data collected.

Questionnaire Dimensions		No of Items	Relationship
Section 1 :	Demographic Profile	10	
Section 2 :	General Questions	4	
Section 3 :	Safety and Health Questions	8	Independent Variable
Section 4 :	Operation Questions	6	Independent Variable
Section 5 :	Financial Questions	8	Independent Variable
Section 6 :	Organizational Performance Questions	3	Dependent Variable
Section 7 :	Opinion and Conclusion	2	Research suggestion
Total Items		**41**	

Table 4.1.1: Summary of Questionnaire Dimensions

4.2 Section 1 : Demographic Analysis

The values of a variable are displayed in the frequency tables below, weighted by the number of occurrences of each single value. Additionally, percentages are shown.

Statistics

		A1 : Gender	A2 : AgeGroup	A3 : Ethnicity	A4 : HighestLevelofEducation	A5 : FieldofStudy	A6 : AreasofworkplaceIn	A7 : ProfessionalRoleAtWorkPlace	A8 : AverageMonthlyIncome	A9 : WhichDepartmentAreYouWorkingfor	A10 : YearsofExperienceinConstructionIndustry
N	Valid	122	122	122	122	122	122	122	122	122	122
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		1.66	2.70	2.85	2.39	10.21	2.91	2.62	2.57	3.52	2.51
Median		2.00	3.00	3.00	1.50	12.00	2.00	2.00	3.00	4.00	3.00
Std. Deviation		.474	.963	.933	1.684	6.557	2.364	1.010	.842	1.337	1.152
Variance		.225	.927	.871	2.836	42.996	5.587	1.020	.709	1.789	1.326
Minimum		1	1	1	1	1	1	1	1	1	1
Maximum		2	5	5	5	24	11	4	4	6	4

Table 4.2.1: Statistic Summary for Demographic Data

The table 4.2.1 above shows the output of the Statistics for demographic sections. There were no missing values found, the number of valid cases is the full 122 respondents for the 10 (ten) variables in this section.

Remaining page left intentionally blank

A1 : Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	41	33.6	33.6	33.6
	Male	81	66.4	66.4	100
	Total	122	100	100	

A2 : AgeGroup

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-30	7	5.7	5.7	5.7
	31-40	48	39.3	39.3	45.1
	41-50	39	32	32	77
	51-60	23	18.9	18.9	95.9
	above 60	5	4.1	4.1	100
	Total	122	100	100	

A3 : Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bumiputra sabah	1	0.8	0.8	0.8
	Chinese	59	48.4	48.4	49.2
	Indian	20	16.4	16.4	65.6
	Malay	41	33.6	33.6	99.2
	Punjabi	1	0.8	0.8	100
	Total	122	100	100	

A4 : Highest Level of Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's Degree	61	50	50	50
	Master's Degree	18	14.8	14.8	64.8
	Other Professional Qualification	7	5.7	5.7	70.5
	Ph.D.	6	4.9	4.9	75.4
	Secondary/Diploma	30	24.6	24.6	100
	Total	122	100	100	

A5 : Field of Study

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Accounting and Finance	18	14.8	14.8	14.8
	Architecture	4	3.3	3.3	18.1
	Business Management/Administration	21	17.2	17.2	35.3
	Contract/Quantity Surveying	19	15.6	15.6	50.9
	Engineering	46	37.7	37.7	88.6
	Safety and Health	14	11.5	11.5	100.0
	Total	122	100	100	

A6 : Area of workplace

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Gelang Patah	1	0.8	0.8	0.8
	Johor Bahru	102	83.6	83.6	84.4
	Nusajaya	2	1.6	1.6	86.0
	Pasir Gudang	3	2.5	2.5	88.5
	Pontian	1	0.8	0.8	89.3
	Skudai	2	1.6	1.6	91.0
	Tebrau	9	7.4	7.4	98.3
	Ulu Tiram	2	1.6	1.6	100.0
	Total	122	100	100	

A7 : Professional Role At WorkPlace

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Health & Safety	14	11.5	11.5	11.5
	Managerial (Office)	52	42.6	42.6	54.1
	Project Manager (Construction Site)	22	18	18	72.1
	Top Management	34	27.9	27.9	100
	Total	122	100	100	

A8 : Average Monthly Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below RM 5000	13	10.7	10.7	10.7
	Between RM 10001 - RM 20000	53	43.4	43.4	54.1
	Between RM 5001 - RM 10000	41	33.6	33.6	87.7
	RM 20000 above	15	12.3	12.3	100
	Total	122	100	100	

A9 : Which Department Are You Working for

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Accounts and Finance	11	9	9	9
	Contract	11	9	9	18
	Management	37	30.3	30.3	48.4
	Project	44	36.1	36.1	84.4
	Purchasing / Procurement	4	3.3	3.3	87.7
	Safety and Health	15	12.3	12.3	100
	Total	122	100	100	

A10 : Years of Experience in Construction Industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 years and above	35	28.7	28.7	28.7
	Below 5 years	20	16.4	16.4	45.1
	Between 11 to 20 years	37	30.3	30.3	75.4
	Between 6 to 10 years	30	24.6	24.6	100
	Total	122	100	100	

Table 4.2.2 : Summary for Demographic Data Collections

4.3 Section 2 : General Inputs

The questions in this section were closed ended with 1 (one) question in variable GEN2 where respondents were allowed to choose multiple answers. The answers from this GEN 2 variable were separated and analyzed individually and summed up under one main section response.

Number	Statement	Yes (%)	No (%)
GEN 1	Did the COVID19 pandemic affected your organization and the project of your organization	95.9	4.1
GEN 2	The Impacts your Organization faced during the and post Pandemic are		
	1. Financial Contraints	77.9	22.1
	2. Current Construction Project Delay	88.5	11.5
	3. Cancellation of planned/future project	43.4	56.6
	4. Supply Chain Distruption	68.0	32.0
	5. Contractual Obligations	51.6	48.4
	6. Regulation Compliance	58.2	41.8
	7. Shortage of Labour	66.4	33.6
GEN 3	Do you think that your organization is now recovering post pandemic	82.8	17.2
GEN 4	Do you think that as COVID19 drags on there is a chance that it will do long term damage to your organization	91	9

Table 4.3.1: General Question Data

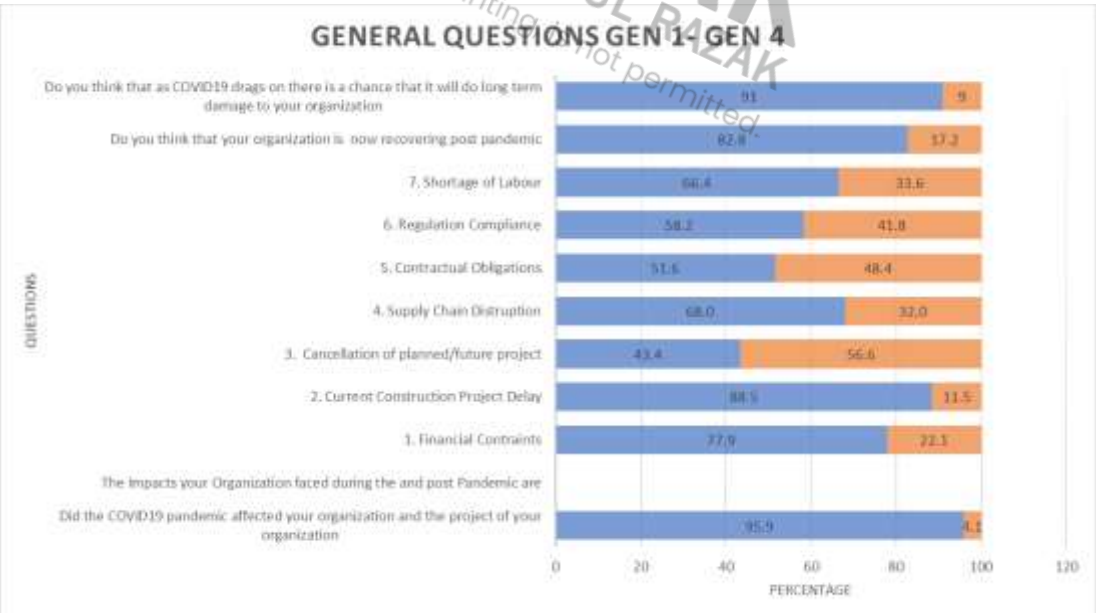


Figure 4.3.1 : General Question Graph

Both table 4.3.1 and figure 4.3.1 above shows the response garnered from all general questions in percentages (%). The figures shows that most of the respondents agreed that their company was generally affected by the pandemic with 95.9 % of respondents answering yes and 82.8 % of respondents optimistic that their organization is recovering post-pandemic; however, 91 % of respondents were also concerned that their organization might face difficulties recovering should the pandemic drags on with further MCO extended. This was followed by 88.5 % of respondents answering yes towards current construction delay, and 77.9 % agreed to having financial constraints, 68% having supply chain issues and 66.4 % experienced shortage in labour. On the bright side, as per the study, 56.6 % of respondents answered that they are not experiencing cancellation of planned or future projects at the time of the research, and this has given a positive note that the future of the organization is still within reach.

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SUM_GEN	0.146	122	0.000	0.927	122	0.000

a. Lilliefors Significance Correction

Table 4.3.2: General Question Test of Normality

The normality test as can be seen from table 4.3.2 above shows the significant level of this variable is at a correlation of < 0.01 level.

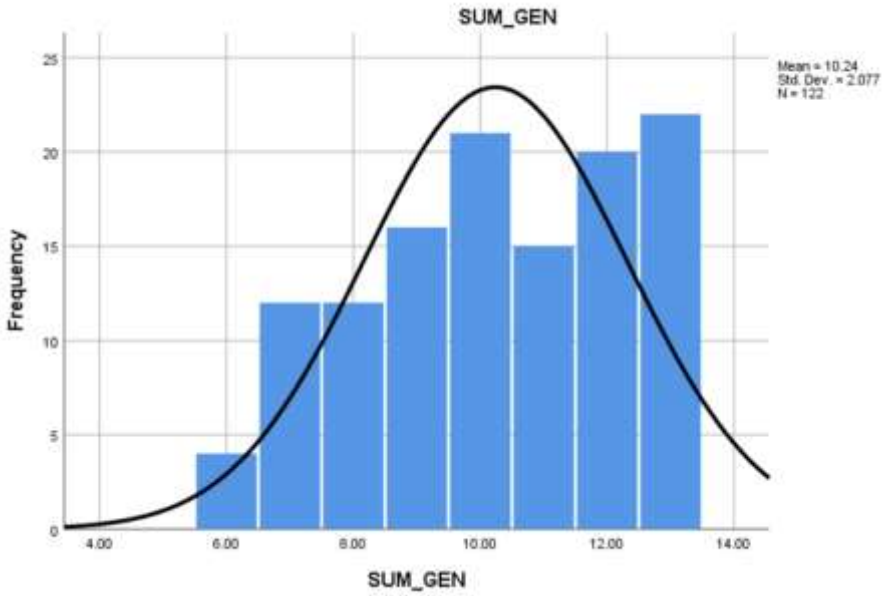


Figure 4.3.2 : Distribution of Summation of General Questions

Figure 4.3.2 shows the result of the distribution of the general questions with mean score of all the variable under this section is 10.24 while the median is 9, indicating that its left skewed (negatively skewed).

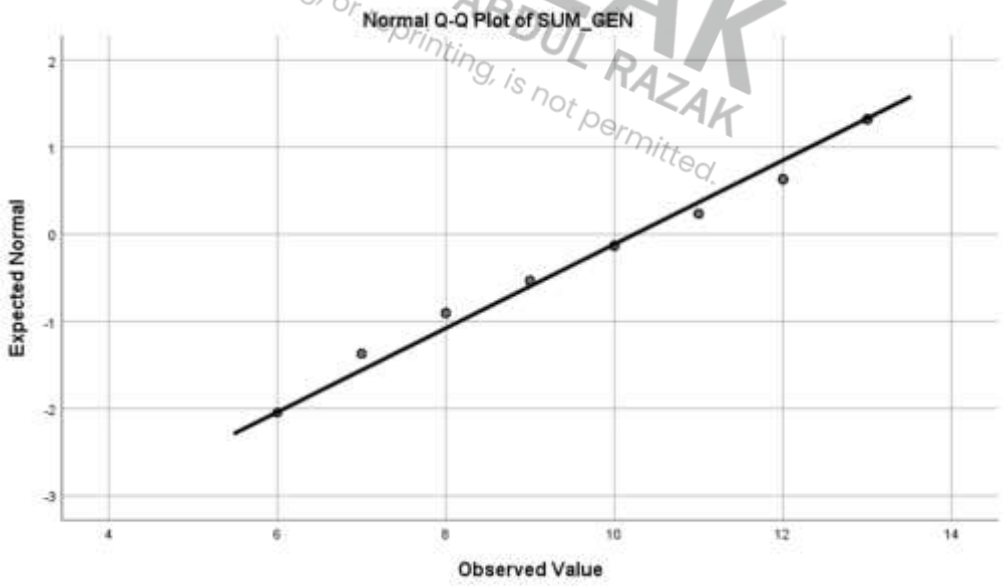


Figure 4.3.3: Distribution of Q-Q Plot for Summation of General Questions

4.4 Section 3 : Safety and Health

The questions in this section were closed ended with 1 (one) question in HSE 8 where respondents were allowed to choose multiple answers. The questions of HSE 1 to HSE 7 used the Likert scale where respondents would have to rate based on; *1: strongly disagree, 2: disagree, 3: neutral, 4 : agree , 5 strongly agree*.

The answers from HSE 8 variable were separated and analyzed individually and summed up under one main section response.

No	Statement	1	2	3	4	5
HSE 1	Has impositions of stringent Health and Safety SOPs in your workplace been beneficial	0.0	13.9	26.2	**30.3**	29.5
HSE 2	Do you think the new Safety and Health SOPs implemented by the Government are relevant in combatting the virus	1.6	13.9	32.8	**36.9**	14.8
HSE 3	Do you think that the new norm of wearing masks, sanitizing, regularly and social distancing practicable at your workplace	14.8	0.0	26.2	**33.6**	25.4
HSE 4	How successful are your construction sites implementing the new SOP's by the relevant authority	0.8	1.6	35.2	**51.6**	10.7
HSE 5	How often does regulatory body such as JKKP, CIDB, and KKM does enforcement at your construction site in order to check on Covid-19 SOP compliance	3.3	10.7	**34.4**	26.2	25.4
HSE 6	Do you think the various different SOPs by multiple Regulatory body such as JKKP, CIDB, JTK and KKM has caused unnecessary confusion amongt the safety and health practitioners and workers	3.3	2.5	14.8	36.9	**42.6**
HSE 7	Do you think that the new Act 446 (Employees Minimum Standard of Housing Accomodation and Amenities) imposed on September 2020 has somewhat helped in comtaiming the spread of the virus	0.8	14.8	**43.4**	30.3	10.7

Table 4.4.1: Health & Safety Data

Number	Statement	(%)
HSE 8	What were the stuggles faced while implementing the new Act 446	
	1. Problems in sourcing for Additional space	79.5
	2. Expensive	81.1
	3. Time Consuming	65.6
	4. Lack of suitable accomodation to rent as Hostel	65.6
	5. Confusing General Requirement	58.2
	6. Obstacles from Local Authority	32.0

Table 4.4.1.1: Health & Safety Data (HSE8)

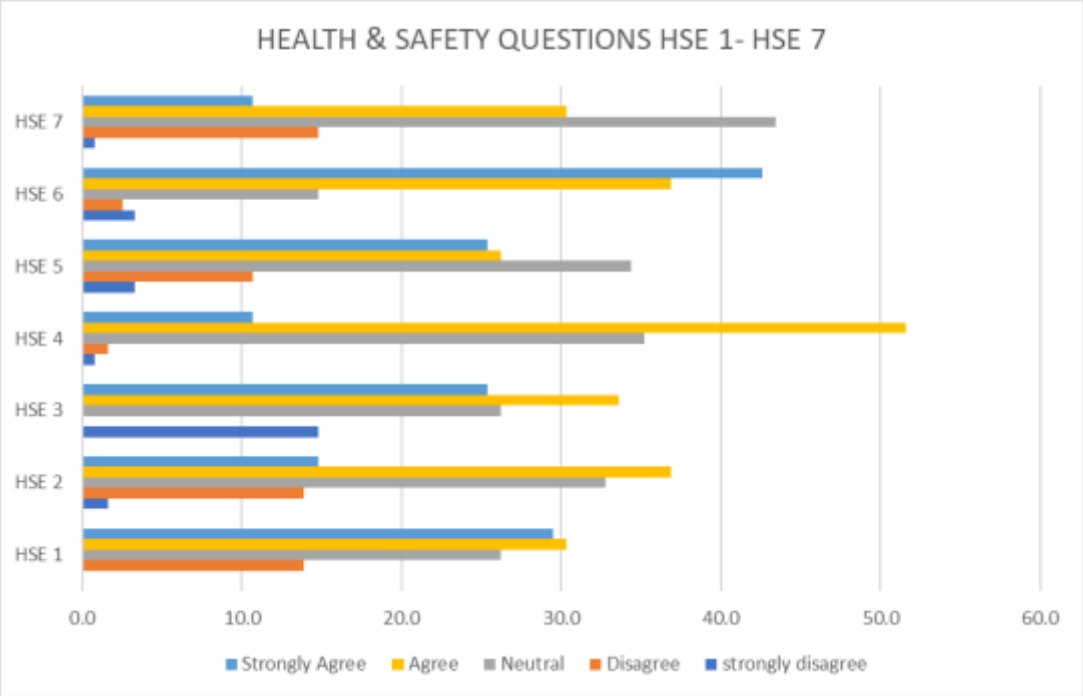


Figure 4.4.1: Health & Safety Questions Graph

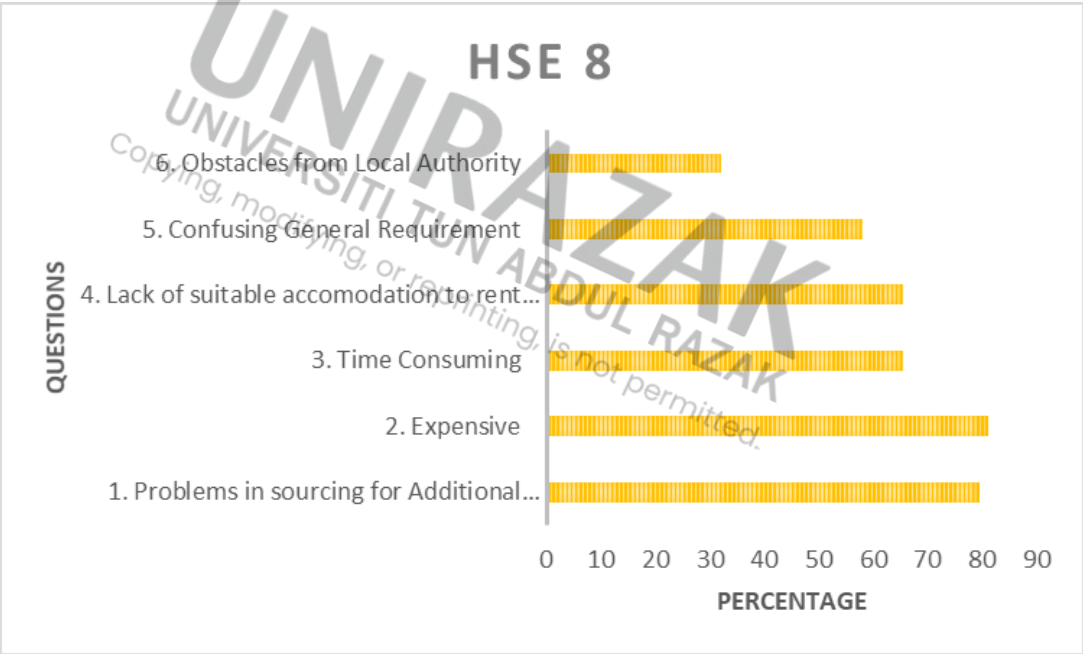


Figure 4.4.1.1: Health & Safety Questions Graph (HSE8)

Both 4.4.1 and 4.4.1.1 above shows the response garnered from all health and safety related questions in Likert scale and multiple-choice question in HSE 8.

On a positive note, 51.6% of respondents has voted that they agree to have successfully implemented the new SOPs by relevant authorities at their construction sites, but 42.6 % strongly agree and 36.9 % agree that various different SOPs from various local authority had caused confusion with safety practitioner as well as their workers. This may be due to the lack of experience by the authorities to standardize a procedure as the pandemic is new and improvements are continuously needed. 36.9 % agree that the new SOPs are relevant in combatting the virus, with 33.6 % agree that regular sanitizing and social distancing is practicable at their workplace; however, this variable comes with distribution of close proximity with 14.8 % of respondents also strongly disagree that regular sanitizing and social distancing is practicable at their workplace. 30.3 % of respondents agree that the new SOPs has been beneficial at their workplace. For questions relating to frequency of authority enforcement at construction sites, and if the new Act 446 (Employees Minimum Standard of Housing Accommodation and Amenities) respondents were neutral with rates of 34.4 % and 43.3 % respectively.

As for the HSE 8 question which focuses on challenges faced by main contractors while implementing the new Act 446 (Employees Minimum Standard of Housing Accommodation and Amenities) as can be seen from table 4.4.1.1 and figure 4.4.1.1 above; the highest response received was implementation of the Act 446 is expensive with 81.1 % of respondents selecting it. This was followed by 79.5% claiming to have problems in sourcing for additional space for the accommodation which is mainly due to distance between beds, and types of accommodation (structure) allowed and location; followed by feedback of time consuming and lack of suitable accommodation to rent as hostel which is at 65.6 % each. Confusing general requirement came at 58.2 % and lastly obstacle from local authority rated at only 32.0 %.

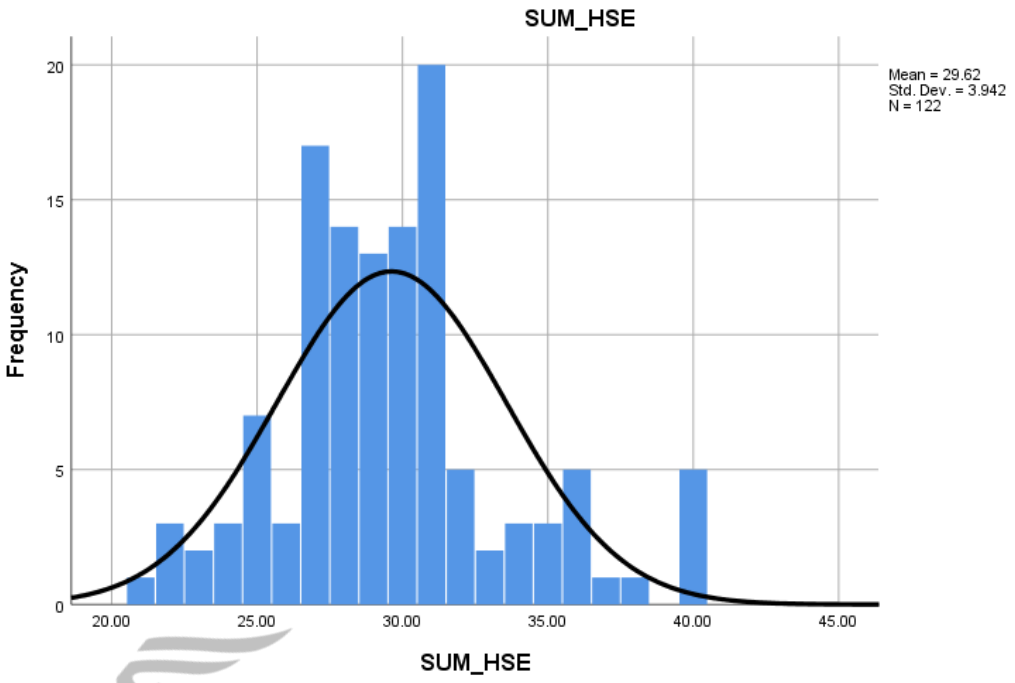


Figure 4.4.2: Distribution of Summation of Health & Safety

Figure showed the result of the distribution of the health and safety questions with mean score of all the variable under this section is 29.62 while the median is 29, indicating that its right skewed (positively skewed).

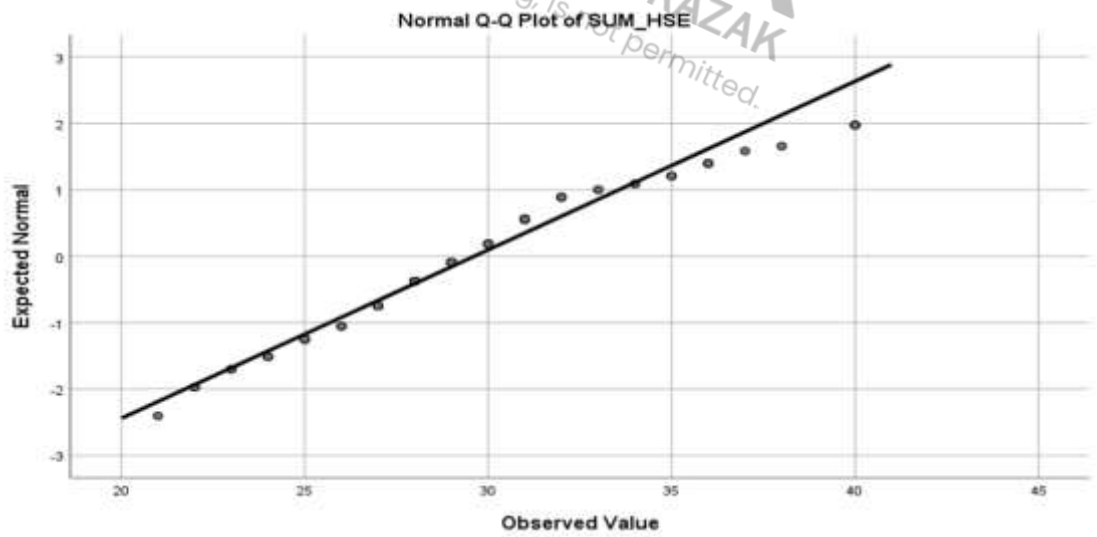


Figure 4.4.3 : Distribution of Q-Q Plot for Summation of Health and Safety

4.5 Section 4 : Operational Effectiveness

The questions in this section were closed ended with 1 (one) question in OPE 3 where respondents were allowed to choose multiple question. The questions of OPE 1 to OPE 2 and OPE 4 to OPE 6 used the Likert scale where respondents would have to rate based on;

1: strongly disagree, 2: disagree, 3: neutral, 4 : agree , 5 strongly agree.

The answers from OPE3 variable were separated and analyzed individually and summed up under one main section response.

No	Statement	1	2	3	4	5
OPE 1	Your organization is/ was effected by reduction in productivity	0.0	0.0	15.6	36.9	**47.5**
OPE 2	Your organization is/was effected by delayed construction progress	0.0	0.0	8.2	36.9	**54.9**
OPE 4	Your organization is receiving reasonable Extension of Time	**36.1**	21.3	26.2	11.5	4.9
OPE 5	Most of the new tenders that your organization participated in was unsuccessful due to unreasonable price margin	0.0	2.5	28.7	33.6	**35.2**
OPE 6	Your company compromise on quality of construction by using cheaper raw material as an alternative to adapt to material price hike	27	**32.8**	20.5	9	10.7

Table 4.5.1: Operational Effectiveness Data

Number	Statement	(%)
OPE 3	Your organization was affected by delay in construction progress due to the following reasons	
	1. Lack of Manpower	80.3
	2. Delay in Receiving Payments from Clients	70.5
	3. Focus on Implementing Safety Measures	58.2
	4. Unable to start work as workers not fully vaccinated	80.3
	5. Construction Material supply Shortage and Delay in Delivery	82.8

Table 4.5.1.1: Operational Effectiveness Data (OPE3)

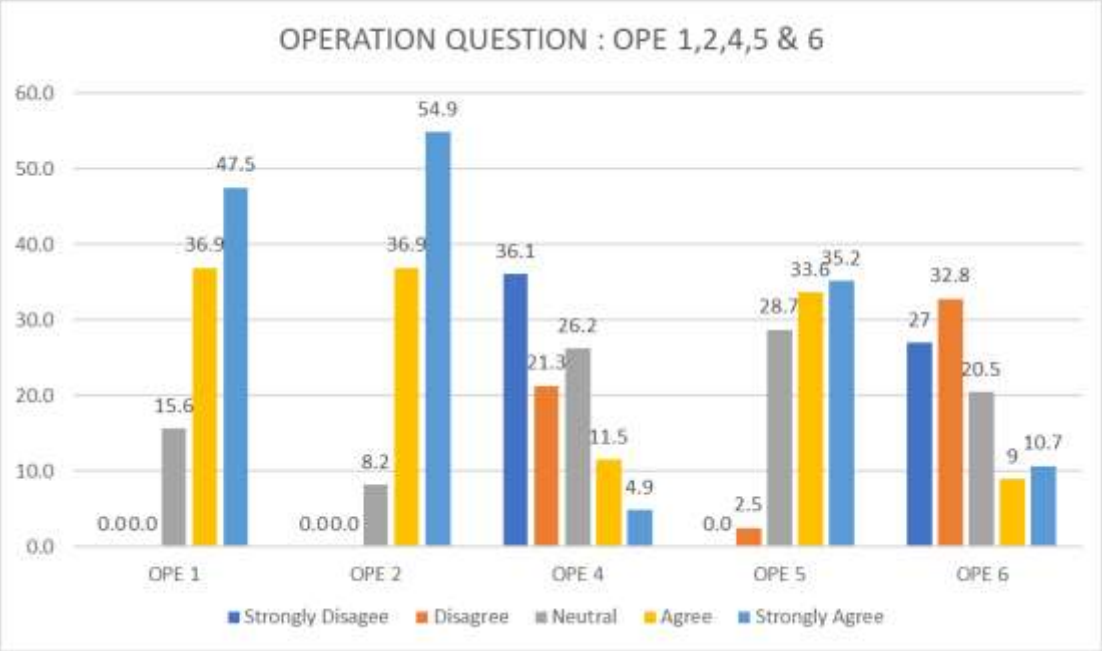


Figure 4.5.1: Operational Effectiveness Data

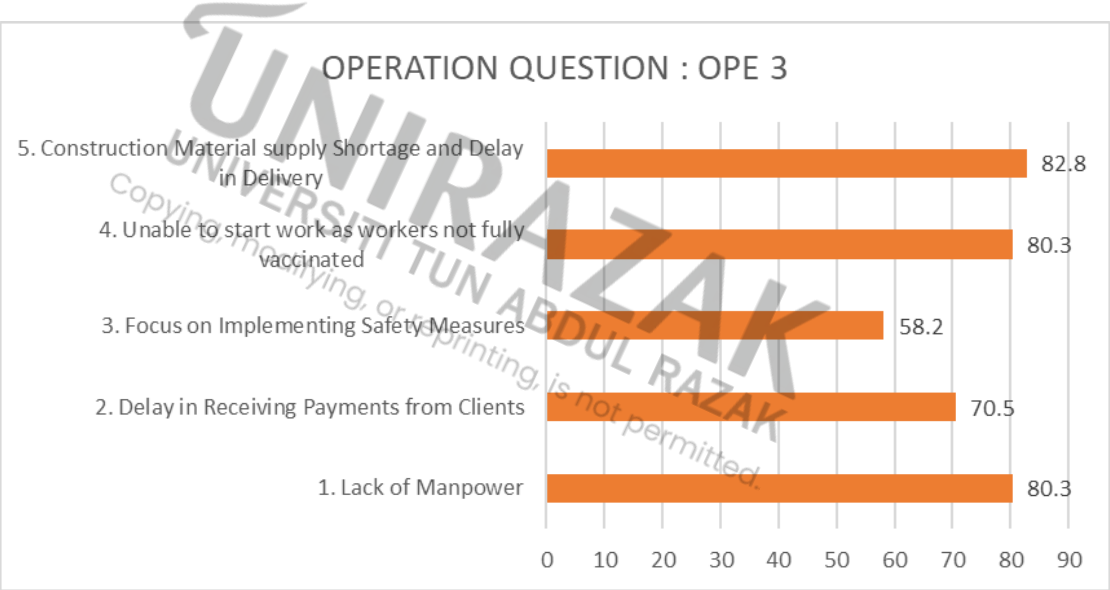


Figure 4.5.1.1: Operational Effectiveness Data

Both table 4.5.1 and 4.5.1.1 above shows the response garnered from all operational effectiveness related questions in Likert scale and multiple-choice question in OPE 3. The highest frequency of response was respondents agreeing that their organization was affected by delay in construction progress with a rate of 54.9 % strongly agreeing, and 36.9 % agreeing towards this statement.

Unsurprisingly, none of them answered totally disagree or disagree towards this statement. This was followed by 47.5 % totally agree and 36.9 % agree that their organization is currently facing reduction productivity due to the pandemic and again unsurprisingly none of them totally disagree or disagree with the statement. 35.2 % totally agreed that most of they loss their tender due to unreasonable price due to supply price increase and yet 32.8% disagreed that they compromise on quality of their construction even though they experience increased price of construction raw material during the pandemic. Unfortunately, 36.1 % of respondents totally disagreed that their organization is receiving reasonable Extension of Time (EOT) despite the imposed MCO, and recovery. This links up to the general question which can be referred in table 4.3.1*:* that 51.6 % responded that are having issues with contractual matters.

As for the OPE 3 question which focuses on reason the organization faced delay in construction progress as can be seen from table 4.5.1.1 above; the highest response received was due to construction material supply shortage and delay in deliver which amounted to 82.8% respondents, followed by lack of manpower and inability to start work due to unvaccinated workers at the time of this research which amounted to 80.3 % respectively. Organizations also experienced delay in receiving payments from client with 70.5 % respondents and 58.2 % respondents had delays due to implementation of stringent safety measures such as the SOP's.

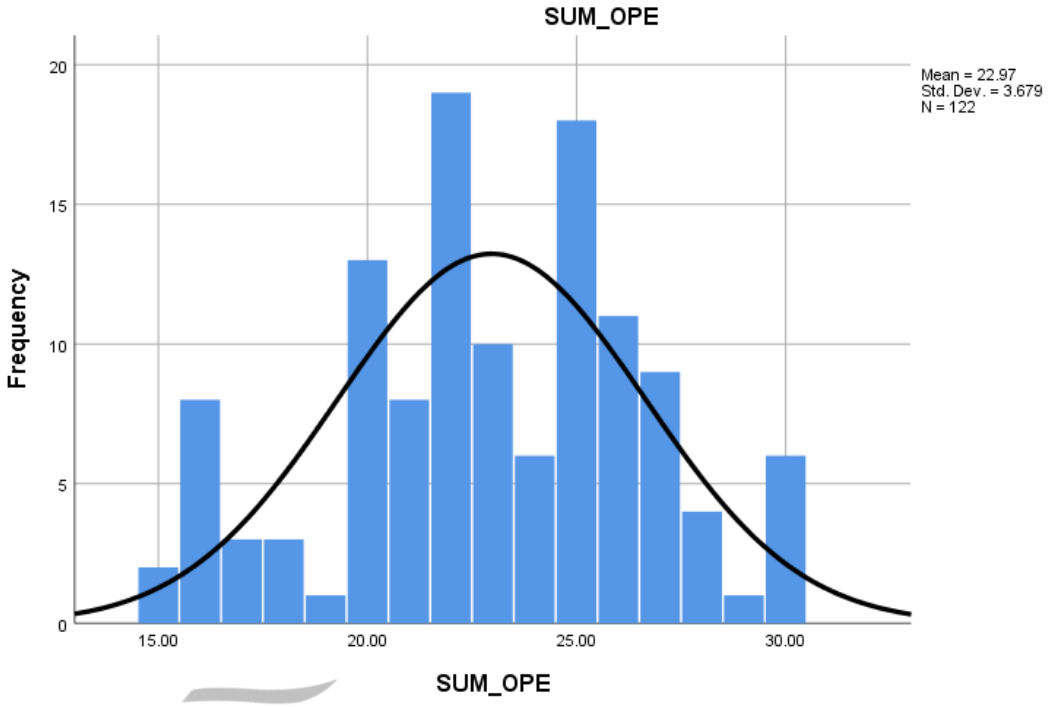


Figure 4.5.2: Distribution of Summation of Operational Effectiveness

Figure 4.5.2 showed the result of the distribution of the Operational Effectiveness questions with mean score of all the variable under this section is 22.97 and a median that is symmetry to the mean which indicates a normal distribution with no skew.

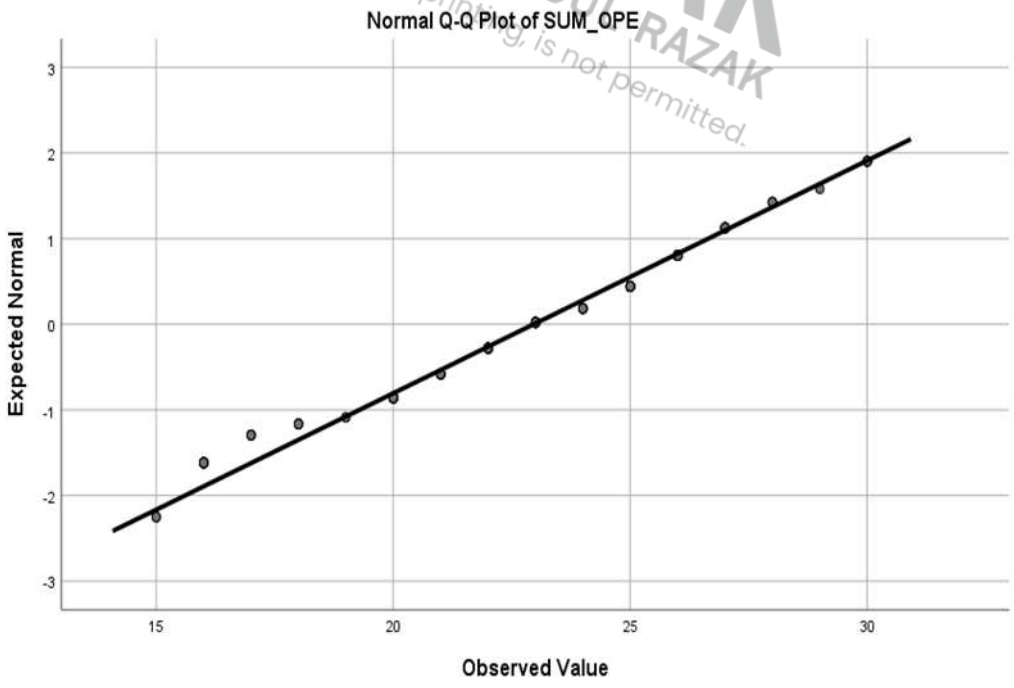


Figure 4.5.3: Distribution of Q-Q Plot for Summation Operational Effectiveness

4.6 Section 5 : Financial Efficiency

The questions in this section were all closed ended. The questions of FIN 1 to FIN 8 used the Likert scale where respondents would have to rate based on;

1: strongly disagree, 2: disagree, 3: neutral, 4: agree, 5 strongly agree.

No	Statement	1	2	3	4	5
FIN 1	Your company experience cashflow constraints	0.0	4.1	22.1	25.4	**48.4**
FIN 2	It was difficult to obtain assistance via banks such as loans	0.0	4.1	28.7	27.9	**39.3**
FIN 3	The Government offered subsidies/grants to ease the burden of your organization	20.5	27.9	**36.1**	9.8	5.7
FIN 4	Your organization experienced increase in price of construction raw material	0.8	0.00	9.8	24.6	**64.8**
FIN 7	Your organization has been charged or is at risk of being charged LAD	9.8	15.6	24.6	21.3	**28.7**
FIN 8	Your organization is having difficulties in paying your vendors	1.6	11.5	23	24.6	**39.3**

Table 4.6.1: Financial Efficiency Data

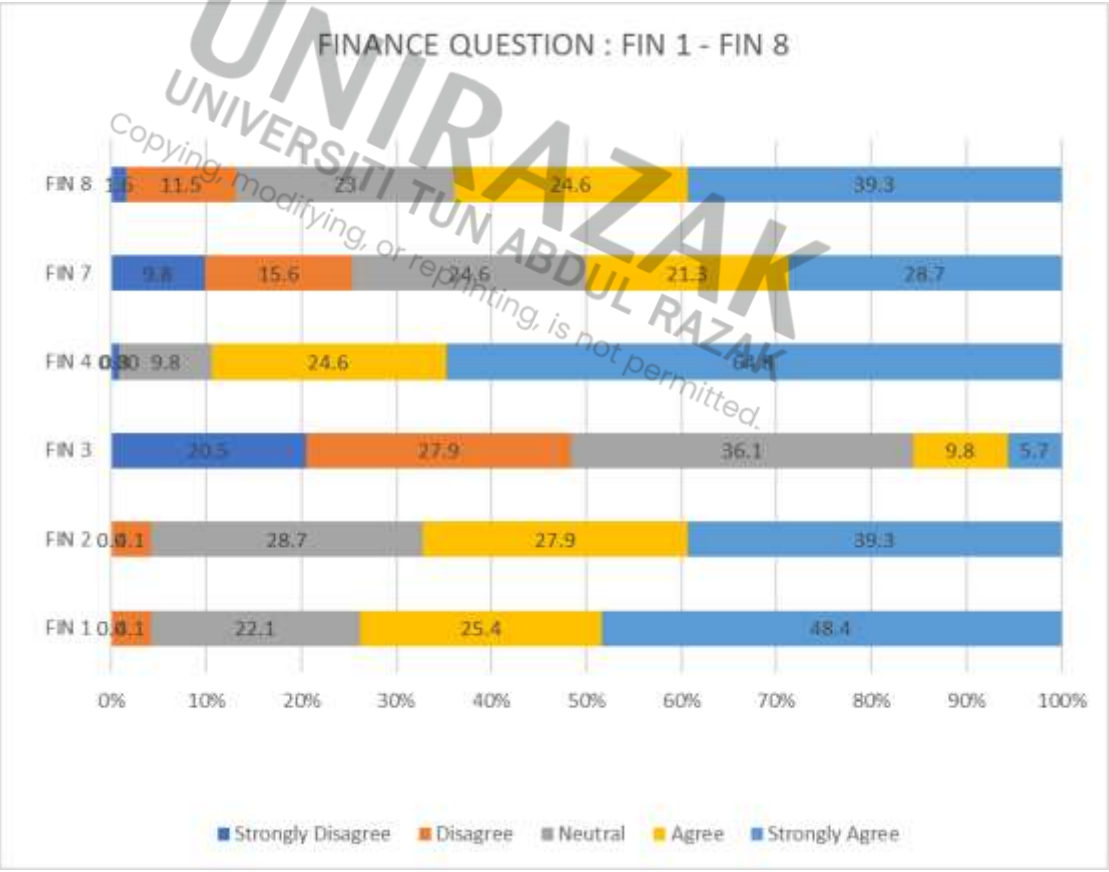


Figure 4.6.1: Financial Efficiency Graph

Table 4.6.1 above shows the response garnered from all financial efficiency related questions in Likert scale.

The highest frequency of response was respondents strongly agreeing that their organization faced increased in price of raw material with 64.8 % respondents. This was followed by 48.4 % respondents strongly agreeing that that their company are in fact experiencing cash flow constraints which can also be related back to GEN 2 question in table 4.3.1 which 77.9 % of respondents agreed to be facing financial issues. 39.3 % respondents also strongly agreed that they had difficulties in obtaining bank assistance, and this was further conformed by the 39.3 % respondents also strongly agreeing to have difficulties in paying their vendors and subcontractors. 28.7 % of respondents strongly agreed that their organization has been charged or at risk of being charged Liquidated Ascertain Damages (LAD). This statement was further supported by the response received in OPE 4 as can be seen from table 4.5.1 where 36.1 % responded that they are not receiving reasonable EOT as well as response received in GEN 2 where 51.6 % of respondents claiming that they are facing contractual issues. However, 36.1 % of respondents are neutral towards question of if the Government are offering subsidies to ease their financial constraints, this was further supported by 20.5 % strongly disagreeing and 27.9 % disagreeing that they are being assisted financially by the Government.

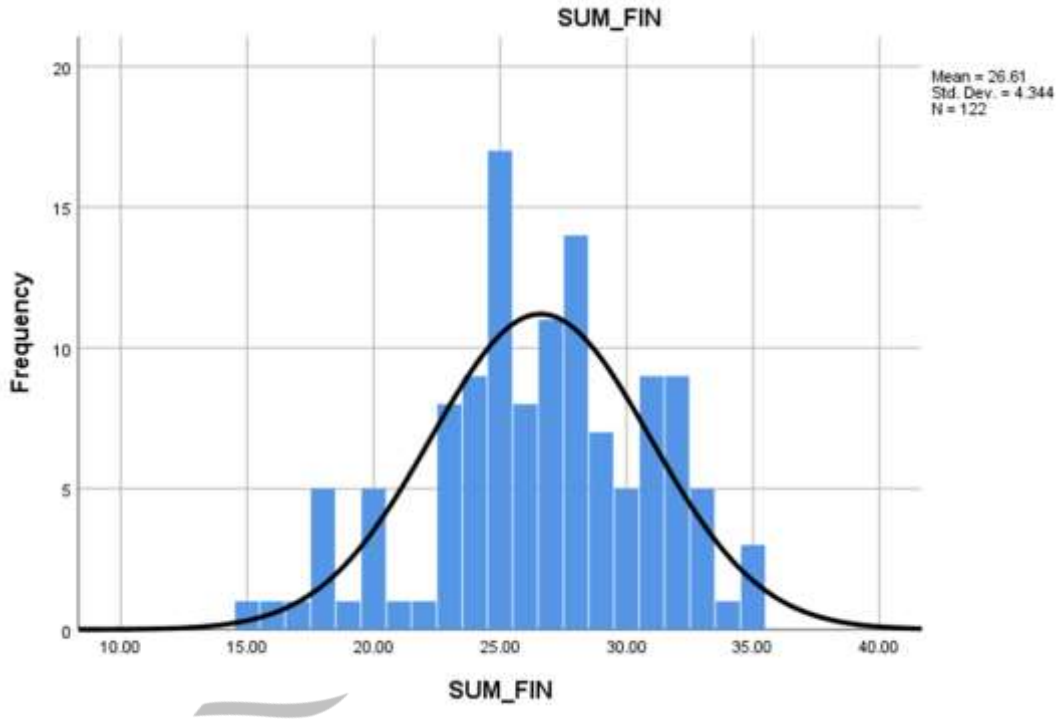


Figure 4.6.2: Distribution of Summation of Financial Efficiency

Figure 4.6.2 shows the result of the distribution of the Financial Efficiency questions with mean score of all the variable under this section is 26.61 and a median that is symmetry to the mean which indicates a normal distribution with no skew.

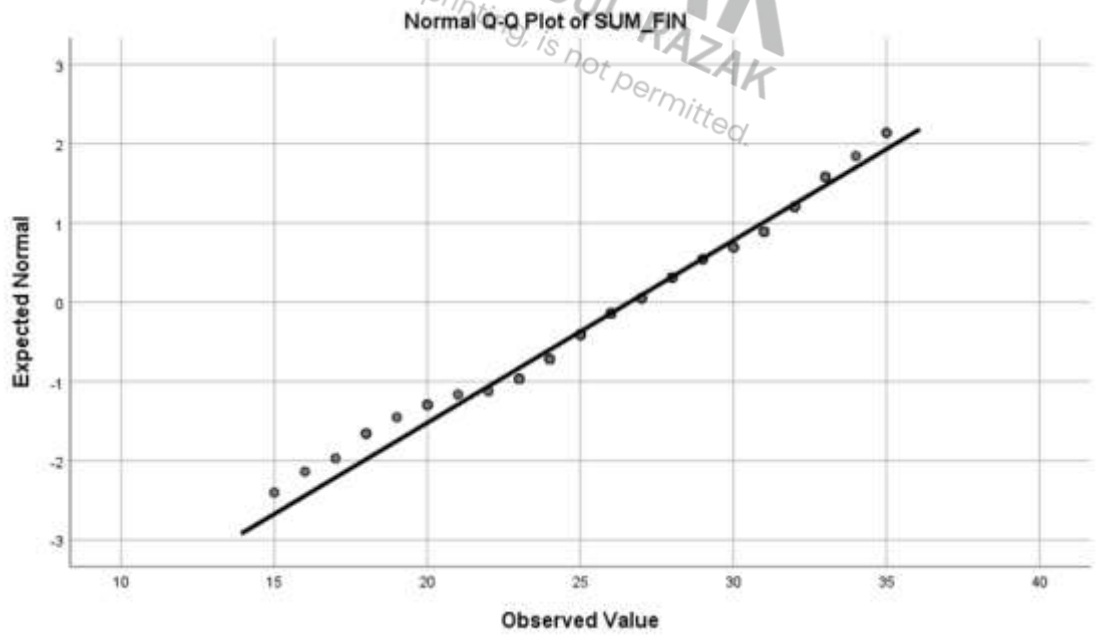


Figure 4.6.3: Distribution of Q-Q Plot for Summation Financial Efficiency

4.7 Section 6 : Organizational Performance

The questions in this section were all closed ended. The questions of ORGPER 1 to ORGPER 3 used simple dichotomous questions.

Number	Statement	Yes (%)	No (%)
ORGPER 1	the pandemic has affected the organizational performance of your organization	52.5	47.5
ORGPER 2	Various SOP's related to Health and Safety imposed has affected the Organizational Performance of your organization	33.6	66.4
ORGPER 3	Financial and Operational Constraints has affected the Organizational Performance of your organization	82	18

Table 4.7.1: Organizational Performance Data

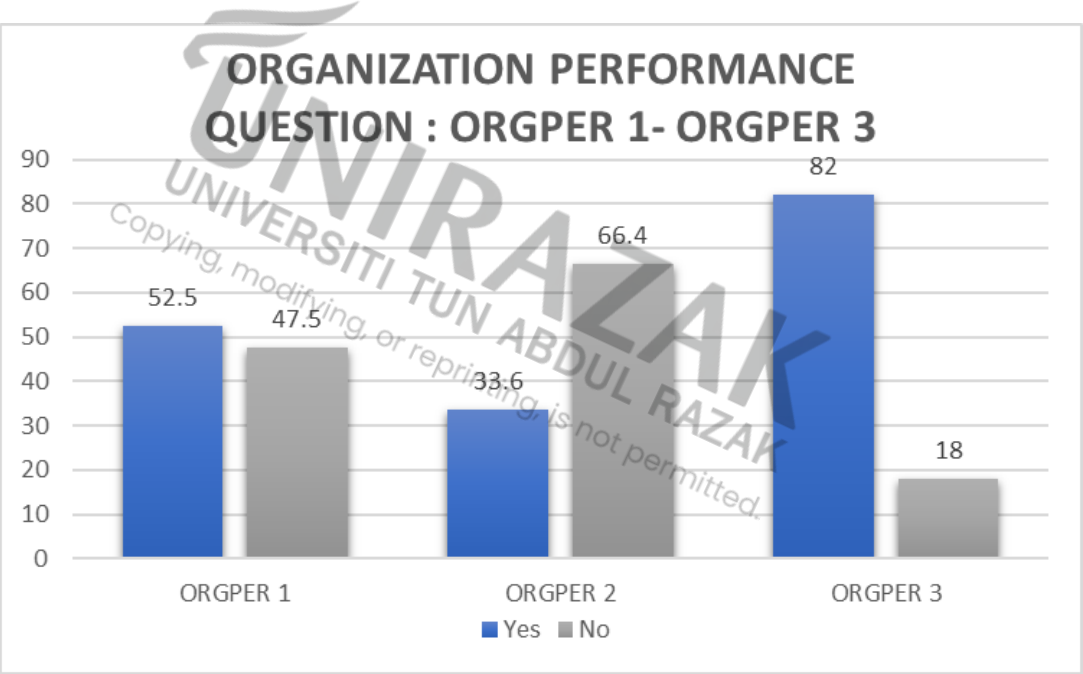


Figure 4.7.1: Organizational Performance Graph

Figure 4.7.1 above shows the response garnered from all organizational performance related questions in dichotomous basis.

The highest frequency is 82% of respondents conforming that their organization is indeed experiencing financial and operational constraint due to the pandemic, with 52.5 % agreeing that the pandemic has affected the organization performance of the company. However, 66.4 % of respondents claims that the various SOP's imposed health and safety segment did not affect the organization performance of their company.

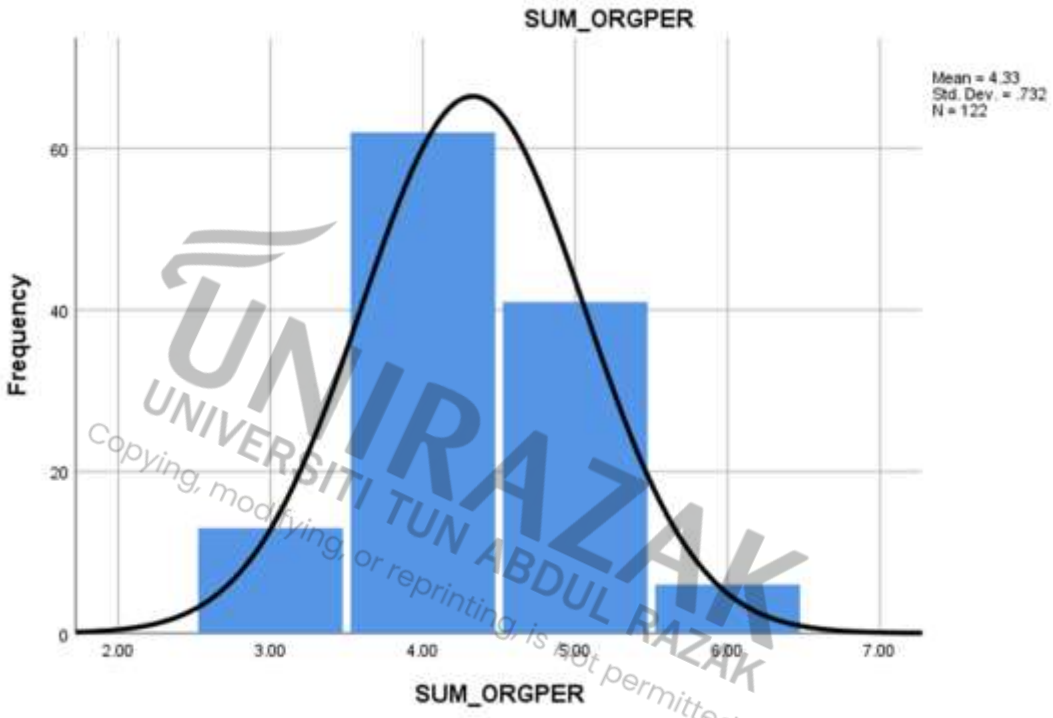


Figure 4.7.2: Distribution of Summation of Organizational Performance

Figure 4.7.2 showed the result of the distribution of the Organizational Performance questions with mean score of all the variable under this section is 4.33 and a median of 5.00 indicating that its right skewed (positively skewed).

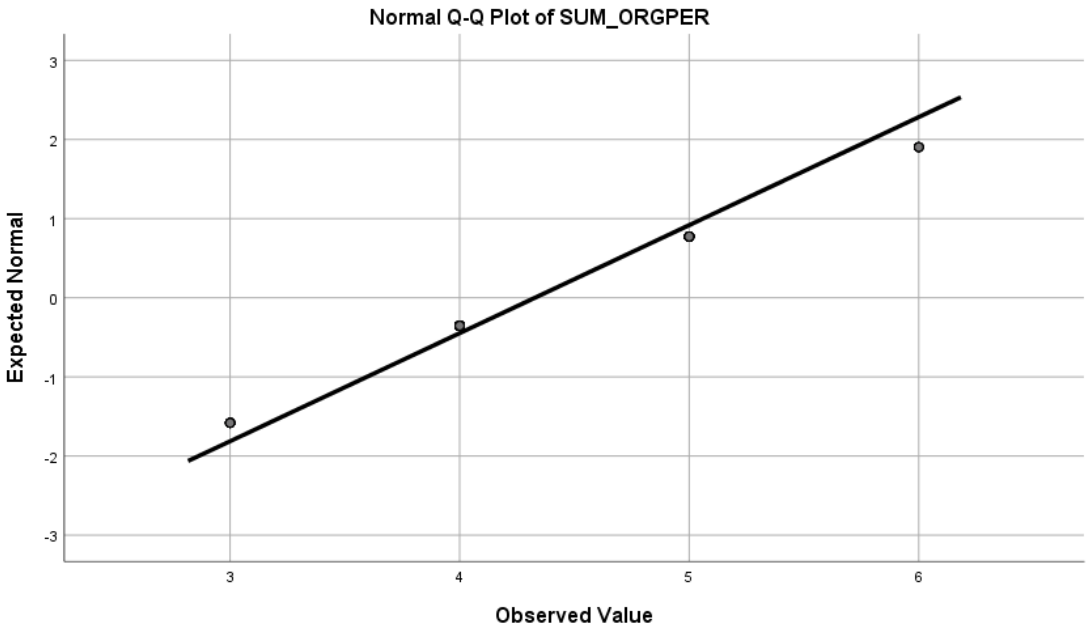


Figure 4.7.3 : Distribution of Q-Q Plot for Organizational Performance

4.8 Section 7 : Opinions and Conclusion

The questions in this section were all closed ended. The questions of SUMM 1 and SUMM 2 used multiple choice questions.

Number	Statement	(%)
SUMM 1	There are new opportunities for the construction industry as a result of the Covid-19 pandemic which are	
	1. Increased use of Technology/Digitalization	54.1
	2. Stabilizing supply chain by securing critical materials and identifying alternative supplier	53.3
	3. Value Engineering	52.5
	4. Increased awareness towards Health and Safety	73.0
	5. Stronger Risk Management, Internal Control and Corporate Governance	72.1
	6. Stratergizing Investments and sharpening core business focuses	50.8

Table 4.8.1: Opinions and Conclusion 1 Data

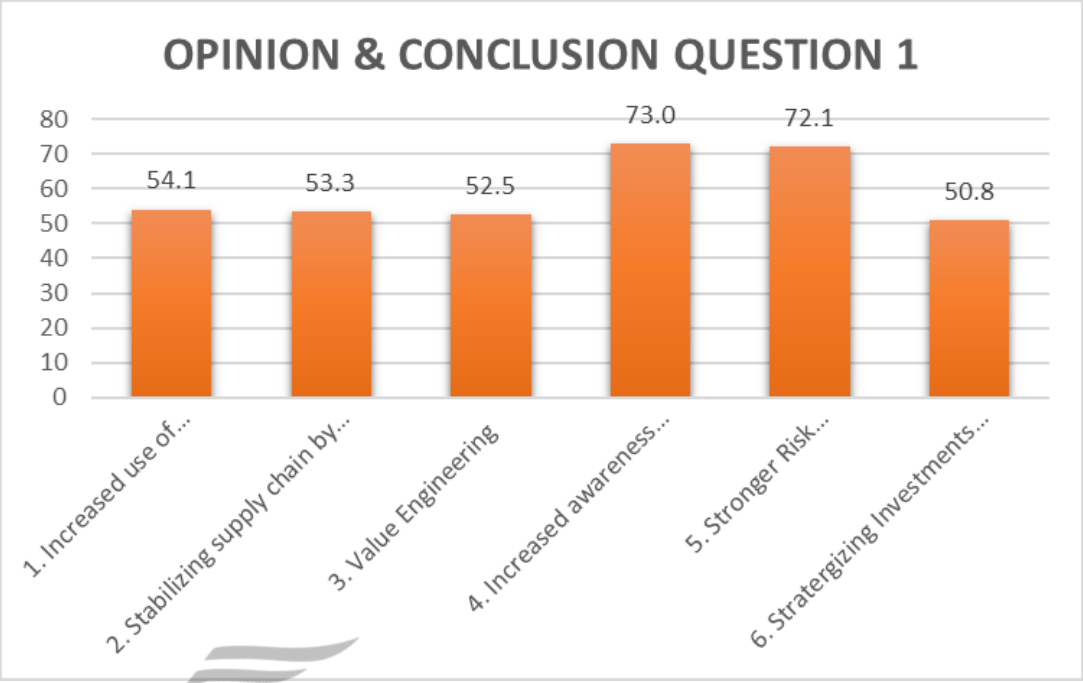


Figure 4.8.1: Opinions and Conclusion 1 Graph

The table 4.8.1 above asks questions if there are new opportunity for the construction industry as a result of the pandemic. The highest frequency is 73.0% where respondents claim to have increased awareness towards health and safety which is understandable as the world is on an endemic state, followed by 72.1 % for stronger risk management, internal control and corporate governance. It was further demonstrated that 54.1 % respondents claim to increase use of technology followed 53.3 % claims to have stabilized or improved supply chain by securing critical raw materials and identifying alternative suppliers. Additionally, 52.5 % selected Value Engineering which will further improve the cash flow of the organization especially when price increase has been significant, followed by 50.8 % who responded towards strategizing investments and sharpening core business focuses.

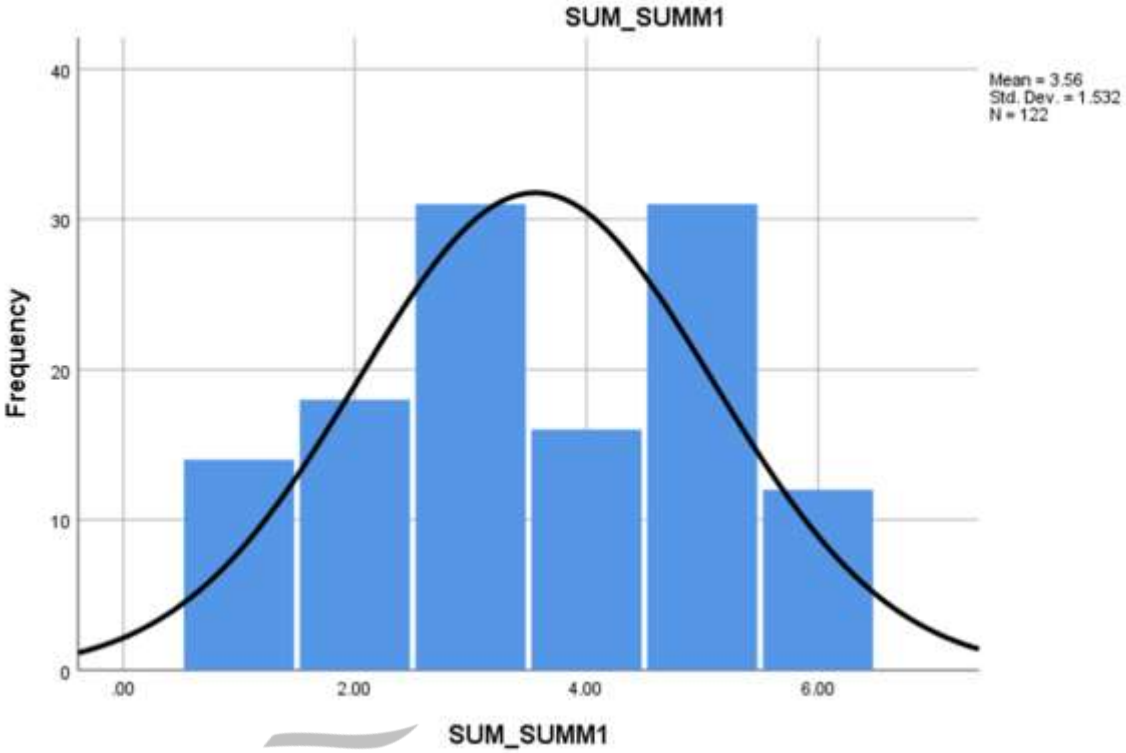


Figure 4.8.2: Distribution of Summation of Opinions and Conclusion 1

Figure 4.8.2 shows the result of the distribution of the Opinions and Conclusion 1 questions with mean score of all the variable under this section is 3.56 and a median that is symmetry to the mean which indicates a normal distribution with no skew.

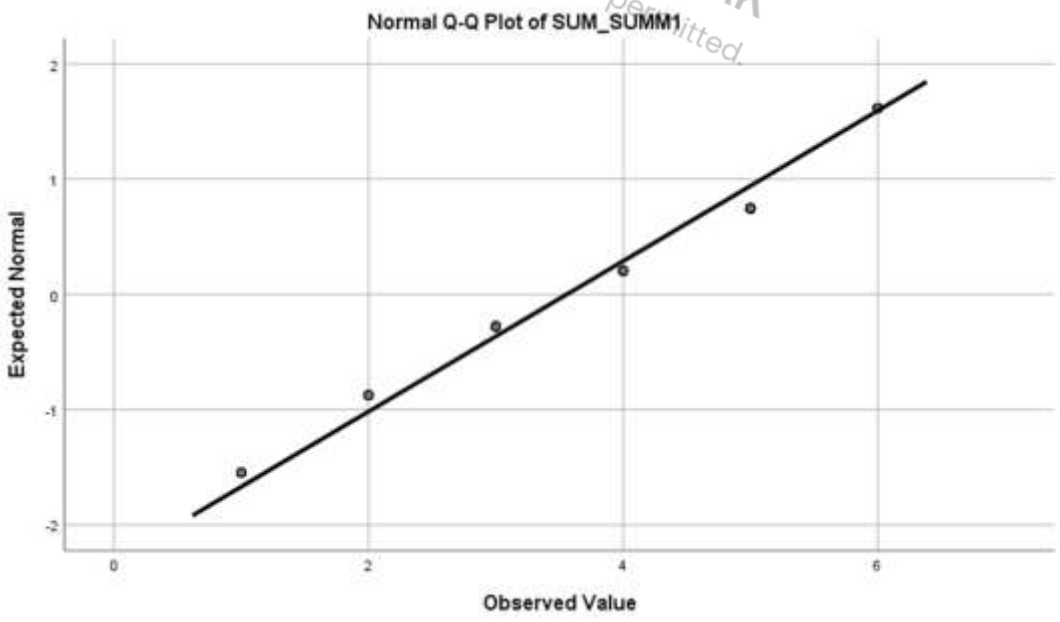


Figure 4.8.3: Distribution of Q-Q Plot for Opinions and Conclusion 1

Number	Statement	(%)
SUMM 2	How do you think the Government could assist in reducing the burden of the G7 Class Contractor in Johor Bahru	
	1. Economic Stimulus Package to include G7 contractor	82.0
	2. Easier Financing Scheme	73.8
	3. Reducing unnessary regulatory burden	74.6
	4. Tax Relief/Tax Incentive/Reduced Stamp Duties	82.8
	5. Better Job Retention Scheme	34.4

Table 4.8.2: Opinions and Conclusion 2 Data

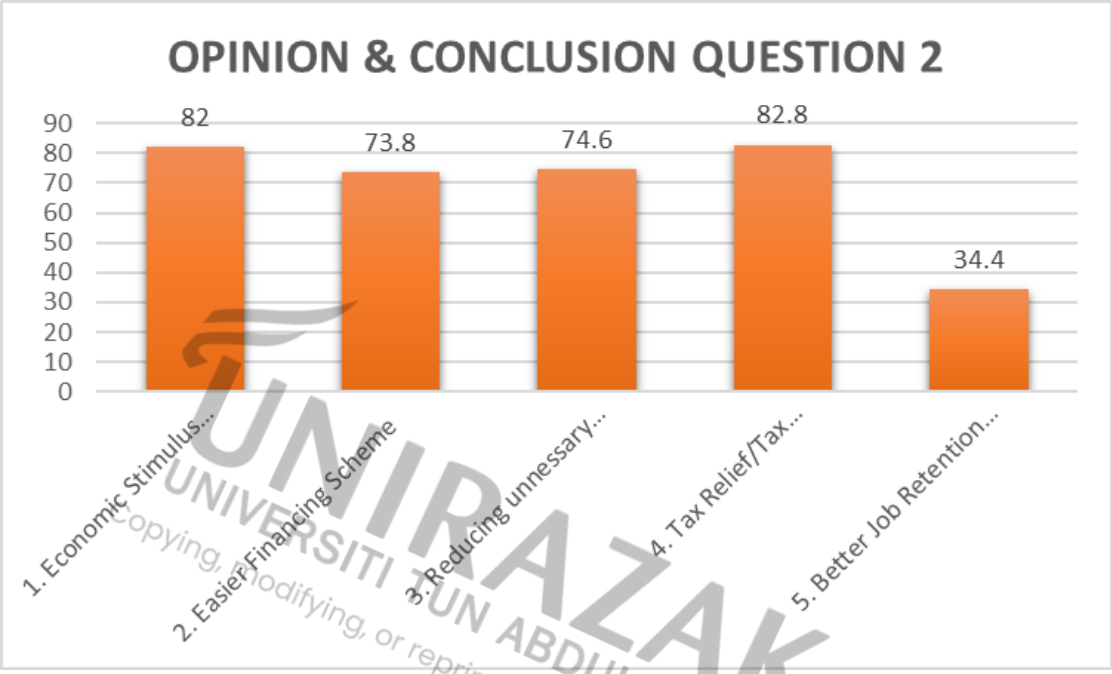


Figure 4.8.4 : Opinions and Conclusion 2 Graph

The table 4.8.2 above questions respondents on how the Government could assist the G7 contractors' sustainability.

The highest frequency is 82.8 % where respondents opine that they should be given tax relief and reduced stamp duties, followed by 82.0 % claiming to have an economic stimulus package to include G7 contractors. Additionally, 74.6 % respondent claims to reduce unnecessary regulatory burden and 73.8 % opted for easier financing scheme. Only 34.4 % selected better job retention scheme.

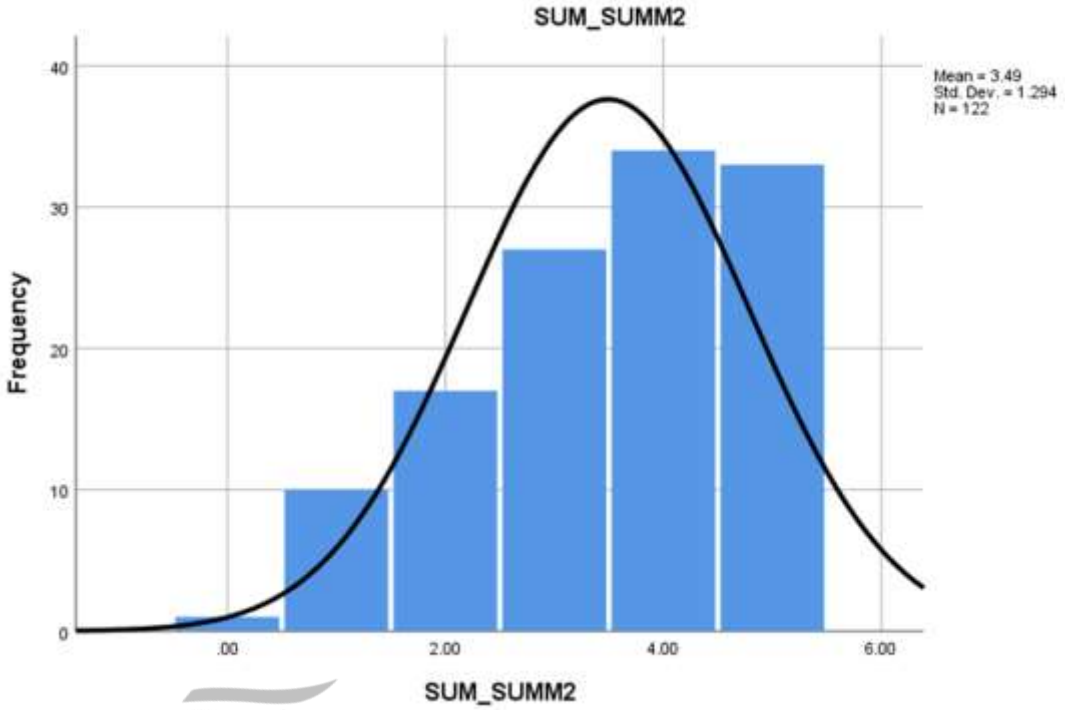


Figure 4.8.5 : Distribution of Summation of Opinions and Conclusion 2

Figure 4.8.5 shows the result of the distribution of the general questions with mean score of all the variable under this section is 3.49 while the median is 2, indicating that its left skewed (negatively skewed).

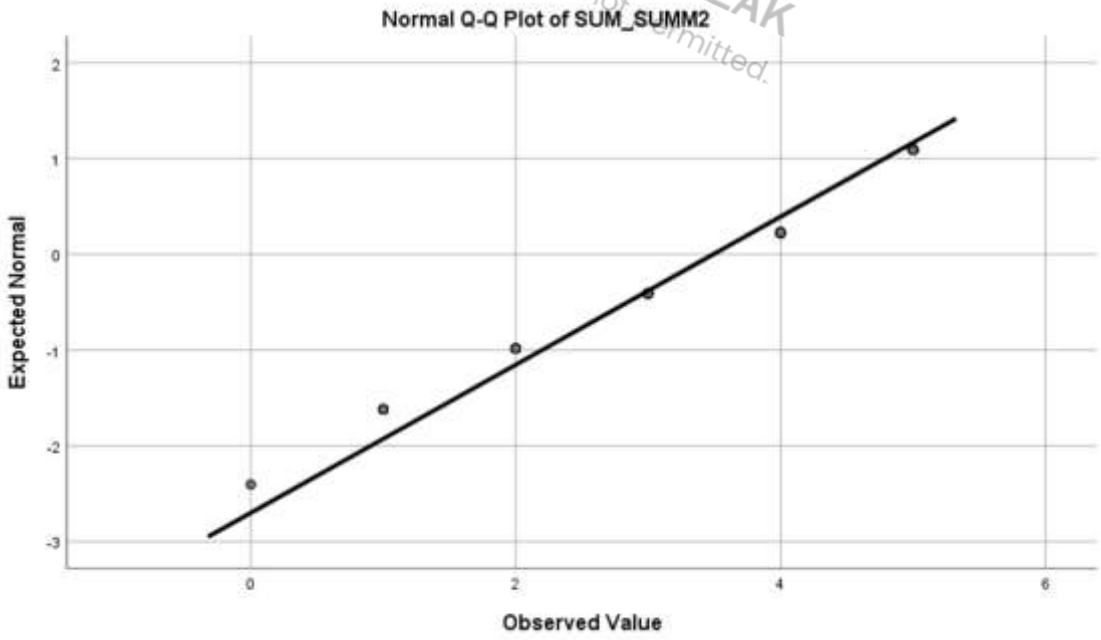


Figure 4.8.6 : Distribution of Q-Q Plot for Opinions and Conclusion 2

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SUM_SUMM1	0.179	122	0.000	0.919	122	0.000
SUM_SUMM2	0.202	122	0.000	0.890	122	0.000
a. Lilliefors Significance Correction						

Table 4.8.3: Test of Normality for Opinions and Conclusions Questions

The normality test as per table 4.8.3 above shows the significant level of this variable is at a correlation of < 0.01 level.

4.9 Hypothesis Testing

Hypotheses testing was conducted to proof the individual hypothesis justifications. Chi Square test, Pearson Correlation and regression were conducted to justify the 3 (three) hypotheses as below: -

H1: New safety regulations have impacted construction companies' organizational performance post the Covid-19 pandemic

H_2: Operational constraints have impacted construction companies' organizational performance post the Covid-19 pandemic

H_3: Financial constraints have impacted construction companies' organizational performance post the Covid-19 pandemic

4.9.1 Chi-Square Test

4.9.1.1 Relationship between New Safety Regulation and Organizational Performance

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SUM_ORGPER * SUM_HSE	122	100.0%	0	0.0%	122	100.0%

Table e 4.9.1 : Chi-Square Test between Health and Safety and Organizational Performance

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	140.754[a]	54	.000
Likelihood Ratio	85.414	54	.004
Linear-by-Linear Association	5.152	1	.023
N of Valid Cases	122		

a. 69 cells (90.8%) have expected count less than 5. The minimum expected count is .05.

Table 4.9.1.1: Chi-Square Test between Health and Safety and Organizational Performance

Based on table 4.9.1 above, the P- value is recorded below 0.05. The results are considered significant if the P-value is equal or less that the alpha level which is 0.05. In this study, it is asserted that the relationship between Health and Safety and Organization Performance is significant as the P-value is lesser than alpha value and are therefore associated with each other.

4.9.1.2 Relationship between Operational Effectiveness and Organizational Performance

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SUM_ORGPER * SUM_OPE	122	100.0%	0	0.0%	122	100.0%

Table 4.9.2: Chi-Square Test between Operational Effectiveness and Organizational Performance

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	65.056[a]	45	.027
Likelihood Ratio	56.860	45	.111
Linear-by-Linear Association	7.903	1	.005
N of Valid Cases	122		

a. 57 cells (89.1%) have expected count less than 5. The minimum expected count is .05.

Table4.9.2.1: Chi-Square Test between Operational Effectiveness and Organizational Performance

Based on table 4.9.2 above, the P- value is recorded below 0.05. The results are considered significant if the P-value is equal or less that the alpha level which is 0.05. In this study, it is asserted that the relationship between Operational Effectiveness and Organization Performance is significant as the P-value is lesser than alpha value and are therefore associated with each other.

4.9.1.3 Relationship between Financial Efficiency and Organizational Performance

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SUM_ORGPER * SUM_FIN	122	100.0%	0	0.0%	122	100.0%

Table 4.9.3 : Chi-Square Test between Financial Efficiency and Organizational Performance

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	107.644[a]	60	.000
Likelihood Ratio	83.802	60	.023
Linear-by-Linear Association	21.898	1	.000
N of Valid Cases	122		

a. 80 cells (95.2%) have expected count less than 5. The minimum expected count is .05.

Table 4.9.3.1: Chi-Square Test between Financial Efficiency and Organizational Performance

Based on table 4.9.3 above, the P- value is recorded below 0.05. The results are considered significant if the P-value is equal or less that the alpha level which is 0.05. In this study, it is asserted that the relationship between Financial Efficiency and Organization Performance is significant as the P-value is lesser than alpha value and are therefore associated with each other.

4.10. Pearson's Correlation

The strength of the linear link between two variables, is measured by correlation coefficients. A positive link is shown by a linear correlation coefficient greater than zero (> 0.00) and a negative association is indicated by a value smaller than zero (< 0.00). For continuous data scales, the correlation coefficient ranges from -1 to +1.

Table 4.10.1 below shows the relationship between the Independent Variable which are new safety regulation, operational effectiveness and financial efficiency with the dependent variable which is Organizational Performance

Correlations

		SUM_HSE	SUM_OPE	SUM_FIN	SUM_ORGPER
SUM_HSE	Pearson Correlation	1	.279**	.169	.206*
	Sig. (2-tailed)		.002	.063	.023
	N	122	122	122	122
SUM_OPE	Pearson Correlation	.279**	1	.592**	.256**
	Sig. (2-tailed)	.002		.000	.004
	N	122	122	122	122
SUM_FIN	Pearson Correlation	.169	.592**	1	.425**
	Sig. (2-tailed)	.063	.000		.000
	N	122	122	122	122
SUM_ORGPER	Pearson Correlation	.206*	.256**	.425**	1
	Sig. (2-tailed)	.023	.004	.000	
	N	122	122	122	122

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 4.10.1: Pearson's Correlation between Independent and Dependent Variable

As shown on figure 4.10.1 above, the Pearson correlation for Health and Safety (HSE) is r = 0.206 and 1 indicates a perfect positive linear relationship between variables. As resulted correlation is significant at the 0.01 level; (r = 0.206, n = 122, p = <.001).

The Pearson correlation for Operational Effectiveness is r = 0.256 and 1 indicates a perfect positive linear relationship between variables. As resulted correlation is significant at the 0.01 level; (r = 0.256, n = 122, p = <.001).

The Pearson correlation for Financial Efficiency is r = 0.425 and 1 indicates a perfect positive linear relationship between variables. As resulted correlation is significant at the 0.01 level; (r = 0.425, n = 122, p = <.001).

4.11. Multiple Regression Analysis

4.11.1 Test of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SUM_HSE	.159	122	.000	.952	122	.000
SUM_OPE	.111	122	.001	.969	122	.007
SUM_FIN	.085	122	.030	.974	122	.020
SUM_ORGPER	.288	122	.000	.839	122	.000

a. Lilliefors Significance Correction

Table 4.11.1: Test of Normality of All Variables with Dependent Variable

The normality test shown on table 4.11.1 above shows the significant level of:

i. Health and safety (HSE) variable are at a correlation of < 0.05 level. Therefore, the null hypothesis is rejected;
ii. Operational effectiveness (OPE) variable, it is at a correlation of < 0.05 level. Therefore, the null hypothesis is rejected;
iii. Financial efficiency (FIN) variable, it is at a correlation of < 0.05 level. Therefore, the null hypothesis is rejected.

4.11.2 Model Summary

The strength of the association between the model and the dependent variable is reported in the model summary table 4.11.2 below. The linear correlation between the observed and model-predicted values of the dependent variable is represented by R, the multiple correlation coefficient. Its high value denotes a strong connection.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.448[a]	.200	.180	.66312

a. Predictors: (Constant), SUM_FIN, SUM_HSE, SUM_OPE

Table 4.11.2: Model Summary

The squared value of the multiple correlation coefficient is R Square, the coefficient of determination. It reveals that 20.0 % percent of the variation in time or as can be seen in the adjusted R-square; 18.0 % has been explained.

4.11.3 ANOVA Analysis

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.998	3	4.333	9.853	.000[b]
	Residual	51.887	118	.440		
	Total	64.885	121			

a. Dependent Variable: SUM_ORGPER

b. Predictors: (Constant), SUM_FIN, SUM_HSE, SUM_OPE

Table 4.11.3: ANOVA Analysis

As can be referred from figure, it is proven that there is a significant value of 0.00 (p= ≤0.01) which is below 0.05. Therefore, there is a statistically significant difference between the means of all independent variable and the dependent variable.

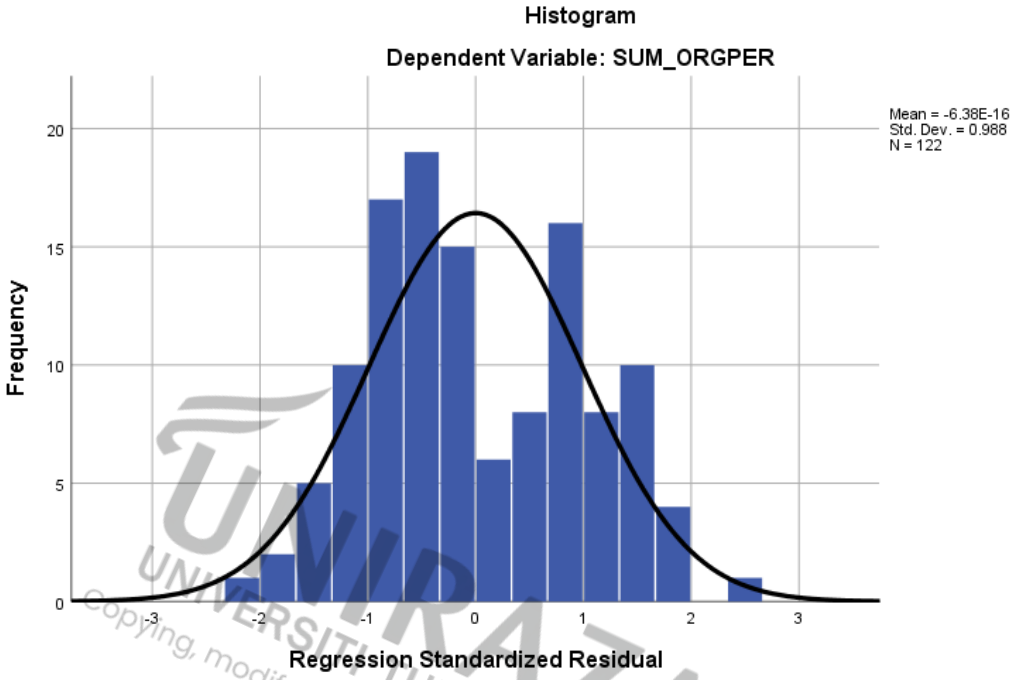


Figure 4.11.1: ANOVA Analysis

Figure 4.11.1 showed the result of the distribution of the ANOVA figures of independent variable which are health and safety, operational effectiveness and financial efficiency with the dependent variable Organizational Performance. The mean score of all the variable under this section and the median is symmetry to which indicates a normal distribution with no skew.

4.11.4 Coefficients

The next step, the analysis of the value of coefficients for these models. The values are given in figure 4.11.5 below.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.798	.556		3.236	.002
	SUM_HSE	.027	.016	.145	1.689	.094
	SUM_OPE	-.007	.021	-.034	-.326	.745
	SUM_FIN	.071	.017	.421	4.124	.000

a. Dependent Variable: SUM_ORGPER

Table 4.11.4: Coefficients

Based on figure above, the following is derived:

i. The coefficient for Health and Safety (HSE) which is 0.027 is not statistically significant from 0 using alpha of 0.05 because its p-value is 0.094 which is greater than 0.05;

ii. The coefficient for Operational Effectiveness (OPE) which is -0.007 is not statistically significant from 0 using alpha of 0.05 because its p-value is 0.094 which is greater than 0.05

iii. The coefficient for Financial Efficiency (FIN) which is 0.071 is statistically different from 0 using alpha of 0.05 because its p-value is 0.000 which is smaller than 0.05

In summary, the financial efficiency has the most significance impact towards organizational performance compared to health and safety and operational effectiveness.

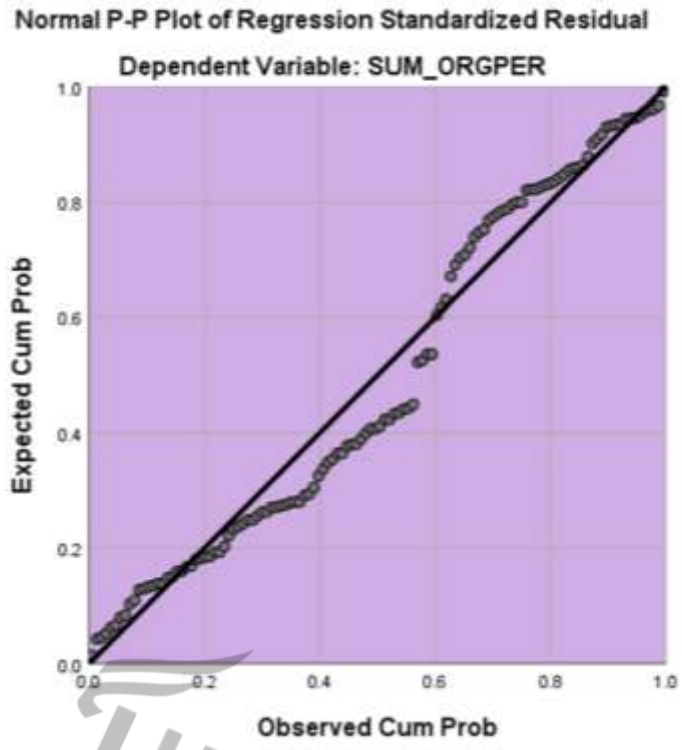


Figure 4.11.2 :P-P Regression Plot

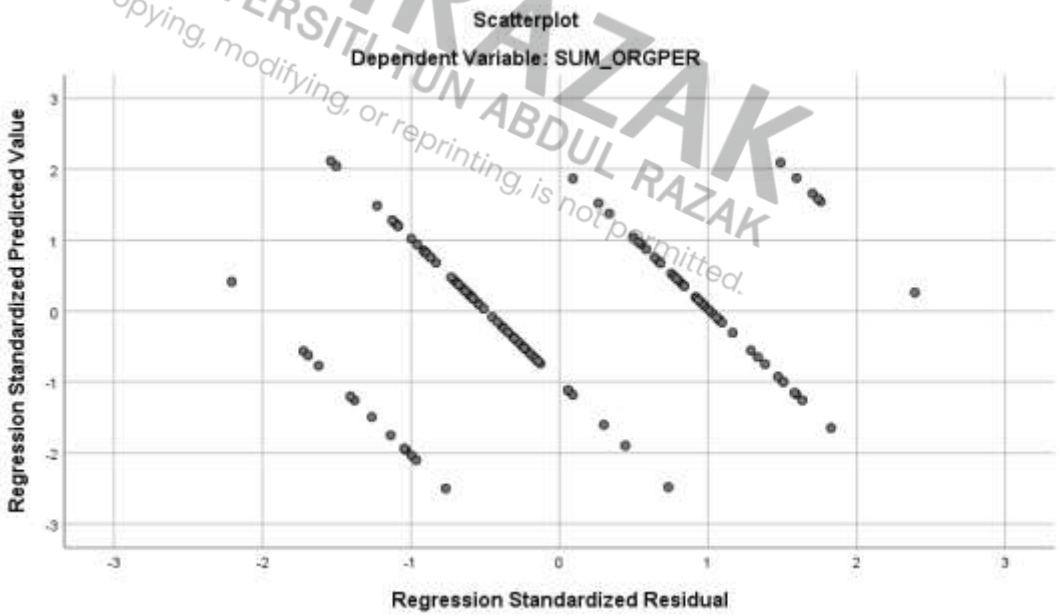


Figure 4.11.3 :P-P Regression Scatter Plot

4.12. Summary

As a result of the correlations significant, the researcher was able to determine that all of the relationships are in a good and strong position, indicating that the relationships are positively excellent and strong. Furthermore, all of the IVs are statistically significant (p-value) at 0.001. This means the first Research Objectives and Research Questions have been answered. The researcher also revealed which IVs have a substantial impact on the DV. The researcher used regression analysis to see the coefficient correlation analysis in identifying the relationship between the independent factors and the dependent variable in order to answer the first research aim.

CHAPTER 5

CONCLUSION

5.1 Introduction

This chapter will discuss the outcomes or results derived from Chapter 4. All data collected was analyzed to access the objective reliability, importance of the variables as well as the prominent factors which contributes towards the hypothesis.

All results were analyzed via SPSS software and then it was summarized accordingly. In addition, the research implications help to demonstrate the need of researching solutions to the recognized problem as well as the study's relevance to other parties. The limits of the analysis have also been identified and investigated.

The questionnaires also involved asking the respondents if there was any positive outcome due to the pandemic (SUMM 1) and suggestions of how the Government could step up and assist to reduce the burdens of G7 contractors in Johor Bahru in order to ensure their sustainability (SUMM2).

Finally, practical recommendations were made, and the study came to a close with research ideas for the future researches.

5.2 Conclusion

The first issue is to find out if Health and Safety regulations has influenced the organization performance of G7 contractors in Johor Bahru. This was followed by probe into Operational effectiveness influence on organization performance and finally if financial efficiency has affected the organization performance of those G7 contractors. Questionnaires were created based on these 3 (three) issues, and a survey was conducted.

From data collected, 3 (three) crucial areas were tested and hypothesis were confirmed and accepted. Conclusions were drawn from these 3 (three) hypotheses, and this information also aided in the construction of the suggestions.

The individual chi-square test value for all 3 (three) independent variables namely Health and Safety (HSE), Operational Effectiveness (OPE) as well as Financial Efficiency (FIN) has resulted in alpha value below 0.05 which asserted that all the variables is significant to the dependent variable which is the organization performance of G7 contractors in Johor Bahru.

Results based upon the Pearson correlation analysis too, all variable shows significant linear relationship of p-value ≤ 0.001 level. This results too proven to be supporting the hypothesis of factors effecting the organizational performances.

In regards to the model summary R-square value, it reveals that 20.0 % percent of the variation in time or as can be seen in the adjusted R-square; 18.0 % has been explained. This means that only between 18 % to 20% of the independent variable are explaining about the dependent variable. However, researcher is confident that all variable included are unique contributions towards this research and since the topic chosen which is Covid-19 endemic and construction which is relatively new with limited studies done, its normal to have a small level of r-square at this point of research.

Furthermore, the results from the ANOVA are positive and significant with p-value ≤ 0.001 level which is below the alpha value of 0.05. Finally, the coefficient levels show normal distribution levels with the financial efficiency having the most significance impact towards organizational performance compared to health and safety and operational effectiveness.

Succinctly, the research's bullish forecast shows that the pandemic of Covid-19 has a substantial impact on the organizational performance of G7 contractors in Johor Bahru.

5.3 Recommendations of the Study

The researcher also asked questions related to positive impacts that the pandemic may have on the organization and the most feedback obtained surprisingly was 73 % stating to have increased awareness on health and safety matters, followed by stronger risk management, internal control and corporate governance in the organization. This further proves that organizations have diverted their management positively for better sustainability and have strengthen their core of business especially related to health and safety. The importance of health is noteworthy with employers understanding that the only way to break the chain of infections is to adhere strictly to the SOP's.

Ultimately, in opinions sections under question asking how can the Government assist in reducing the burden of the G7 contractors, inevitably 82.8 % respondents requested for tax relief and 82 % opted for a comprehensive economic stimulus package for G7 contractors; both of which are in direct correlation with financial struggles, which further concludes the strongest determining variable of Financial Efficiency effect on Organizational performance. These findings will aid policymakers in improving existing strategic plans and developing new policies to deal with the consequences of COVID-19 in the building construction industry. This is because, real estate and construction industry have a substantial impact on socioeconomic growth and infrastructural development.

Construction of adequate buildings and infrastructure can assure national economic stability, job development, community cohesiveness, and improved living conditions.

The COVID-19 outbreak serves as a clear reminder that, like other uncommon calamities, pandemics have occurred and will continue to occur. Organizations and Government can plan for the implications of deadly infections even spreading of the virus can't be stopped (Donthu and Gustafsson 2020).

5.4 Recommendation to Future Researches

There are a few recommendations to future researches as follows:

i. In-depth study on how technologies such as robotics, building information modelling (BIM) as these technologies can help increase worker productivity while also ensuring their health, well-being, and safety in the construction industry because fewer human contacts are required. These technologies are predicted to persist and evolve during the endemic.

ii. In-depth study on common practice of how does a construction industry in Malaysia adopt its internal control policies during the endemic and manage its possible prices, cost increase, safety methodology and all related in order to improve project and task performance, improve collaboration, and complete projects on schedule and on budget, resulting in improved profit margins.

iii. In-depth study of all classes of construction Contractors in Malaysia's challenges faced during the pandemic and sustainability during the endemic and future.

iv. In -depth study of how the Government can provide aid to construction industries in Malaysia especially by way of provisions in construction contracts such as awarding of Extension or Time (EOT) and related.

v. In depth study on construction projects delay, liquidated ascertain damages (LAD), abandoned projects due to the endemic

vi. In-depth study on health and safety contributory factors or Safety Control Structure for construction industry in Malaysia during the endemic

5.5 Limitation of Research

i. As the population sample selected are employees from managerial level and above, getting them to respond to the questionnaire was challenging;

ii. Since the population sample selected was niche, thereby it was challenging to obtain a high number of respondents;

iii. Research title focus mainly on G7 grade contractors in Johor Bahru only which further limits diversity of respondents which could have been all classes of contractors;

iv. During the time of research, many companies in Johor Bahru refused to accept face to face interviews, and questionnaire responses received was rather slow-moving.

v. Limited researches and study materials related to Covid-19 and its implications on construction sector. Those that are available are done in other countries, that too very minimal numbers.

REFERENCES

Alsharef, A., Banerjee, S., Uddin, S. M. J., Albert, A., & Jaselskis, E. (2021). Early impacts of the COVID-19 pandemic on the United States construction industry. *International Journal of Environmental Research and Public Health*. *18*(4), 15-59.

Alaloul,W.S.;Musarat, M.A.; Rabbani.;Iqbal, Q.; Maqsoom, A.; Farooq,W (2021). Construction sector contribution to economic stability: Malaysian GDP distribution. *Sustainability 2021*, 13, 5012.

Ankan Biswas, Abhinandan Ghosh, Adrish Kar, Tuhin Mondal, Buntee Ghosh & Dr. Prasanta Kumar Bardhan (2020). The impact of COVID-19 in the construction sector and its remedial measures. *Journal of Physics*: *Conference Series.*

Ar. Ng Yean Shiunn , National House Buyers Association (2020, May 5). The impact of COVID-19 on Malaysia's construction industry & How to fix it. *Iproperty.com.my.* Retrieved from https://www.iproperty.com.my/news/covid-19-impact-malaysia-construction-industry-what-can-be-done/

Ashley, Tang. (2021, April 25). They can't meet minimum housing standard. *Sunday Star Newspaper*

Boiral, O., Brotherton, M.-C., Rivaud, L., Guillaumie, L. (2021). Organizations' management of the COVID-19 pandemic: A scoping review of business articles. *Sustainability 2021*, 13, 3993

Centralized Management Information System. Carian Kontraktor. *Lembaga Pembangunan Industri Pembinaan Malaysia (CIDB).* Retrieved from https://cims.cidb.gov.my/SMIS/regcontractor/reglocalsearchcontractor.vbhtml

Datuk Soam Heng Choon (2021, March 301). Rehda survey: 75% of developers see construction progress affected due to Covid-19 and MCO. *The Edge Malaysia*. Retrieved from https://www.theedgemarkets.com/article/rehda-survey-75-developers-see-construction-progress-affected-due-covid19-and-mco

FOO CHEK LEE (2017, April 30). Construction outlook forecast and labour force. *Construction Plus Asia.* Retrieved from https://www.constructionplusasia.com/my/construction-outlook-forecast-labour-force/

GARIS PANDUAN PIAWAIAN PERANCANGAN : ASRAMA / PENEMPATAN PEKERJA. *Majlis Bandaraya Johor Bahru (MBJB).* Retrieved from https://www.mbjb.gov.my/sites/default/files/garis_panduan_piawaian_perancangan_asrama_/penempatan_pekerja_di_kawasan_pentadbiran_mbjb/slide_pembentangan.pdf

Gujral, V., Palter, R., Sanghvi, A., & Vickery, B. (2020, April 9). Commercial real estate must do more than merely adapt to coronavirus. *McKinsey & Company*. Retrieved from https://www.mckinsey.com/industries/private-equity-and-principal-investors/our-insights/commercial-real-estate-must-do-more-than-merely-adaptto-coronavirus.

Hashim, J. H., Adman, M. A., Hashim, Z., Mohd Radi, M. F., Kwan, S. C. (2021). COVID-19 Epidemic in Malaysia: Epidemic progression, challenges, and response. *Front Public Health*, 9, 560-592.

Imran Hilmy, (2021, April 25). FMM : Meeting Requirement a struggle. *The Star Newspaper*. Retrieved from https://www.thestar.com.my/news/nation/2021/04/25/fmm-meeting-requirement-a-struggle

Imran Ariff (2021, January 23). After MCO, prices of materials have gone sky- high, complain builders. *Free Malaysia Today.* Retrieved from https://www.freemalaysiatoday.com/category/nation/2021/01/23/after-mco-prices-of-materials-have-gone-sky-high-complain-builders/

Jagun, Z.T., Nyakuma, B.B., Daud, D. et al (2022). Property development during the COVID-19 pandemic: Challenges and outlook in Malaysia. *Environ Sci Pollut Res*.

Majlis Keselamatan Negara, SOP PKP SEKTOR PEMBINAAN (2021). 15 P.U.(A) 8/2021. *Majlis Keselamatan Negara*. Retrieved from https://www.mkn.gov.my/web/ms/sop-perintah-kawalan-pergerakan.

MAKLUMAN BERKAITAN PROGRAM SARINGAN COVID-19 BAGI PEKERJA ASING (2020). *Pertubuhan Keselamatan Sosial (PERKESO)*. Retrieved from https://psp.perkeso.gov.my/

Muhd Amin Naharul (2020, November 10). Construction cost records 0.1 2.1% increase in October. *The Malaysia Reserve.* Retrieved from https://themalaysianreserve.com/2020/11/10/construction-cost-records-0-1-2-1-increase-in-october/

Muneera Binti Esa, Farah Salwati Binti Ibrahim, & Ernawati Binti Mustafa Kamal (2020). Covid-19 pandemic lockdown: The consequences towards project success in Malaysian construction industry. Retrieved from *Advances in Science, Technology and Engineering Systems Journal*, 5(5), 973-983.

Nation (2021, April 18). Over 70% of employers fail to comply with minimum housing standards, says Deputy HR Minister. *The Star Newspaper*. Retrieved from https://www.thestar.com.my/news/nation/2021/04/18/over-70-of-employers-fail-to-comply-with-minimum-housing-standards-says-deputy-hr-minister

Nur Fadzlina Aini Mohmad Lehan, Khamarrul Azahari Razak, & Khairul Hisyam Kamarudin (2020). COVID-19 Pandemic: The new normal in business continuity plan for real estate firms in Malaysia. *International journal of real estate studies*, 14(S2) ,137-144.

Number of people employed in the construction industry in Malaysia from 2015 to 2020. *Statista.* Retrieved from https://www.statista.com/statistics/809686/annual-employment-in-the-construction-industry-malaysia/

Number of confirmed COVID-19 cases per state in Malaysia. *Statista.* Retrieved from https://www.statista.com/statistics/1107426/malaysia-covid-19-confirmed-cases-by-state/

Ogunnusi, M., Hamma-Adama, M., Salman, H., & Kouider, T. (2020). COVID-19 pandemic: The effects and prospects in the construction industry. *International Journal of Real Estate Studies,* 14(2), 120-128.

Sharifah Akmam Syed Zakaria, & Amarpreet Kaur Mahinder Singh (2021). Impacts of Covid-19 outbreak on civil engineering activities in the Malaysian construction industry: A review. *Jurnal Kejuruteraan, 33*(3) 477-485.

Shibani, A. ., Hassan, D., & Shakir, N.(2020). the effects of pandemic on construction industry in the UK. *Mediterranean Journal of Social Sciences*, *11*(6), 48.

Zamani, S. H., Rahman, R. A., Fauzi, M. A., & Yusof, L. M. (2021). Effect of COVID-19 on building construction projects: Impact and response mechanisms. *IOP Conference Series: Earth and Environmental Science.*

SOALAN LAZIM (FAQ) BERKAITAN PERINTAH KAWALAN PERGERAKAN (PKP) KEMENTERIAN KERJA RAYA. *Kementerian Kerjaraya Malaysia.* Retrieved from https://www.kkr.gov.my/ms/node/43004

Stiles, S, Golightly, D., & Ryan, B. (2021). Impact of COVID-19 on health and safety in the construction sector. *Hum Factors Man*. 1-13.

Tan Ai Leng (2021, April 29). Rising steel prices hurting building sector. *Edgeprop.my.* Retrieved from https://www.edgeprop.my/content/1838109/rising-steel-prices-hurting-building-sector

Venesa Devi, (2021, April 25). We need more time to comply, says employers. *Sunday Star Newspaper*

Wee Hoe Gan, & David Koh (2021). COVID-19 and return-to-work for the construction sector: Lessons from Singapore. *Safety and Health at Work*, 12(2), 277-281.

APPROVAL PAGE

TITLE OF PROJECT PAPER:		THE IMPACT OF THE COVID-19 ENDEMIC AND THE CHALLENGES FACED BY CONSTRUCTION INDUSTRY OF CATEGORY G7 IN JOHOR BAHRU
NAME OF AUTHOR	:	TANUSHA A/P RAMANI

The undersigned certify that the above candidate has fulfilled the conditions of the project paper prepared in partial fulfilment for the degree of Master of Business Administration

SUPERVISOR

Signature : _____

Name :

Date :

ENDORSED BY

_____

Dean

Graduate School of Business

Date: