RESEARCH IN MANAGEMENT OF TECHNOLOGY AND BUSINESS
e-ISSN: 2773-5044

RMTB

Vol. 5 No. 1 (2024) 1160-1164
https://publisher.uthm.edu.my/periodicals/index.php/rmtb

# Epidemic Causing the Delay and Strategies for Malaysian Construction Projects

**Zarith Halimin[1], Farrah Rina Mohd Roshdi[1,*]**

[1] *College of Built Environment,*
*Universiti Teknologi MARA Cawangan Perak, Kampus Seri Iskandar, 32610, MALAYSIA*

*Corresponding Author: farrahrina@uitm.edu.my
DOI: https://doi.org/10.30880/rmtb.2024.05.01.080

**Article Info**

Received: 31 March 2024
Accepted: 30 April 2024
Available online: 30 June 2024

**Keywords**

Delay, Epidemic, Strategies, Construction Projects

**Abstract**

The epidemic had a significant impact on the construction sector. The construction industry in Malaysia is currently dealing with several issues due to epidemic. The purpose of this study is to identify the causes of these issues and consider potential solutions. This quantitative study utilized survey questionnaire as its research instrument. 159 questionnaires were distributed among G7 contractors in Klang Valley. SPSS version 26 software was used to analyse the data that had been gathered. It was found that project delays, lower revenue, increased spending on safety precautions, issues with the supply chains, and labour shortages are some of the issues faced by construction companies in Malaysia. However, supply chains, a labour shortage, and financial issues were found to be the major challenges faced by the construction sector and have contributed significantly to the delays in construction projects. The findings of the study managed to explain issues faced by construction projects in Malaysia during the pandemic. These findings can be used to generate sound recommendations and strategies for reducing delays and strengthening the construction sector. Overall, this study contributes to the understanding of epidemic impacts on the construction sector and proposes some strategies to overcome the issues and to enhance project outcomes

## 1. Introduction

The construction industry has been significantly impacted by the global spread of COVID-19 (Zamani *et al.*, 2021). The slump is having an impact on most construction organizations. It is essential to initially identify the issues before looking at potential solutions to create a successful response strategy (Biswas *et al.*, 2021). The major problems, according to Arifin *et al.* (2022), are caused by the Malaysian building project's delays. The increase in expenses was results of suspension and decreased of projects which have directly affected revenue as well as site-level Standard of Operation (SOP) compliance. The pursuit of greater efficiency is facing significant obstacles due to labour shortages and supply chain disruptions (Biswas *et al.*, 2021). Many of the suggested solutions involve providing financial support.

The suggested remedies presented in this study offer alternative approaches that could be able to address the difficulties encountered. Businesses impacted by the COVID-19 epidemic may want to check their contracts to find out whether they have any specific rights to redress. Future work could lead to the creation of a comprehensive plan for the authority to help resolve the issues. The construction sector is essential to Malaysia's economic expansion and has significantly aided in the nation's prosperity (Fernandes, 2020). According to Aziz *et al.* (2020), the Malaysian government implemented the Movement Control Order (MCO), which required the closure and lockdown of all buildings, both public and private, and only permitted the operation of essential services like banking and finance, water and electricity, healthcare and medical,

Research in Management of Technology and Business Vol. 5 No. 1 (2024) p. 1160-1164

telecommunications, and food supply. This had caused various businesses, contractors, and subcontractor workforces to experience disruptions, including construction developments (Pamidimukkala *et al.*, 2021).

## 2. Literature Review

A movement control order (MCO), also referred to as a cordon sanitaire, is a prohibition on individuals moving from one place to another, locally or globally, to stop the spread of unanticipated diseases or viruses (Esa *et al.*, 2020). To prevent the spread of dangerous illnesses or viruses, this restriction on movement was put in place. The Control and Prevention of Infectious Diseases Act of 1988 and the Police Act of 1967 also made the MCO mandatory in Malaysia. According to the situational demands, the Malaysian government had previously implemented four (4) different MCO types, each with its own SOP Muneera *et al.* (2020).

Beginning on March 27, this EMCO phase only applied to areas having a high Covid-19 occurrence rate. The government had announced this control during this EMCO to stop the spread of the Covid-19 virus and to make it simpler for authorities to keep tabs on specific cases throughout the affected areas. The affected areas were separated into three distinct zones (red zone, yellow zone, and green zone) depending on the number of Covid-19 cases that have been verified. For fourteen (14) days or until the number of cases reaches a satisfactory level, whichever occurs first, the red zone shall be designated as an EMCO region. The government then implemented Conditional MCO (CMCO) as Phase 4 MCO starting on 4 May 2020 and ending on 9 June 2020, with a more lenient implementation of CMCO regulations compared to the previous MCO regulations, allowing some industries to resume operations once the number of new Covid-19 cases has fallen below 100 per day. In contrast to the previous concentration on only significant industries, the main goal of this CMCO is to support the government in reviving and restoring the momentum of Malaysia's economy. As a result, starting on 10 June and continuing through 31 August 2020, the RMCO will take over as an exit strategy for the MCO and CMCO for industries that have received clearance from the MCO and CMCO. More economic sectors like construction sectors, as well as sports, leisure, and domestic travel, are permitted to be managed during this period. Additionally, the education sector is starting to gradually reopen, with only grades 5 and 6 starting courses on June 24 and kindergarten starting classes on July 1.

### 2.1 Strategies to Reduce the Delay on Construction Project

Financial concerns are one thing that construction companies deal with. Three types of financial support are needed by these contractors: loans, funds, and grants. Financial support could enable them to manage the company, cover employee salaries, and pay for the project (Shah *et al.*, 2020; Zamani *et al.*, 2021; Ho & Tang, 2020). Others financial aid as Awards as The PRIHATIN Economy is what the government is offering. Stimulus Package comprising a Special Grant of PRIHATIN of MYR3000 for companies with annual sales under 3,000,000.00 MYR. Most contractor businesses are not qualified to be eligible for this grant. Resources as PENJANA Micro Finance has been granted by the government. MYR 400 million to support businesses and entrepreneurs. Contractors claimed that although they had requested funding, they were rejected since the bank claimed the plan lacked finance. Finances for the business, a loan is essential since it will pay for the project expenses. But if their business has little funding and getting a bank loan could be more challenging.

These problems need to be addressed in order to prevent a recurrence of this catastrophe to guarantee the contractors' financial stability during a project's duration epidemic. With support from funding sources, grants, and loans, the contractor will be able to finish the job on schedule, preventing any delays.

Baker McKenzie (2021) recommends that owners endeavor to implement (or guarantee that their contractors implement) measures that embody local best practices. These measures includes are utilizing cleaning agents that have been pre-approved by nearby organizations for the purpose of cleaning frequently handled surfaces, like tools, handles, and machinery and examining all guests and employees for signs and symptoms of COVID-19.

Conducting temperature assessments and pre-employment site inquiries. Therefore, coming up with strategies for handling people who show symptoms of illness at work. In additions, keeping the workplace well-ventilated and workers who went to high-risk areas were told to stay in quarantine for the proper period of time.

It goes without saying that adherence to mandatory regulations such as site closures, restricted workforces, and social separation within the community will be essential (Stride *et al.*, 2022). Until a suitable governing body has created, presented, and approved a corrective action plan, local governments have the authority to force owners and/or contractors to secure a job site and stop building. According to Ling *et al.* (2022), owners may also be obliged to appoint a representative to supervise the company's compliance with regional laws and safety guidelines. Local governments in areas where COVID-19 cases have grown or revived may conduct on-site inspections. During an inspection, owners and/or contractors will probably be required to provide, among other

things, a written pandemic plan, hazard assessment procedures, protocols for using personal protective equipment, medical records pertaining to incidents involving worker exposure, and details about periodic testing procedures (Shafii *et al.*, 2022).

## 3. Research Methodology

The research methodology chosen for the study was a survey, and the research instrument used was a questionnaire. It employed a purposive sampling where 159 individuals who were involved in construction business in the Klang Valley were selected as the respondents. According to (Krejcie & Morgan,1970) 159 sample size is required to attain 95% confidence level and a 5% margin of error for a population of 270, which is applicable for the current study. The respondents provided their agreements to the statements in the questionnaire based on a 5-point Likert Scale as follows: 1=strongly disagree (1 point); 2 =disagree (2 points); 3= neutral (3 points); 4=agree (4 points); 5= strongly agree (5 points). The data collected was analysed quantitatively using SPSS version 26 software and reported using descriptive statistics which include 'mean' and 'standard deviation'.

## 4. Result and Discussion

The data analysis results as in Table 1 show that a number of factors greatly contribute to the postponement of construction projects during the Covid-19 pandemic. The primary cause is the delay in the supply of building supplies, which highlights the difficulties in procuring sufficient components. The variables mentioned by Arji *et al.* (2023); Biswas *et al.* (2021); Cherian & Arun (2022); Fernandes (2020); and Sierra (2022) are connected with this. New health and safety regulations and standard operating procedures (SOPs) adoption also has a significant impact on project schedules. The delays are made much worse by the shortage of building supplies and tools both off-site and on the market. Project delays are also greatly impacted by time constraints on working hours, a lack of general workers on-site, and a paucity of skilled workers or knowledge. Additionally, non-compliance with the work programme and slower-than-expected completion of work owing to unavoidable causes both add to overall project delays. The impact on construction projects during the pandemic can be reduced by addressing material supply issues, ensuring compliance with health and safety protocols, enhancing workforce capacity, and mitigating unavoidable delays, as these findings highlight the intricate interplay of various factors.

**Table 1** *Factors contribute to the postponement of construction projects during the Covid-19 pandemic*

| Variables | N | Minimum | Maximum | Mean | Std. Deviation | Rank |
|---|---|---|---|---|---|---|
| 1. The delay on construction material supply | 159 | 1 | 5 | 4.26 | 1.051 | 1 |
| 2. The adoption of new health and safety rules and SOPs | 159 | 1 | 5 | 4.21 | 1.050 | 2 |
| 3. The limited construction material & equipment in the market and on-site | 159 | 1 | 5 | 4.19 | 1.202 | 3 |
| 4. The time restriction on working hours | 159 | 1 | 5 | 4.16 | 1.018 | 4 |
| 5. The lack of general workers on site | 159 | 1 | 5 | 4.09 | 1.118 | 5 |
| 6. The lack of skilled workers or expertise on site | 159 | 1 | 5 | 4.08 | 1.136 | 6 |
| 7. Slower completion of work due to several factors cannot be avoided | 159 | 1 | 5 | 4.08 | 1.125 | 6 |
| 8. The works are uncompleted as specified in the work programme | 159 | 1 | 5 | 4.01 | 1.180 | 7 |

The COVID-19 pandemic-related factors that have been linked to construction project delays have been ranked according to their mean values and standard deviations. The delay in building material supply has the greatest mean of any variable, at 4.26. This suggests that the delivery of building supplies is delayed, which has a substantial influence on project deadlines. The stated delays' reported extent may vary, as indicated by the

Research in Management of Technology and Business Vol. 5 No. 1 (2024) p. 1160-1164

variable's standard deviation of 1.051. New health and safety regulations and standard operating procedures (SOPs) are ranked second, with a mean of 4.21. This suggests that adding new health and safety regulations has exacerbated project delays. The adoption of these rules and SOPs has been moderately varied, according to the standard deviation for this variable of 1.050. With a mean score of 4.19, the limited availability of building supplies and equipment in the marketplace and on-site is ranked third. This demonstrates how supply chain disruptions affect the timing of projects. The standard deviation for this variable is considerably greater at 1.202, indicating a wider range of experiences in terms of the availability of materials and equipment. With a mean of 4.16, the time limit on working hours is rated fourth. This shows that work schedule restrictions—possibly brought on by local laws or safety concerns—may be to blame for project delays. The reported impacts are substantially less varied, as indicated by this measure's standard deviation of 1.018. With a mean of 4.09, the absence of general personnel on site is ranked sixth. This indicates that a lack of general labour has impacted project timelines as well. The stated shortage of workers has a standard deviation of 1.118, which indicates some unpredictability. With a mean of 4.08, the sixth-ranked issues include a lack of experienced workers or competence on site and slower task completion caused by a number of unavoidable variables. This suggests that multiple unforeseen circumstances and a lack of trained labour have had an identical effect on project delays.

According to their respective standard deviations of 1.136 and 1.125, the reported impacts are likely to vary moderately. Finally, the variable with the mean of 4.01 that indicates that works are not finished as stipulated in the work programme is placed seventh. This implies that unfinished work according to the original plan may also have caused project delays. The extent of reported incomplete work might vary, as indicated by the standard deviation for this variable, which is 1.180. We may learn more about the elements that have most significantly contributed to construction project delays during the COVID-19 pandemic by looking at how these variables rank. Strict SOP (Standard Operational Procedures) rules must be followed in order for firms that have been closed by the Ministry of International Trade and Industry (MITI) to restart. A few requirements and benchmarks must be followed by both employers and workers in order to stop the virus from spreading in the workplace, including the construction sector.

## 5. Conclusion

In conclusion, the analysis based on the responses of 159 participants showed that the leading cause of project delays during the pandemic appeared to be the delay in the availability of building materials. This conclusion shows the importance of material availability in meeting project deadlines and the demand for preventative actions to deal with this problem. The impact of material supply delays can be reduced, and project efficiency can be increased, by continuously monitoring supply chains, looking into alternative sourcing possibilities, and keeping in touch with suppliers. Researchers and practitioners in the construction industry can benefit greatly from the identification of the delay in the supply of construction materials as a major contributing factor because it points in the direction of practical techniques for controlling project delays in difficult circumstances.

When a pandemic strikes in the future, Malaysian contractors will benefit from this study's findings. Although there are other challenges that cause construction projects to be delayed when a pandemic strikes, the study's findings have provided some insights on what to be done in the event of a pandemic. In light of these findings, the possibility of project construction delays can be minimised.

## Acknowledgement

The author would like to thank the College of Built Environment, Universiti Teknologi MARA Cawangan Perak for its support.

## Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

## Author Contribution

*The authors confirm contribution to the paper as follows:* ***study conception and design****: Farrah Rina, Zarith Halimin;* ***data collection****: Zarith Halimin;* ***analysis and interpretation of results****: Farrah Rina, Zarith Halimin;* ***draft manuscript preparation****: Farrah Rina, Zarith Halimin. All authors reviewed the results and approved the final version of the manuscript.*

## References

Arifin, M. A. bin M., Azmi, M. F. H. bin, & Sheffie, S. I. binti M. (2022). COVID-19 Pandemic: The Impacts and Prospects in the Malaysian Construction Projects. *IOP Conference Series: Earth and Environmental Science, 1067(1).*

Arji, G., Ahmadi, H., Avazpoor, P., & Hemmat, M. (2023). Informatics in Medicine Unlocked Identifying resilience strategies for disruption management in the healthcare supply chain during COVID-19 by digital innovations: A systematic literature review. *Informatics in Medicine Unlocked, 38(February), 101199.*

Aziz, N. A., Othman, J., Lugova, H., & Suleiman, A. (2020). Malaysia's approach in handling COVID-19 onslaught: Report on the Movement Control Order (MCO) and targeted screening to reduce community infection rate and impact on public health and economy. *Journal of Infection and Public Health, 13(12), 1823–1829.*

Baker McKenzie. (2021). COVID-19: Impacts and Responses in the Construction Industry. Resilience Recovery Renewal, 1–5. https://www.bakermckenzie.com/- /media/files/insight/publications/2021/01/covid19--impacts-and-responses-in- the-construction-industryv2.pdf

Biswas, A., Ghosh, A., Kar, A., Mondal, T., Ghosh, B., & Bardhan, P. K. (2021). The impact of COVID-19 in the construction sector and its remedial measures. *Journal of Physics: Conference Series, 1797(1).* https://doi.org/10.1088/1742- 6596/1797/1/012054

Cherian, T. M., & Arun, C. J. (2022). COVID-19 impact in supply chain performance: a study on the construction industry.

Daniel, E. (2016). The Usefulness of Qualitative and Quantitative Approaches and Methods in Researching Problem-Solving Ability in Science Education Curriculum. 7(15), 91–100.

Esa, M. B., Ibrahim, F. S. B., & Kamal, E. B. M. (2020). Covid-19 pandemic lockdown: The consequences towards project success in malaysian construction industry. *Advances in Science, Technology and Engineering Systems, 5(5), 973–983.*

Fernandes, N. (2020). Economic effects of coronavirus outbreak (COVID-19) on the world economy Nuno Fernandes Full Professor of Finance IESE Business School Spain. SSRN Electronic Journal, ISSN 1556-5068, Elsevier BV, 0–29.

Ho, K., & Tang, D. (2020). Movement control as an effective measure against Covid- 19 spread in Malaysia: an overview. Journal of Public Health: From Theory to Practice, 583–586. https://doi.org/10.1007/s10389-020-01316-w

Krejcie, R. V, & Morgan, D. W. (1970). Determining Sample Size for Research Activities. Educational And Psychological Measurement, 30, 607–610. 82

Ling, F. Y. Y., Zhang, Z., & Yew, A. Y. R. (2022). Impact of COVID-19 Pandemic on Demand, Output, and Outcomes of Construction Projects in Singapore*. Journal of Management in Engineering, 38(2).*

Pamidimukkala, A., Kermanshachi, S., & Jahan Nipa, T. (2021). Impacts of COVID- 19 on health and safety of workforce in construction industry. International Conference on Transportation and Development 2021: Transportation Planning and Development - Selected Papers from the International Conference on Transportation and Development 2021, 2, 418–430.

Shafii, H., Mohd Radzi, N. A., Md Yassin, A., & Masram, H. (2022). Implementing Covid-19 Standard Operation Procedure (SOP) In Malaysia Construction Industry: Challenges and Strategies. *International Journal of Property Sciences, 12(1), 37–53.*

Shah, A. U. M., Safri, S. N. A., Thevadas, R., Noordin, N. K., Rahman, A. A., Sekawi, Z., Ideris, A., & Sultan, M. T. H. (2020). COVID-19 outbreak in Malaysia: Actions taken by the Malaysian government. International Journal of Infectious Diseases, 97, 108–116.

Sierra, F. (2021). COVID-19: main challenges during construction stage. *Engineering, Construction and Architectural Management, 29(4), 1817–1834.*

Stride, M., Renukappa, S., Suresh, S., & Egbu, C. (2022). The effects of COVID-19 pandemic on the UK construction industry and the process of future-proofing business. Construction Innovation.

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, 682(1).*