



INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



Practices to Maintain Smooth Relationships Between Main Contractors and Subcontractors in the Malaysian Construction Industry

Nurul Huda Muhamad and Muhammad Azmil Akmal Mohd Zaini

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v12-i8/14496>

DOI:10.6007/IJARBSS/v12-i8/14496

Received: 16 June 2022, **Revised:** 20 July 2022, **Accepted:** 30 July 2022

Published Online: 13 August 2022

In-Text Citation: (Muhamad & Zaini, 2022)

To Cite this Article: Muhamad, N. H., & Zaini, M. A. A. M. (2022). Practices to Maintain Smooth Relationships Between Main Contractors and Subcontractors in the Malaysian Construction Industry. *International Journal of Academic Research in Business and Social Sciences*, 12(8), 818 – 829.

Copyright: © 2022 The Author(s)

Published by Human Resource Management Academic Research Society (www.hrmars.com)

This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at: <http://creativecommons.org/licenses/by/4.0/legalcode>

Vol. 12, No. 8, 2022, Pg. 818 – 829

<http://hrmars.com/index.php/pages/detail/IJARBSS>

JOURNAL HOMEPAGE

Full Terms & Conditions of access and use can be found at
<http://hrmars.com/index.php/pages/detail/publication-ethics>



INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



www.hrmar.com

ISSN: 2222-6990

Practices to Maintain Smooth Relationships Between Main Contractors and Subcontractors in the Malaysian Construction Industry

Nurul Huda Muhamad and Muhammad Azmil Akmal Mohd
Zaini

Department of Built Environment Studies and Technology, Faculty of Architecture, Planning
and Surveying Universiti Teknologi MARA, Perak Branch, 32610, Seri Iskandar, Perak,
Malaysia.

Email: nurul885@uitm.edu.my, azmilakmalzaini@gmail.com

Abstract

The Malaysian construction industry is commonly practicing a subcontracting. Due to improperly managed the relationships between main contractor and subcontractors, the performance of construction projects will be adversely impacted. Hence, the relationships between main contractors and subcontractors are becoming crucial to the success of construction projects. Therefore, the aim of this study is to recommend the practices to maintain smooth relationships between main contractors and subcontractors in the Malaysian construction industry. The practices were identified from the literature review and confirmed through a questionnaire survey. Questionnaire survey were distributed to 279 respondents with 26% of questionnaire returned rate. The results were analysed using SPSS version 28. The findings of this research revealed that the most recommended practices to maintain smooth relationships between main contractors and subcontractors was to select the subcontractors based on past experiences and reputation, followed by prepare a detail plan and schedule at each stage, payment allocation is on-time for progressively work done, consider and plan the financial expenses carefully and make a daily monitor to subcontractors' progress. The outcomes of this research expected to provide valuable references for local main contractors to have a better understanding of their relationships with subcontractors in order to improve the performance of construction projects.

Keywords: Construction Industry, Practices, Relationships, Main Contractor, Subcontractors

Research Background

The construction industry plays a crucial part because Malaysia is currently in the process of industrialization (Mirawati et al., 2015). In the construction industry, there are various parties involved in the construction projects including owners/governments, main contractors, architects, subcontractors, consultants, suppliers, and developers (Ahmad, 2011). According to Lagiman (2017) the interaction between the main contractor and subcontractor is essential because they are responsible for finishing the project and becoming existing. Furthermore, the parties involved having different responsibilities and

diverse specified roles. Unfortunately, most of relationships between main contractors and subcontractors are often strained and adversarial (Mirawati et al., 2015). Previous study by Enshassi et al (2012) found that the relationship between main contractor and subcontractor can become imperfect due to poor communication, deficiency of information on site, impoverished supervision, hierarchy issues, and lack of management systems. In addition, Mudzvokorwa et al (2020) stated that the subcontractor performs 90% of the building's work with the main contractor's instruction. Moreover, the factors leading to the problem between them look like shrug-offs since the main contractor's primary objectives are the client's needs (Lagiman, 2017). Therefore, the relationships between main contractors and subcontractors are becoming more and more important to the success of construction projects (Tan et al., 2017). Thus, it is crucial to investigate an appropriate practice to maintain smooth relationships among main contractor and subcontractor in order to improve project performance.

Literature Review

According to Abdullah (2019), the main contractor as an individual or company whose tender works have accepted or signed a contract for the project. The main contractor is the one who responsible for the execution of the project. Previous study by Rahman et al. (2013) stressed that the main contractor would be the one responsible for the execution of the project. Their scope of operation involves the preparation, coordination, and oversight of their subcontractor in the implementation of the building project (Lagiman, 2017). In addition, there has been a steadily increasing tendency for construction work to be sublet to subcontractors or suppliers, whereas main contractors are usually responsible for the provision, management, and coordination of construction site facilities for such subcontractors or suppliers (Tan et al., 2017).

Moreover, subcontractors have a comparative and competitive advantage in their specific trades of undertaking their subcontracts with main contractors (Tan et al., 2017). Similar with Abdullah (2019), it is common for the main contractor to subcontract portions of the job in the construction project, especially in particular works that need special attention. However, all the work executed by the subcontractors will be entirely the responsibility of the main contractor, and they must look to the main contractor for instruction and payment (Abdullah, 2019). Sub-contractors can be split into groups; domestic sub-contractor and nominated sub-contractor. A domestic sub-contractor usually will be appointed directly by the main contractor in the project to execute the work on the site. The work that will be performed by the domestic sub-contractor will be according to the main contractor's instructions, and the scope usually covers all of the general works (Lagiman, 2017). As for the nominated sub-contractor, it can be defined as the specialist work that can only be done by the experts or professionals in that field (Abdullah, 2019). The selection for the nominated sub-contractor is also different from the domestic subcontractor. According to Lagiman (2017), the nominated sub-contractor will be selected on the construction contract to perform or supply goods and services by the client or owner of the project. The goods and services made by them will be inserted as prime cost sum in the contract.

In addition, Tan et al (2017) have defined the relationships between main contractors and subcontractors from a perspective of contractual relationship, a subcontract is agreed between a main contractor and a subcontractor for defining both parties' responsibilities, risk-sharing mechanisms, rights, obligations, etc. However, there are a number of problems that may affect the relationship between main contractor and subcontractor. Various

problems are identified in existing studies, such as lack of communication and information, late payment for work done progress, poor ethics by contractors, poor contractor's workmanship, trust issues between main contractor and subcontractor, financial issues, lack of adherence to the contractual conditions, conflict in preparing schedule and plan, insufficient safety on the site, and lack of knowledge in the construction field (Zaini and Muhamad, 2022). Therefore, it is necessary for main contractors to maintain smooth relationships with subcontractors to improve project performance. After a comprehensive literature review of relevant studies on the relationship between the two parties, ten (10) most cited practices to maintain smooth relationships between main contractor and subcontractors were identified in this study, as summarized in Table 1.

Table 1

Identified Practices to Maintain Smooth Relationships between Main Contractors and Subcontractors

Identified Practices	Literature sources
Early communication and information	Adeyekun (2019); Akintan & Morledge (2013); Enshassi et al (2012); Lagiman (2017); Mudzvokorwa et al (2020); Shivanthi et al (2019)
On-time payment for work done	Adeyekun (2019); Akintan & Morledge (2013); Enshassi et al (2012); Rahman et al (2013); Shivanthi et al (2019); Tan et al (2017)
Daily monitor on subcontractor's work progress	Adeyekun (2019); Enshassi et al (2012); Lagiman (2017); Rahman et al (2013); Shivanthi et al (2019); Tan et al (2017); White & Marasini (2014)
Guide the subcontractor	Adeyekun (2019); Enshassi et al (2012); Tan et al (2017); White & Marasini (2014)
Selection of the right subcontractor	Enshassi et al (2012); Lagiman (2017); Rahman et al (2013); Shivanthi et al (2019)
Plan financial expenses carefully	Enshassi et al (2012); Lagiman (2017); Rahman et al (2013); Shivanthi et al (2019)
Give warning letter to problematic subcontractors	Lagiman (2017); Mudzvokorwa et al (2020); Shivanthi et al (2019)
Prepare a detailed plan and schedule in the early stage	Akintan & Morledge (2013); Enshassi et al (2012); Lagiman (2017); Mudzvokorwa et al (2020)
Full specification of safety in site	Adeyekun (2019); Lagiman (2017); Tan et al (2017)
Gives training to employees in technology, coherence and cooperation	Enshassi et al (2012); Shivanthi et al (2019)

Early communication and information communication is a significant obstacle that reduces project performance and productivity on construction sites worldwide. Mudzvokorwa et al (2020) highlighted that a balanced and consistent information flow between the main contractor and subcontractor is essential to ensure the communication system promotes the timely and continuous exchanges of information among the parties. With effective and good quality communication and information on the site, the process of transmitting the description of work will be interpreted and clarified correctly without misunderstanding, as well as to obtain the appropriate response and feedback from each

other side. Mudzvokorwa et al (2020) added that having early communication and continuous information when the project is expected to have a barrier to delivery within the time is very crucial. For better record and evidence management, Adeyekun (2019) suggested that any information, notice, or even verbal communication with the sub-contractor need to be followed up in writing instructions for future reference purposes.

The late payment for the work done progress has an effect on the time, cost, and quality of the project (Ye & Rahman, 2010). Ye & Rahman (2010) added that prompt payment would ensure the related progress on the site is not affected and capable of performing seamlessly. The on-time payment has a significant impact on the subcontractor's cash flow. Enshassi et al (2012) accentuated that prompt financial payments to sub-contractor by the main contractor will be contributed to a good reputation among them and enables the sub-contractors to cover their expenditures, acquire necessary goods, and get paid for their workforce on time. According to Rahman et al (2013), most sub-contractor revolt against the work when their payment gets delayed without any solid reasons, and it can cause a bad interaction among 28 parties. Rahman et al (2013) added that the main contractor and sub-contractor as team members on completion of the project need to support, help and give consideration to each other, therefore minimising the problem that arises

The sub-contractor's works should constantly be monitored by the main contractor, and any slippage in performing the work progress on the site should be recorded (Enshassi et al., 2012). The hardcopy of evidence of the degradation of the progress on the site will ease the evaluation process, and the wrong work will not be repeated again. Lagiman (2017) stated that the main contractor should control all the construction activities closely, particularly on the subcontractor's work progress, to avoid the delay of present and potential future projects. All main contractors and other parties are also expected to make rapid replies related to clarification to prevent complications in the building project. By monitoring and controlling the work progress on the site, the work performance may enhance and evade the delay in submitting the building. Apart from that, holding frequently meeting weekly rather than monthly with the sub-contractors can also be the key success factor of the project (White & Marasini, 2014). This is supported by Adeyekun (2019) stated that weekly meetings should be arranged with the subcontractor to review safety, quality, and environmental issues, project progress, delays, and claims.

The main contractor should frequently guide and assist the sub-contractor on the optimisation of manpower, material supplier and work progress in order to meet the project due dates (Enshassi et al., 2012). The guideline from the main contractor toward the sub-contractor may ease the work progress on the site. Enshassi et al (2012) also added that before the beginning of the construction, the main contractor and sub-contractor should make a consultation together to establish the plans and 29 assign duties. The plan needs to be employed from the written contract because the contract will define the obligations and rights of all the parties clearly. As construction is on track, the main contractor needs to supervise and review the workmanship progress made by the sub-contractor in order to achieve the result and quality required (Rahman et al., 2013). As for the sub-contractors, they need to comply with the design in accordance with the project timeline, including obtaining the necessary permissions from the main contractor before making a decision (Adeyekun, 2019).

The sub-contractor selection process is crucial because the type and atmosphere of the contractor and sub-contractor relationship vary from project to project, and it is essential for contractors to maintain a good performance and reputation for their work (Rahman et al.,

2013). Enshassi et al (2012) suggested that the selection of the subcontractor by the main contractor should be from their past experience, reputation, and labour, equipment, and machinery capabilities since these things assure the subcontractor's dedication to the contract requirements and capacity to perform the job on time and with the highest quality. Selecting the right sub-contractor also provides comfort working experience between each party and reduces the rate of confrontation. By using the advantages of inter-organisational collaboration, the main contractor may overcome coordination issues inherent in building processes between the sub-contractor (Lagiman, 2017). Both parties will gain benefit from the relationship. This is because it is quite probable for the main contractor to retain their sub-contractors because the performance of the sub-contractors is good and meets their satisfaction. Rahman et al (2013) stated that the main contractor would contact the former sub-contractors to follow the new project due to the good relationship between them.

Wood & Ellis (2005) stated that the financial planning from the contractor's and client's perspectives are separate views. This is because the common main objective for the client is to make a profit in the building that will be built while the contractor pursues as many tenders as possible for the building work to make a profit. Therefore, the planning of financial expenses needs to be carried out carefully and needs to consider a lot of aspects. For instance, the financial problem faced by the main contractor will have a snowball effect on the sub-contractor's financial payment because the payment will be delayed and makes him unable to pay for the workforce and supplier, resulting in a delay in completing work as the schedule (Enshassi et al., 2012). Therefore, the main contractor should really consider the financial condition and make a detailed plan on expenses to avoid a financial crisis during the ongoing project (Mudzvokorwa et al., 2020). Rahman et al (2013) mentioned that, after all, the financial expenses would be a challenge for both of them as long they are involved in the construction industry. Therefore, the author emphasised that if both parties received the claim on time and earned a reasonable profit, their connection would be strengthened and maintained for the long term.

Give warning letter to problematic sub-contractor project objectives are intimately tied to the quality of the relationship between the main contractor and the sub-contractor. As stated in the contract, the main contractor will supervise all of the work made by the sub-contractor on the site. Therefore, Rahman et al (2013) stated that both parties must adhere to the regulations and do their assigned duties to ensure the project is on the work progress timeline and minimise the issues to obtain high-quality work. Lagiman (2017) also suggested that all parties should adhere to the contract condition to avoid any dispute later. Adherence to the contractual conditions is the most important thing to ensure the 31 project in the right track. Mudzvokorwa et al (2020) recommended if the main contractor is dissatisfied with the performance of the sub-contractor, the subcontractor must be advised by giving a warning letter before any termination is made and the new sub-contractor must be granted to continue the existing work that left by problematic sub-contractor. This act ensures the ethic shown by the problematic contractor will not affect the building work progress.

The objective of scheduling and planning is to guarantee that there is a seamless flow throughout the project. It is very important for the parties involved, especially the contractor team, to be critical when preparing the scheduling and planning when the construction phase has begun. The more attention the main contractor puts into preparing the detailed plan and schedule for each phase of the project, especially the precise activities of each sub-contractor, the more likely the overall timetable will be met (Enshassi et al., 2012). By setting each stage in the early planning, all of the related work will be organised and easy to understand and real

objectives of the phase. Akintan & Morledge (2013) mentioned that it is essential for every contractor to evaluate every stage of the project before proceeding to other stages to avoid the issues. Lagiman (2017) also agreed with the early planning stage in the construction site because by doing early planning on the problem that may arise, the solution will be available and ready to cope with the issues

The negligence in safety and lack of awareness of the danger in the site by the employees enhance the probability of the employees being injured, thus contributing to serious human-related accidents (Teo et al., 2005). Teo et al. also added that actually, accidents on the site are usually preventable, and they occur as a result of the employees' behaviour while working. The full safety of the environment in the workplace is important to all parties in order to proceed with the working progress (Lagiman, 2017). The employees should be aware of the danger of implementing the work, and then the full specification of safety may be installed to increase the safety of the employees. Tan et al (2017) mentioned that the main contractor should make a consideration of the sub-contractor's level of safety to create a better relationship value on the site. Apart from that, it might help lessen the risks that the employees face on the building site, which includes heavy gear, pointed items, and elevated working platforms.

Enshassi et al (2012) emphasised the employees on the construction site should be given comprehensive training to increase their knowledge of the current technology adaptation, coherence in teamwork, and cooperation in adherence to the instructions. Kusuma et al (2019) mentioned that the reasons the contractor needs to engage in the technological adaptation are mainly because of the client demand, other internal requirements, and rapid change used in the technology. Therefore, with holistic training, the workforce production will meet the construction industry demand and be able to produce the best quality project in the industry.

Furthermore, entrepreneurship skills considered the last choice to survive in unstable economic condition as the employment chances getting low. Fresh graduates are advised to generate their own business during the pandemic outbreak to avoid further unemployment (Rahman et al., 2020). The work-life balance for a healthy working environment also suggested by previous literature, which connected to the emotional intelligence skill in facing the problem (Romgens et al., 2019; Hite and McDonald, 2020). Other than that, Bahrim et al (2019); Hite and McDonald (2020) mentioned that government should take an action in enforcing training program after graduates and reducing the retirement period as an initiative to minimize the rate of unemployment among graduates. Meanwhile, Albelha et al (2020); Kadir et al (2020) stated that graduates must improve their technical skills during the pandemic outbreak to assist them in carrying out their job smoothly. Besides, only Fraser et al (2019) mentioning good self-management as a strategy to securing a job. Lastly, Romgens et al (2019) mentioned that career development skills are needed to attract employers with the graduates' skills and abilities to obtain a job. Hence, from the literature review above, three (3) research variables were identified as the predictor for strategies in enhancing the employability of fresh graduates in the Malaysian construction industry during pandemic outbreak as discussed in the following analysis and discussion section.

Research Methodology

Nonetheless, this research used quantitative and quota sampling method. Therefore, quantitative data collected became primary during the research process. The process involved numerical data before analysing the data using SPSS version 28 from the

respondent's questionnaire. The descriptive statistics and graphical analysis were used to connect the variables, and comparison shall be made during the analysis process. Hence, the questionnaire is prepared in a uniform structure based on a specific topic to produce valuable data. The five items Likert scale is used as a choice for the respondent to choose in the questionnaire. The Likert scale allows a respondent to choose an answer from 1= strongly disagree to 5=strongly agree.

Due to some restraints such as limited time, pandemic situation, and too many populations of contractors registered in Selangor, the scope of the research will be limited to a few criteria. For the main contractor, the contractors that registered with Construction Industry Development Board (CIDB) from Grade 6 will be selected to be part of the research. According to the CIDB data, there are approximately 82 registered contractors in Klang, Selangor. As for the sub-contractor, due to the diverse amounts of the specialist field in the subcontracting work, such as tiling, plastering, bricklaying, electrical, mechanical, and more, only one (1) field will be selected; wooden speciality. According to the Timber Exporter's Association of Malaysia (TEAM) data, there are approximately 78 registered contractors in Klang, Selangor. For the sample frame, using the quota sample, after adding the total population from the main contractor and sub-contractor in Klang, the total number of contractors who worked in Klang, Selangor is 160. Using the quota of 50% of each stratum from the population of the main contractor and sub-contractor, therefore, the new total sample is 80 respondents. Then, using the "Small Sample Techniques" (Krejcie & Morgan, 1970), the minimum sample size is 67 respondents. After the data is obtained, the quantitative data will be analysed using the Statistical Package for Social Science (SPSS) version 28.0. As for the analysis method, the descriptive analysis technique will be implied. The collected data from Likert scale closed-ended questionnaire surveys will be summarised, described in the table in ranking order, and analysed as interval data in the mean measure of central tendency.

Analysis and Discussion

The results of the data analysis in Table 1 reveal that the highest rank (mean=4.55) for an appropriate practice to maintain smooth relationships among main contractor and subcontractor was to 'select the subcontractor from past experience and reputation'. However, this was contrast with previous studies that most cited practice was to daily monitor on subcontractor's work done (Adeyekun, 2019; Enshassi et al., 2012; Lagiman, 2017; Rahman et al., 2013; Shivanthi et al., 2019; Tan et al., 2017; White & Marasini, 2014). Next, 'prepare a detail plan and schedule for each stage in early' (mean=4.52), 'payment allocation on-time for done work progress' (mean=4.51), 'consider and plan the financial expenses carefully' (mean=4.48) and then 'make a daily monitor to subcontractor work progress (mean=4.47). Meanwhile, 'give warning letter to problematic subcontractor', 'assist and guide subcontractors work to meet the schedule', and 'early communication and information in site' showed a similar mean score at 4.45. Then, 'provide full specification of safety in site' (mean=4.42) and 'train the employees in technology, coherence and cooperation' (mean=4.41) were among the lowest rank.

Table 1

An Appropriate Practices to Maintain Smooth Relationships

No.	Descriptions	Mean	Rank
1.	Give warning letter to problematic sub-contractors.	4.45	6
2.	Train the employees in technology, coherence and cooperation.	4.41	8
3.	Early communication and information in site.	4.45	6
4.	Provide full specification of safety in site.	4.42	7
5.	Assist and guide subcontractors work to meet the schedule.	4.45	6
6.	Consider and plan the financial expenses carefully.	4.48	4
7.	Prepare a detail plan and schedule for each stage in early.	4.52	2
8.	Select the sub-contractor from past experience and reputation	4.55	1
9.	Make a daily monitor to subcontractor work progress	4.47	5
10.	Payment allocation on-time for done work progress	4.51	3

The highest ranked was to select the subcontractor from past experience and reputation. This is a critical recommendation because selecting the right and proper subcontractor will determine the successful status of the project. Rahman et al (2013) emphasised that the sub-contractor selection process is vital because the structure and environment of the main contractor and sub-contractor relationship fluctuate from project to project, and it is essential for both parties to maintain a good performance and reputation for their work. This is supported by Lagiman (2017) where it is suggested that main contractors choose subcontractors based on their previous expertise, experience, and competencies.

Next the second ranked was to prepare a detail plan and schedule for each stage in early. The more precise the main contractor's effort in preparing each phase of the project, especially the specific activities of each subcontractor, the further likely the overall schedule will be achieved (Enshassi et al., 2012). Therefore, during the tendering procedure, the main contractor and his sub-contractors must plan their job as completely as feasible. This is supported by Lagiman (2017) that one of her respondents for her research mentioned that the main contractor needs to equip early preparation of the construction before entering the project. Meanwhile at the third and fourth ranked were as for the payment allocation on-time for done work progress and consider and plan the financial expenses carefully, these variables can be grouped and clustered together under financial management. Based on study by Enshassi et al (2012), financial management was ranked the second most critical issue. Since the financial problem could be a snowball effect on many parties, thus, the early or on time payment to the sub-contractor will be able to reduce the overload on the financial issues (Enshassi et al., 2012). This is highlighted by Rahman et al (2013) that a competent reputation in handling financial issues is an essential pier in establishing a good relationship between

contractors. The better financial management by the main contractor and sub-contractor, the less likely issues arise between both parties.

At the fifth ranked was to make a daily monitor of sub-contractor work progress. The work performance executed by the sub-contractor will determine the result of the project; since ninety (90) per cent of the building work will be completed by the sub-contractor with the main contractor's supervision (Mudzvokorwa et al., 2020). Therefore, the inspection of the work performance needs to be considered essential. According to Enshassi et al (2012), if the issues on work execution were addressed and monitored carefully, the relationships between the main contractor and sub-contractor can be strengthened and lead to less interaction among them. This is supported by Lagiman (2017) mentioned in order to prevent the delay of existing and potential future projects, the main contractor should carefully monitor all construction activity, focusing on the sub-contractor's progress.

Conclusion

The objective for this research paper had been achieved by rank of mean for each an appropriate practice listed. Thus, this can be concluded that most recommended an appropriate practice to maintain smooth relationships among main contractor and subcontractor were select the subcontractor from past experience and reputation, prepare a detail plan and schedule for each stage in early, payment allocation on-time for work done progress, consider and plan the financial expenses carefully and make a daily monitor to subcontractor work progress. The result was consistent with the previous study that the subcontractor selection process is crucial because the type and atmosphere of the contractor and subcontractor relationship vary from project to project, and it is essential for contractors to maintain a good performance and reputation for their work (Rahman et al., 2013). Followed by prepare a detail plan and schedule for each stage in early should more precise the main contractor's effort in preparing each phase of the project, especially the specific activities of each subcontractor (Enshassi et al., 2012). In addition, the previous study had highlighted that financial management by main contractor and subcontractor is an essential pier in establishing a good relationship between contractors (Rahman et al., 2013; Enshassi et al., 2012). The outcomes of this research expected to provide valuable references for local main contractors to have a better understanding of their relationships with subcontractors in order to improve the performance of construction projects. Generally, overall results of benefits in this research had received satisfying feedback where most of the respondents agreed on the practices to maintain smooth relationships among main contractor and subcontractor listed in this research. The practices findings of this research also have been supported from the previous literature review. With the results obtained in this study, the valuable references provided for local main contractors to have a better understanding of their relationship with subcontractors, leading to development of partnering relationships with various subcontractors based on win-win principles. The significance of the study to the Malaysian construction industry are:

- To help the main contractors in the Malaysian construction industry established a good relationship based on mutual trust and respect with various subcontractors who are responsible for finishing most of the construction work on site for project success.
- To assist in developing different relationships with different subcontractors
- To establish more knowledge in obtaining optimum number of cooperating subcontractors based on win-win principles to benefit both parties in construction practice.

References

- Abdullah, N. A. (2019). Basics of construction contracts: PAM, CIDB, PWD and FIDIC standard forms. Shah Alam, Selangor: UiTM Press.
- Abdul-Rahman, H., Takim, R., & Min, W. S. (2009). Financial-related causes contributing to project delays. *Journal of Retail & Leisure Property*, 8(3), 225-238.
- Adeyekun, A. J. (2019). An assessment of poor communication between the contractor and subcontractor. International Conference on Architecture and Civil Engineering, Department of Civil Engineering, Jagannath University, Delhi-NCR, India.
- Ahmad, K. (2011). Construction economics. Petaling Jaya, Selangor: Pearson Malaysia.
- Akintan, O. A., & Morledge, R. (2013). Improving the collaboration between main contractors and subcontractors within traditional construction procurement. *Journal of Construction Engineering*, 1-11.
- Chen, Y., Okudan, G. E., & Riley, D. R. (2010). Sustainable performance criteria for construction method selection in concrete buildings. *Automation in Construction*, 19(2), 235-244.
- Danso, H. (2014). Poor workmanship and lack of plant or equipment problems in the construction industry in Kumasi, Ghana. *International Journal of Management Research*, 2(3), 60-70.
- Enshassi, A., Arain, F., & Tayeh, B. (2012). Major causes of problems between contractors and subcontractors in the Gaza Strip. *Journal of Financial Management of Property and Construction*, 17(1), 92-112.
- Hoezen, M. E. L., Reymen, I. M. M. J., & Dewulf, G. P. M. R. (2006). The problem of communication in construction. CIB W96 Adaptable Conference, University of Twente.
- Kusuma, B., Soemardi, B. W., Pribadi, K. S., & Yuliar, S. (2012). Indonesian contractor technological learning mechanism and its consideration. *IOP Conference Series: Materials Science and Engineering*, 6(1), 012001.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610.
- Lagiman, S. (2017). *Improvement of relationship between main contractor and subcontractor for successful construction project implementation* (Degree Thesis, Universiti Tun Hussein Onn, Batu Pahat, Malaysia).
- McDermott, P., Khalfan, M., & Swan, W. I. L. L. (2005). Trust in construction projects. *Journal of Financial Management of Property and Construction*.
- Memon, A. H., Abdul Rahman, I., & Abdul Azis, A. A. (2011). Preliminary study on causative factors leading to construction cost overrun. *International Journal of Sustainable Construction Engineering and Technology*, 2(1), 57-71.
- Mirawati, N. A., Othman, S. N., & Risyawati, M. I. (2015). Supplier-Contractor partnering impact on construction performance: A study on Malaysian construction industry. *Journal of Economics, Business and Management*, 3(1), 29-33.
- Morkunaite, Z., Bausys, R., & Zavadskas, K. E. (2019). Contractor selection for Sgraffito decoration of cultural heritage building using the WASPAS-SVNS method. *Sustainability Journal*, 11(22), 6444.
- Mudzvokorwa, T., Mwiya, B., & Mwnanaumo, E. M. (2020). Improving the contractor and subcontractor relationship through partnering on construction projects in Zambia. *Journal of Construction Engineering and Project Management*, 10(1), 1-15.
- Priyadarshani, K., Karunasena, G., & Jayasuria, S. (2013). Construction safety assessment framework for developing countries: A case study of Sri Lanka. *Journal of Construction in Developing Countries*, 18(1), 33-51.

- Rahman, S. A. H., Endut, I. R., Faisal, N., & Paydar, Soleyman. (2014). The importance of collaboration in construction industry from contractors' perspectives. *Procedia-Social and Behavioral Sciences*, 129, 414-421.
- Rahman, S. A. H., Endut, I. R., & Faisal, N. (2013). Current challenges towards successful relationship between main contractor and subcontractor. 2013 IEEE Business Engineering and Industrial Applications Colloquium (BEIAC), 489-493.
- Sonmez, M., Yang, J. B., & Holt, G. D. (2001). Addressing the contractor selection problem using an evidential reasoning approach. *Engineering, Construction and Architectural Management*, 8(3), 198-210.
- Shivanthi, B. K. C., Devapriya, K. A. K., & Pandithawatta, T. P. W. S. I. (2019). Disputes between main contractor and subcontractor: Causes and preventions. 8th World Construction Symposium.
- Tan, Y., & Xue, B. (2017). Relationships between main contractors and subcontractors and their impacts on main contractor competitiveness: An empirical study in Hong Kong. *Journal of Construction Engineering Management*, 143(7), 05017007-1-05017007-11.
- Tayeh, B. A. (2009). The Relationship Between Contractors and Their Subcontractors in Gaza Strip (Master Thesis, The Islamic University of Gaza-Palestine).
- Teo, E. A. L., Ling, F. Y. Y., & Ong, D. S. Y. (2005). Fostering safe work behaviour in workers at construction sites. *Engineering, Construction and Architectural Management*, 12(4), 410-422.
- Thomas, H. R., & Flynn, C. J. (2011). Fundamental principles of subcontractor management. *Practice Periodical on Structural Design and Construction*, 16(3), 106-111.
- White, H., & Marasini, R. (2014). Management of interface between main contractor and subcontractors for successful project outcomes. *Journal of Engineering, Project, and Production Management*, 4(1), 36-50.
- Wood, G. D., & Ellis, R. C. (2005). Main contractor experiences of partnering relationships on UK construction projects. *Construction Management and Economics*, 23(3), 317-325.
- Ye, K. M., & Rahman, H. A. (2010). Risk of late payment in the Malaysian construction industry. *International Journal of Mechanical and Industrial Engineering*, 4(5), 503-511.